Financial Report 2018

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Selected Financial Data

Syngenta has prepared the consolidated financial statements in US dollars ($) and in accordance with International Financial Reporting Standards as issued by the International Accounting Standards Board (IFRS). Financial figures are presented in millions of dollars ($m) except where otherwise stated. The basis of preparation of the consolidated financial statements and the key accounting policies are discussed in Note 1 and in Notes 2 and 27, respectively, to the consolidated financial statements.

The selected financial highlights information in accordance with IFRS presented below has been extracted from the consolidated financial statements of Syngenta. Investors should read the entire consolidated financial statements and not rely on the summarized information. The information includes the results of operations and the net assets of Società Produttori Sementi S.p.A. from April 4, 2014, Lantmännen SW Seed Hadmersleben GmbH, Lantmännen SW Seeds GmbH and SW Winter Oilseed AB from July 21, 2014, Land.db Enterprises Inc. from October 15, 2015, FarmShots, Inc. from February 1, 2018, Nidera Seeds Holdings B.V. from February 6, 2018, Abbot & Cobb from March 30, 2018, Strider Desenvolvimento de Software Ltda from April 30, 2018 and Icepage Limited from July 26, 2018.

Financial highlights

	Year ended December 31,				
($m, except where otherwise stated)	**2018**	2017	2016	2015	2014
Amounts in accordance with IFRS					
Income statement data:					
Sales	**13,523**	12,649	12,790	13,411	15,134
Cost of goods sold	**(7,288)**	(6,491)	(6,507)	(7,042)	(8,192)
Gross profit	**6,235**	6,158	6,283	6,369	6,942
Operating expenses	**(4,167)**	(6,104)	(4,636)	(4,528)	(4,837)
Operating income	**2,068**	54	1,647	1,841	2,105
Income/(loss) before taxes	**1,717**	(116)	1,361	1,592	1,895
Net income/(loss)	**1,442**	(96)	1,181	1,344	1,622
Net income/(loss) attributable to Syngenta AG shareholders	**1,438**	(98)	1,178	1,339	1,619
Cash flow data:					
Cash flow from operating activities	**1,367**	1,839	1,807	1,190	1,931
Cash flow used for investing activities	**(1,641)**	(577)	(521)	(462)	(729)
Cash flow from (used for) financing activities	**(350)**	(303)	(1,134)	(1,188)	(420)
Capital expenditure on tangible fixed assets	**(448)**	(394)	(425)	(453)	(600)
Balance sheet data:					
Current assets less current liabilities	**3,789**	5,341	5,089	5,537	4,858
Total assets	**21,250**	20,333	19,068	18,977	19,929
Total non-current liabilities	**(9,093)**	(5,615)	(4,830)	(4,896)	(4,317)
Total liabilities	**(17,048)**	(12,333)	(11,097)	(10,557)	(11,024)
Share capital	**(6)**	(6)	(6)	(6)	(6)
Total shareholders' equity	**(4,176)**	(7,976)	(7,950)	(8,401)	(8,889)

All activities were in respect of continuing operations.

Introduction

The following discussion includes forward-looking statements subject to risks and uncertainty. See "Forward-looking statements" at the end of this document. This discussion also includes non-GAAP financial data in addition to GAAP results. See Appendix A to this section for a reconciliation of this data and explanation of the reasons for presenting such data.

Constant exchange rates

Approximately 45 percent of Syngenta's sales and 67 percent of Syngenta's costs in 2018 were denominated in currencies other than US dollars. Therefore, Syngenta's results for the period covered by the review were significantly impacted by movements in exchange rates. Sales in 2018 were 7 percent higher than 2017 on a reported basis, 9 percent higher when calculated at constant rates of exchange. The Company therefore provides analysis of results calculated at constant exchange rates ("CER") and also actual results to allow an assessment of performance before and after taking account of currency fluctuations. To present CER information, current period results for entities reporting in currencies other than US dollars are converted into US dollars at the prior period's exchange rates, rather than the exchange rates for this year. An example of this calculation is included in Appendix A of this section.

Overview

Syngenta is a world leading agribusiness operating in the crop protection, seeds, controls and flowers markets. Crop protection chemicals include herbicides, insecticides, fungicides and seed treatments to control weeds, insects and diseases in crops, and are essential inputs enabling growers around the world to improve agricultural productivity and food quality. In Seeds, Syngenta operates in the high value commercial sectors of field crops (including corn, oilseeds, and cereals) and vegetables. The controls business provides turf and landscape and professional pest management products, and the flowers business provides flower seeds, cuttings and young plants to professional growers and consumers.

Syngenta's results are affected, both positively and negatively, by, among other factors: general economic conditions; weather conditions, which can influence the demand for certain products over the course of a season and the quantity and cost of seeds supply; commodity crop prices; and exchange rate fluctuations. Government measures, such as subsidies or rules regulating the use of agricultural products, genetically modified seeds, or areas allowed to be planted with certain crops, also can have an impact on Syngenta's industry. Syngenta's results are also affected by the growing importance of biotechnology to agriculture and the use of genetically modified crops. In future years, climate change may have both positive and negative impacts on Syngenta's results. Climate change may make growing certain crops more or less viable in different geographic areas, but is not likely to reduce overall demand for food and feed. Syngenta currently sells and is developing products to improve the water productivity of plants and increase tolerance to drought and heat. Legislation may be enacted in the future that limits carbon dioxide emissions in the manufacture of Syngenta's products or increases the costs associated with such emissions. Syngenta works actively to make its production operations more energy efficient and to reduce the rate of carbon dioxide emissions per unit of sales revenue.

Syngenta operates globally to capitalize on its technology and marketing base. Syngenta's largest market in 2018 was Europe, Africa and the Middle East, which represented approximately 31 percent of consolidated sales (2017: 33 percent) followed by Latin America at 27 percent (2017: 23 percent), North America at 27 percent (2017: 29 percent), and Asia Pacific at 15 percent (2017: 15 percent). Markets for agricultural products in Europe, Africa and the Middle East and North America are seasonal resulting in both sales and operating profit for Syngenta in these markets being weighted towards the first half of the calendar year, which largely reflects the northern hemisphere planting and growing cycle. Latin America has its main selling season in the second half of the year due to its location in the southern hemisphere. Asia Pacific sales and operating profit are more uniform throughout the year.

Syngenta's most significant manufacturing and research and development sites are located in Switzerland, the United Kingdom ("UK"), the United States of America ("USA" or "US") and China. Syngenta has major research centers focused on identifying new active ingredients in Stein, Switzerland and Jealott's Hill, UK. Syngenta's primary center for agricultural genomics and biotechnology research is in the USA.

References in this document to market share estimates are based where possible on global agrochemical and biotechnology industry information provided by a third party or on information published by major competitors and are supplemented by Syngenta marketing staff estimates.

The consolidated financial statements are presented in US dollars, as this is the major currency in which revenues are denominated. However, significant, but differing proportions of Syngenta's revenues, costs, assets and liabilities are denominated in currencies other than US dollars. Approximately 15 percent of sales in 2018 were denominated in Euros, while a significant proportion of costs for research and development, administration, general overhead and manufacturing were denominated in Swiss francs and British pounds sterling (approximately 16 percent in total). Sales in Swiss francs and British pounds sterling together made up approximately 2 percent of total sales. Marketing and distribution costs are more closely linked to the currency split of the sales. As a result, operating profit in US dollars can be significantly affected by movements in exchange rates, in particular movements of the Swiss franc, British pound sterling, Euro and Brazilian real, relative to the US dollar, and the relative impact on operating profit may differ from that on sales. Sales in emerging markets are over 50 percent of Syngenta's total sales. Where it is not commercially disadvantageous, Syngenta sets sales prices in these markets in US dollars, particularly in parts of Latin America and the CIS. However, in many emerging territories Syngenta sells in the local currency of the countries in the territory and as a result has a long exposure to multiple emerging market currencies. The effects of currency fluctuations within any one year have been reduced by risk management strategies such as hedging and the aforementioned US dollar sales pricing. For further information on these strategies please refer to Note 25 of the consolidated financial statements.

The consolidated financial statements are based upon Syngenta's accounting policies and, where necessary, the results of management estimations. Syngenta believes that the critical accounting policies and estimations underpinning the financial statements are in the areas of (i) royalty and license income, (ii) impairment, (iii) acquisition accounting, (iv) adjustments to revenue and trade receivables, (v) deferred tax assets (vi) uncertain tax positions (vii) seeds inventory valuation and allowances, (viii) environmental provisions and (ix) defined benefit post-employment benefits. These policies are described in more detail in Notes 2 and 27 to the consolidated financial statements.

Summary of results

Net income in 2018 attributable to Syngenta's shareholder was $1,438 million. The net result in 2017 was a loss of $98 million due to the establishment in the year of provisions of $1,550 million to settle lawsuits related to the commercialization of Syngenta's AGRISURE VIPTERA® and DURACADE™ corn seed in the United States before import approval for these products from China had been received. Excluding these charges and the related tax effect, net income was $1,152 million. The net result in 2017 also reflected adverse impacts on the tax charge of $96 million arising from the US tax reform, particularly with regards to previously recognized deferred tax assets. The combined effect of these items reduced the reported net result by $1,344 million to the reported net loss of $98 million.

Sales in 2018 were 7 percent higher, 9 percent at constant exchange rates, with a 7 percent increase in sales volumes and a 2 percent increase in local currency sales prices. Sales volume growth was reduced by 2 percent as a result of the mandated divestments of Crop Protection products following the ChemChina acquisition and the 2017 divestment of the sugarbeet seeds business, but were increased by a similar amount following the acquisition of the Nidera seeds business. Currency movements reduced reported sales by 2 percent, with a stronger Euro more than offset by weakness in emerging market currencies, particularly the Brazilian real, though the impact in Brazil was mitigated by local currency sales price increases in Crop Protection products. Sales of Crop Protection products increased by 7 percent, 8 percent adjusted for the mandated divestments, with a strong recovery in Brazil where sales in 2017 were impacted by a high level of general industry inventories at distributors. Seeds sales were 6 percent higher than 2017, 10 percent adjusted for the sugarbeet divestment, driven by the Nidera acquisition, but with further growth in sunflower seed sales in Europe, growth in Vegetable seed sales and higher corn seed sales in ASEAN offsetting challenging market conditions in the Americas. Seeds sales in 2018 included income received under change of control clauses of approximately $100 million, while 2017 included royalty income both from the licensing of corn containing the MIR604 trait, subsequent to import approval of the trait in China, and from another change of control clause. Local currency sales prices were 2 percent higher in Crop Protection, largely due to the recovery of adverse currency impacts in Brazil. Local currency sales prices in Seeds were 1 percent higher.

Operating income as a percentage of sales was 15 percent in 2018. General and administrative expenses in 2017 included the establishment of provisions of $1,550 million to settle lawsuits related to the commercialization of Syngenta's AGRISURE VIPTERA® and DURACADE™ corn seed in the United States before import approval for these products from China had been received. Excluding this provision, operating income as a percentage of sales was 13 percent in 2017. Excluding also restructuring costs, the gains on the mandated anti-trust divestments and, from 2017, the incremental share based payment costs associated with the ChemChina Tender Offer, operating income as a percentage of sales decreased by 1 percentage point in 2018 compared with 2017 due to the impact of the divestments on gross profit, an increase in employee incentive costs totaling over $100 million from a low 2017 base, higher oil, logistics and raw material costs and adverse exchange impacts. Including the gains on the anti-trust divestments in 2018 and the incremental share based payment costs in 2017, Restructuring and impairment costs before related taxation were a net gain of $51 million in 2018 compared to a charge of $453 million in 2017. Currency exchange rate impacts increased operating income by approximately $249 million, including increased losses on related hedges in 2018 compared to 2017, but this was significantly offset by the higher local currency sales prices achieved in emerging markets.

Cash flow from operating activities was $472 million lower due mainly to payments totaling $450 million related to settlement of the US litigation noted above; excluding these payments, cash flow from operating activities was $22 million lower, including higher working capital outflows linked to the increased sales, particularly in Brazil the the final months of the year, and increased interest paid after the bond issuance and dividend in 2018. Cash flow used for investing activities in 2018 was $1,064 million higher than in 2017, with cash paid on business acquisitions of $1,375 million in 2018 (2017: $164 million) and increased purchases of financial assets, partially offset by the proceeds from the mandated anti-trust divestments and the partial sale and leaseback of Syngenta's Basel HQ. Cash flow used for financing activities was $47 million higher than in 2017. In 2018, $4.75 bilion of bonds of various maturities were issued, with a dividend of $4.71 billion subsequently paid to Syngenta's shareholder. In 2017 Syngenta paid only a special dividend of $470 million (CHF 5.00 per share) immediately prior to the first settlement of the ChemChina tender offer.

Sales of Crop Protection products were 7 percent higher, 10 percent higher at constant exchange rates and were 8 percent higher excluding the anti-trust divestments. Sales growth was driven by recovery and growth in Brazil and by new product growth in EAME and the US and was achieved despite key commodity crop prices and agricultural markets remaining subdued. Seeds sales grew 6 percent, 8 percent at constant exchange rates and were 10 percent higher adjusted for the 2017 divestment of the sugarbeet business. Volume growth was driven by the Nidera acquisition, but was supplemented by continued sunflower growth in East Europe, higher corn seed sales in East Europe and ASEAN and broad based growth in Vegetable seeds.

Sales of Flowers products were 7 percent higher, 2 percent at constant exchange rates.

Gross profit margin was approximately 3 percentage points lower including the reversal of purchase accounting inventory step ups on the Nidera acquisition; excluding this, gross profit margin was approximately 2 percentage points lower, with adverse impact from the mandated divestments and increased cost of goods sold in Crop Protection due a higher oil price, higher logistics costs and raw material supply constraints in China.

Marketing and distribution expenses excluding restructuring and impairment increased by 1 percent, 5 percent at constant exchange rates, with lower charges for doubtful receivables more than offset by higher staff incentive costs and inflation.

Total Research and development expense excluding restructuring was 3 percent higher than 2017, 4 percent at constant exchange rates, with higher incentives, cost inflation and increased activity offsetting productivity improvements. Expenditure on Crop Protection research and development was broadly flat, with productivity improvements re-invested in increased activity. Expenditure on Seeds was marginally higher following the acquisition of Nidera's seeds business. The basis of allocating Research and development costs to segments was revised in 2018, with the regional segments bearing the cost of development activities on sites in the regions except initial development costs of a new active ingredient or product, which are included in All other segments as part of global research and development activities.

General and administrative, including divestment gains and restructuring and impairment, the components of which are described under the Restructuring and impairment heading below, reduced by $1,957 million compared with 2017. General and administrative excluding the gains on the mandated divestment, restructuring and impairment and the provision for settlement of the Viptera litigation was $78 million higher than 2017, including foreign exchange hedging losses of $67 million compared with losses of $8 million in 2017. Excluding currency effects, General and administrative excluding restructuring and impairment was 6 percent higher, with productivity savings more than offset by higher staff incentives, inflation and gains reported in 2017 of approximately $89 million from changes to the defined benefit pension and other post-employment benefit plans in the USA and Switzerland.

Divestment gains in 2018 included $365 million related to the mandated Crop Protection product divestments. Other Restructuring and impairment expenses in 2018, including $33 million reported in cost of goods sold, were $314 million; expenses in 2017, including the $98 million incremental effect of applying cash-settled share based payment accounting due to the ChemChina acquisition, totaled $453 million. Cash costs under the productivity program ("AOL") reduced by $128 million, but impairment costs were higher including the $70 million impairment of an intangible asset.

Financial expense, net was $175 million higher than 2017. As noted above, bonds totaling $4.75 billion were issued in 2018, with the proceeds largely paid as a dividend to Syngenta's shareholder, largely driving the $214 million increase in interest expense; this was partly offset by lower currency losses, net. The tax rate was 16 percent, compared to 17 percent in 2017; excluding taxes related to restructuring and impairment, the tax rate reduced by 4 percentage points to 17 percent; US tax reform increased the 2017 tax rate by 5 percent due to an adverse impact on pre-existing deferred tax assets and the 2017 rate was increased by a further 2 percent due to the provision for settlement of the Viptera litigation.

Acquisitions, divestments and other significant transactions

2018

On February 1, 2018, Syngenta acquired 100% of the stock of FarmShots, Inc., a US-based innovator of high-resolution satellite imagery that detects plant health by analyzing absorbed light from field images. This platform with proprietary processing and multiple plant health index capabilities provides actionable insights normally acquired by walking through a farm and visually inspecting plants. It enables growers to reduce field scouting by as much as 90 percent and helps them focus on areas of need. The acquisition will enhance Syngenta's offer to growers.

On February 6, 2018, Syngenta completed the acquisition of the global seeds business of Nidera from Nidera B.V., a subsidiary of COFCO International Ltd., by acquiring 100% of the issued shares of Nidera Seeds Holding B.V.. The acquisition of Nidera Seeds will strengthen Syngenta's position in the Latin American seeds market and create value by leveraging Nidera's corn and soybean seed germplasm, strong research and development pipeline and broad footprint in Latin America.

On March 30, 2018, Syngenta purchased the business of Abbott & Cobb, a US-based privately owned global breeder and seller of proprietary hybrid vegetable seeds. The acquisition will strengthen Syngenta's sweet corn vegetable seeds business.

On April 30, 2018, Syngenta purchased 100% of the quotas of Strider Desenvolvimento de Software Ltda ("Strider"), a company incorporated in Brazil. Strider is an important participant in the Latin American digital agriculture market. Strider develops and markets technological tools and digital farm management solutions. The acquisition will enhance Syngenta's digital agriculture capability, and hence its offer to growers, in Latin America and globally.

On July 26, 2018 Syngenta acquired 100% of the shares of Icepage Limited, the holding company of Floranova, a respected UK based flower and home garden vegetable seeds breeder. The acquisition covers some important gaps in Syngenta's portfolio of flower seeds crops and enhances its flower business in fast growing Asian markets.

2017

On September 29, 2017, Syngenta completed the sale of its global Sugar Beet seeds business to DLF Seeds A/S (DLF) for a cash consideration of $49 million. The divestment of the Sugar Beet seeds business resulted in $47 million of asset impairment and divestment losses being incurred.

On November 6, 2017, Syngenta and COFCO International Ltd announced that Syngenta had entered into a binding agreement to acquire the global seeds business of Nidera, from Nidera B.V., a subsidiary of COFCO International Ltd.

As of March 23, 2016, CNAC Saturn (NL) B.V. ("the Offeror"), a subsidiary of ChemChina, launched public tender offers in Switzerland and the United States to acquire all the publicly held registered shares and, in the U.S. offer, also all American Depositary Shares (ADSs) of Syngenta AG ("the ChemChina Tender Offer") for $465 per registered share in cash. On May 10, 2017, it was announced that, as of the end of the Main Offer Period, 76,128,826 Syngenta AG registered shares (including those represented by ADSs), corresponding to 82.23% of the voting rights, had been tendered in the ChemChina Tender Offer and that the Offer had been successful. On May 31, 2017, it was further announced that, as of the end of the Additional Acceptance Period, the definitive end result of the ChemChina Tender Offer was that the Offeror's participation was 87,650,988 Syngenta AG registered shares (including those represented by ADSs), corresponding to 94.68% of the voting rights. On July 13, 2017, following the purchase of additional Syngenta shares, ChemChina announced that its participation in Syngenta AG had exceeded 98 percent of Syngenta's share capital. As a consequence, following filing of a petition by ChemChina, on December 18, 2017, Syngenta announced that the Appellate Court Basel-City had cancelled all publicly held registered shares of Syngenta AG. Holders of cancelled shares were paid a cash compensation in the amount of $465 for each cancelled share. Syngenta AG shares were delisted from SIX Swiss Exchange on January 8, 2018, with the last trading day being January 5, 2018. Syngenta ADSs were delisted from the New York Stock Exchange effective on January 18, 2018, with trading of the ADSs suspended prior to the market opening on January 8, 2018.

Restructuring programs

In February 2014, Syngenta announced the AOL restructuring program to drive further improvement in operating income margins and accelerate delivery of operational leverage. The program targets an improvement in profitability as a percentage of sales over the period up to 2018 from a reduction in the ratios of cost of goods sold, marketing and distribution, research and development and general and administrative expenses to sales. The program includes plans to further improve efficiency in customer facing operations, research and development and production and to enable an improvement in the ratio of trade working capital to sales. The cash cost of the restructuring program was forecast at approximately $900 million, including the costs of implementing new systems, but excluding related capital expenditures, and significant benefits began to be realized in 2015. During 2018, cash costs of $155 million were charged under the program (2017: $283 million) and cash spent was $174 million (2017: $277 million). Non-cash charges of $1 million were incurred to write down assets (2017: $1 million). Cumulative costs incurred for the program through December 31, 2018 total $929 million and cumulative spending totals $891 million.

Results of operations

2018 compared with 2017

Sales commentary

Syngenta's consolidated sales for 2018 were $13,523 million, compared with $12,649 million in 2017, a 7 percent increase year on year. At constant exchange rates sales increased by 9 percent. The analysis by segment is as follows:

($m, except change %)			Change				
Segment	**2018**	2017	Volume %	Local price %	CER %	Currency %	Actual %
Europe, Africa and Middle East	**3,877**	3,871	-3	-1	-4	+4	-
North America	**3,514**	3,487	+1	-1	-	+1	+1
Latin America	**3,646**	2,907	+32	+9	+41	-16	+25
Asia Pacific	**1,667**	1,642	+2	+2	+4	-2	+2
China	**319**	300	+5	-2	+3	+3	+6
Other	**300**	256	n/a	n/a	n/a	n/a	n/a
Total	**13,323**	12,463	+7	+2	+9	-2	+7
Flowers	**200**	186	+2	-	+2	+5	+7
Group sales	**13,523**	12,649	+7	+2	+9	-2	+7

Europe, Africa and Middle East
Sales in Europe, Africa and the Middle East were flat against 2017 but 7 percent higher adjusting for the 2017 divestment and despite a challenging market environment. The start of the season was delayed across most of Europe affecting fungicide sales and then severe drought in the summer slowed momentum. Good sales growth in Seedcare, strong new product sales of SDHI chemistry including ELATUS™ and sunflower seed sales in Eastern Europe helped to offset the early season impacts.

North America
In North America, Crop Protection sales were up 2 percent against 2017, driven by new product sales including TRIVAPRO™. Grower and channel partner adoption of digital solutions including AGRIEDGE EXCELSIOR® has continued to strengthen. Seeds sales were 3 percent lower as a result of softer demand across the sector with fewer corn and soy acres planted. Vegetable seeds volumes and prices were higher.

Latin America
In **Latin America,** sales volumes in crop protection rebounded to more normal levels after a difficult year in 2017. Crop Protection sales in 2018 were 20 percent higher than in 2017, while seeds sales rose by 55 percent following the acquisition of Nidera™. Improved channel inventory management and new product introductions including PROCLAIM® in Brazil and ORONDIS® in Mexico provided an excellent growth foundation. Increased acres of soy and cotton helped drive greater demand.

Asia Pacific
In Asia Pacific, recovery in South Asia helped lead an overall sales improvement for the region of 2 percent within which, crop protection sales increased by 1 percent and seeds sales increased by 6 percent, including volume and local currency price growth in Vegetable seeds in South Asia.

China
Sales in China continued to grow as farmers shift to higher value products with crop protection sales increasing by 7 percent and from a small base, seeds sales increasing by 2 percent compared to 2017.

Flowers: major brands GOLDSMITH® SEEDS, YODER®, SYNGENTA® FLOWER
Sales increased by 7 percent, 2 percent at constant exchange rates, driven by increased sales volumes.

Sales by product line are set out below:

($m, except change %)			Change				
Product line	**2018**	2017	Volume %	Local price %	CER %	Currency %	Actual %
Selective herbicides	**2,821**	2,720	+4	-	+4	-	+4
Non-selective herbicides	**857**	791	+2	+14	+16	-8	+8
Fungicides	**3,117**	2,896	+9	-	+9	-1	+8
Insecticides	**1,895**	1,632	+20	+4	+24	-8	+16
Seedcare	**1,129**	1,055	+10	+1	+11	-4	+7
Controls	**504**	495	+4	-2	+2	-	+2
Other crop protection	**90**	150	-41	+4	-37	-3	-40
Total Crop Protection	**10,413**	9,739	+8	+2	+10	-3	+7
Corn and soybean	**1,693**	1,503	+16	-	+16	-3	+13
Diverse field crops	**659**	701	-10	+3	-7	+1	-6
Vegetables	**652**	622	+1	+4	+5	-	+5
Total Seeds	**3,004**	2,826	+7	+1	+8	-2	+6
Elimination*	**(94)**	(102)	n/a	n/a	n/a	n/a	n/a
Total	**13,323**	12,463	+7	+2	+9	-2	+7
Flowers	**200**	186	+2	-	+2	+5	+7
Group sales	**13,523**	12,649	+7	+2	+9	-2	+7

* Crop Protection sales to Seeds

Crop Protection

Selective herbicides: major brands ACURON®, AXIAL®, CALLISTO® family, DUAL MAGNUM®, BICEP II MAGNUM™, FUSILADE® MAX, FLEX®, TOPIK®

Sales increased by 4 percent, also at constant exchange rates, with a recovery in sales volumes in both Brazil and South Asia following reduced sales to distributors in 2017. This was partly offset by lower sales volumes in EAME, after the difficult spring weather, and Latin America North.

Non-selective herbicides: major brands GRAMOXONE®, TOUCHDOWN®

Sales increased by 8 percent, 16 percent at constant exchange rates, with volume recovery and local currency price increases in Brazil to offset weakness in the Brazilian real, partly offset by weaker volumes in the East Europe and ASEAN.

Fungicides: major brands ALTO®, AMISTAR®, BONTIMA®, BRAVO®, ELATUS™, MIRAVIS™ (based on ADEPIDYN™ fungicide) , MODDUS®, REVUS®, RIDOMIL GOLD ®, SCORE®, SEGURIS®, UNIX®

Fungicide sales increased by 8 percent, 9 percent at constant exchange rates; excluding the mandated anti-trust divestments, sales were 10 percent higher. Sales volume growth was driven by the recovery in Brazil and by new product growth in the US and Europe. Local currency sales price increases in Brazil mitigated the adverse exchange rate impact.

Insecticides: major brands ACTARA®, DURIVO®, FORCE®, KARATE®, PROCLAIM®, VERTIMEC®

Sales were 16 percent higher, 24 percent at constant exchange rates and were 18 percent higher adjusted for divestments. Sales volume growth was driven by the recovery in Brazil and South Asia, with local currency sales price increases in Brazil significantly reducing the impact of the weaker real.

Seedcare: major brands AVICTA®, CRUISER®, DIVIDEND®, CELEST®/MAXIM®, VIBRANCE™

Seedcare sales were 7 percent higher, 11 percent higher at constant exchange rates, with double digit sales volume growth driven by Brazil, EAME and Canada.

Seeds

Corn and soybean: major brands AGRISURE™, GOLDEN HARVEST®, NK®

Sales increased by 13 percent, 16 percent at constant exchange rates, due to higher volumes. Sales growth was driven by the Nidera™ acquisition in Latin America. Otherwise higher sales in East Europe and ASEAN were offset by a reduced market size in the Americas. While 2018 licensing income included approximately $100 million related to a change of control clause, income was lower than 2017, which included both royalties from China DURACADE™ import approval and income related to a change of control.

Diverse field crops: major brands NK® oilseeds

Sales reduced by 6 percent, 7 percent at constant exchange rates; excluding the 2017 divestment of the sugar beet business, sales were 9 percent higher. Excluding the divestment, sales growth reflected continued positive momentum in sunflower seed sales in East Europe, supplemented by higher local currency prices and higher sales in Argentina.

Vegetables: major brands ROGERS™, S&G®

Vegetables sales increased by 5 percent, also at constant exchange rates. Sales growth reflected increased focus in India, where volumes and prices were higher and solid growth in China. Growth in the US was supplemented by the Abbott & Cobb acquisition. Sales in EAME were marginally higher at constant exchange rates, but with higher prices partially offset by some reduction in volume.

Operating income

Variances in the tables below reflect the profit impact of changes year on year. For example, an increase of sales or a decrease in costs is a positive variance and a decrease in sales or increase in costs is a negative variance.

Group Operating Income	Total as reported under IFRS		Change		Restructuring and impairment		Before restructuring and impairment[1]		Change before restructuring and impairment[1]	
($m, except change %)	**2018**	2017	**Actual %**	CER %	**2018**	2017	**2018**	2017	Actual %	CER %
Sales	**13,523**	12,649	**7%**	9%	**-**	-	**13,523**	12,649	**7%**	9%
Cost of goods sold	**(7,288)**	(6,491)	**-12%**	-12%	**(33)**	(9)	**(7,255)**	(6,482)	**-12%**	-12%
Gross profit	**6,235**	6,158	**1%**	6%	**(33)**	(9)	**6,268**	6,167	**2%**	6%
as a percentage of sales	**46%**	49%					**46%**	49%		
Marketing and distribution	**(2,190)**	(2,197)	**-**	-3%	**-**	(31)	**(2,190)**	(2,166)	**-1%**	-5%
Research and development	**(1,300)**	(1,273)	**-2%**	-3%	**-**	(12)	**(1,300)**	(1,261)	**-3%**	-4%
General and administrative	**(677)**	(2,634)	**74%**	76%	**84**	(401)	**(761)**	(2,233)	**66%**	68%
Operating income	**2,068**	54	**3728%**	4190%	**51**	(453)	**2,017**	507	**298%**	347%
as a percentage of sales	**15%**	0%					**15%**	4%		

In 2018, Syngenta adopted revisions to its segment reporting to reflect changes in management structure, which followed on from the completion of the takeover by ChemChina and the announcement of Syngenta's new ambitions and priorities during 2017. There are six operating segments consisting of five geographic regions, which include the Crop Protection, Seeds and Controls businesses, and the global Flowers business.

All other segments consists of:

- the Flowers business, which is managed separately, but is not material enough to report separately;
- sales and costs that are incidental to the commercial strategies
- costs not directly attributable to an operating segment, including global marketing and research and development teams, corporate headquarter functions and some centrally provided support services in the finance, information systems, human resources and procurement areas

The segment information for the year ended December 31, 2017 has been restated in accordance with the new management structure.

Operating Income/(Loss)

($m, except change %)	**2018**	2017	Change %
Europe, Africa and Middle East	**1,051**	1,086	-3%
North America	**797**	(728)	210%
Latin America	**730**	469	56%
Asia Pacific	**535**	530	1%
All other segments	**(1,045)**	(1,303)	20%
Group	**2,068**	54	3728%

The two tables above do not represent income statements prepared under IFRS. Please refer to the information reported in the consolidated financial statements.

1 Amounts before restructuring and impairment are non-GAAP measures. Please refer to Appendix A of the Operating and Financial Review for a more detailed description.

Overall Group operating income

Operating income in 2017 included a provision of $1,550 million for settlement of litigation in relation to commercializing the MIR162 trait before import approval for corn containing that trait had been received in China. Excluding that provision, operating income was $1,604 million. Operating income in 2018 was 29 percent higher at $2,068 million including $365 million gains on the mandated crop protection product divestment and a lower level of restructuring charges. Including the divestment gains, restructuring was a net income of $51 million in 2018 compared to a charge of $453 million in 2017. Excluding restructuring and the 2017 litigation provision, operating income in 2018 was $2,017 million, compared to $2,057 million in 2017. The divestments of the sugar beet business in 2017 and the mandated crop protection products in 2018 reduced 2018 operating income by $90 million compared to 2017. Otherwise, operating income growth was 3 percent, with strong sales growth, a lower percentage gross profit margin after increases in oil and raw material costs in Crop Protection and an increase in General and administrative, reflecting a higher level of staff incentives in 2018 and gains on defined benefit pension plans in the US and Switzerland recorded in 2017.

For further discussion on Group operating income, see Summary of results above.

Operating income by segment

Europe, Africa and Middle East	**Total as reported under IFRS**		**Change**		**Restructuring and impairment**		**Before restructuring and impairment[1]**		**Change before restructuring and impairment[1]**	
($m, except change %)	**2018**	2017	**Actual %**	CER %	**2018**	2017	**2018**	2017	Actual %	CER %
Sales	**3,877**	3,871	**-**	-4%	**-**	-	**3,877**	3,871	**-**	-4%
Cost of goods sold	**(1,850)**	(1,799)	**-3%**	2%	**(1)**	-	**(1,849)**	(1,799)	**-3%**	2%
Gross profit	**2,027**	2,072	**-2%**	-6%	**(1)**	-	**2,028**	2,072	**-2%**	-6%
as a percentage of sales	**52%**	54%					**52%**	54%		
Marketing and distribution	**(607)**	(602)	**-1%**	1%	**-**	(11)	**(607)**	(591)	**-3%**	-1%
Research and development	**(161)**	(80)	**-100%**	-95%	**-**	-	**(161)**	(80)	**-100%**	-95%
General and administrative	**(208)**	(304)	**31%**	32%	**(79)**	(156)	**(129)**	(148)	**13%**	13%
Operating income	**1,051**	1,086	**-3%**	-8%	**(80)**	(167)	**1,131**	1,253	**-10%**	-14%
as a percentage of sales	**27%**	28%					**29%**	32%		

This table does not represent an income statement prepared under IFRS. Please refer to the segmental information reported in Note 4 to the consolidated financial statements.
1 Amounts before restructuring and impairment are non-GAAP measures. Please refer to Appendix A of the Operating and Financial Review for a more detailed description.

Reported sales in Europe, Africa and Middle East were flat with 2017, 4 percent lower at constant exchange rates with sales volumes 3 percent lower and local currency prices averaging 1 percent lower. See the Sales commentary section above for further information on sales in the region.

Gross profit margin was 2 percentage points lower due to higher seeds product costs and increased oil and raw material costs in Crop Protection.

Marketing and distribution costs, excluding restructuring and impairment, were 3 percent higher, 1 percent at constant exchange rates, with productivity savings offset by inflation and an increased charge for doubtful receivables in East Europe.

Research and development costs allocated to the region doubled, with a revised charging basis under which the region bears the cost of development activities on sites in the region except initial development costs of a new active ingredient, where costs are included in All other segments as part of global research and development activities.

General and administrative was 31 percent lower including reduced restructuring charges. Excluding restructuring and impairment, General and administrative was 13 percent lower, also at constant exchange rates with productivity savings in the region and savings and a reduced allocation in global support functions.

Restructuring and impairment charges were $80 million in 2018 compared with $167 million in 2017. Charges in 2018 were for AOL productivity projects, including simplifying the layers of management, restructuring the marketing organizations and the relocation of certain support activities to lower cost countries. Charges in 2017 included $124 million related to progressing the AOL productivity restructuring program, $23 million of write downs and impairments associated with the divestment of a seeds crop and $12 million of share based payment charges related to the ChemChina Tender Offer.

North America	**Total as reported under IFRS**		**Change**		**Restructuring and impairment**		**Before restructuring and impairment[1]**		**Change before restructuring and impairment[1]**	
($m, except change %)	**2018**	2017	**Actual %**	CER %	**2018**	2017	**2018**	2017	Actual %	CER %
Sales	**3,514**	3,487	**1%**	-	**-**	-	**3,514**	3,487	**1%**	-
Cost of goods sold	**(1,855)**	(1,793)	**-3%**	-2%	**(1)**	(2)	**(1,854)**	(1,791)	**-3%**	-2%
Gross profit	**1,659**	1,694	**-2%**	-1%	**(1)**	(2)	**1,660**	1,696	**-2%**	-1%
as a percentage of sales	**47%**	49%					**47%**	49%		
Marketing and distribution	**(624)**	(573)	**-9%**	-9%	**-**	(9)	**(624)**	(564)	**-11%**	-11%
Research and development	**(146)**	(138)	**-6%**	-6%	**-**	-	**(146)**	(138)	**-6%**	-6%
General and administrative	**(92)**	(1,711)	**95%**	95%	**(17)**	(41)	**(75)**	(1,670)	**96%**	95%
Operating income	**797**	(728)	**210%**	211%	**(18)**	(52)	**815**	(676)	**221%**	222%
as a percentage of sales	**23%**	(21)%					**23%**	(19)%		

This table does not represent an income statement prepared under IFRS. Please refer to the segmental information reported in Note 4 to the consolidated financial statements.
1 Amounts before restructuring and impairment are non-GAAP measures. Please refer to Appendix A of the Operating and Financial Review for a more detailed description.

Sales were 1 percent higher in US dollars, flat at constant exchange rates, with sales volumes 1 percent higher and 1 percent lower local currency sales prices. See the Sales commentary section above for further information on sales in the region.

Gross profit margin was 2 percentage points lower in 2018, with lower royalty income and increased costs for inventory provisions and write-offs in Seeds and increased oil and raw material costs in Crop Protection.

Marketing and distribution costs excluding restructuring and impairment were 11 percent higher in US dollars and at constant exchange rates, with increased distribution costs in Crop Protection and increased resource in Seeds to drive market share growth.

Research and development expense was 6 percent higher, with a revised charging basis under which the region bears the cost of development activities on sites in the region except initial development costs of a new active ingredient, where costs are included in All other segments as part of global research and development activities.

General and administrative excluding restructuring and impairment in 2017 included $1,550 million associated with the settlement of litigation relating to the sale of seeds including the MIR162 trait; excluding this, General and administrative was $120 million in 2017 and 2018 expense 37 percent lower, including a significant reduction in legal expenses following the settlement.

Restructuring and impairment costs were $18 million in 2018 and mainly related to AOL productivity projects. Costs in 2017 were $52 million and included $40 million from AOL projects, $8 million of inventory write downs and impairments associated with the divestment of a Seed crop and $13 million of share based payment charges related to the ChemChina Tender Offer and were net of the gain from divesting various Crop Protection products as part of the anti-trust clearance of the ChemChina acquisition of Syngenta.

Latin America	**Total as reported under IFRS**		**Change**		**Restructuring and impairment**		**Before restructuring and impairment[1]**		**Change before restructuring and impairment[1]**	
($m, except change %)	**2018**	2017	**Actual %**	CER %	**2018**	2017	**2018**	2017	Actual %	CER %
Sales	**3,646**	2,907	**25%**	41%	**-**	-	**3,646**	2,907	**25%**	41%
Cost of goods sold	**(2,158)**	(1,665)	**-30%**	-39%	**(31)**	(1)	**(2,127)**	(1,664)	**-28%**	-37%
Gross profit	**1,488**	1,242	**20%**	43%	**(31)**	(1)	**1,519**	1,243	**22%**	46%
as a percentage of sales	**41%**	43%					**42%**	43%		
Marketing and distribution	**(511)**	(603)	**15%**	1%	**-**	(5)	**(511)**	(598)	**14%**	-
Research and development	**(96)**	(62)	**-56%**	-81%	**-**	-	**(96)**	(62)	**-56%**	-81%
General and administrative	**(151)**	(108)	**-39%**	-50%	**(51)**	(49)	**(100)**	(59)	**-68%**	-83%
Operating income	**730**	469	**56%**	93%	**(82)**	(55)	**812**	524	**55%**	89%
as a percentage of sales	**20%**	16%					**22%**	18%		

This table does not represent an income statement prepared under IFRS. Please refer to the segmental information reported in Note 4 to the consolidated financial statements.

1 Amounts before restructuring and impairment are non-GAAP measures. Please refer to Appendix A of the Operating and Financial Review for a more detailed description.

Sales increased by 25 percent, 41 percent at constant exchange rates with 32 percent higher sales volumes and 9 percent higher local currency sales prices. Sales volumes of Crop Protection products in Brazil reflected a strong recovery from 2017, when sales had been impacted by high inventories in the distribution channel, due to two years of adverse weather, which reduced sales broadly across the industry. Sales in 2018 were closer to consumption. Seeds sales in 2018 included $315 million from the Nidera seeds acquisition. See the Sales commentary section above for further information on sales in the region.

Gross profit margin reduced by approximately 2 percentage points, 1 percent lower excluding the impact of the inventory step up under the purchase accounting of Nidera seeds reported within restructuring, with a lower gross profit margin in the acquired Nidera seeds business and increased oil and raw material costs in Crop Protection.

Marketing and distribution costs excluding restructuring and impairment were 14 percent lower than 2017, flat at constant exchange rates, with a reduced charge to provisions for doubtful receivables in Brazil after strong collections and compared to a high 2017 base and the benefit of cost cutting actions taken in the second half of 2017, offsetting general salary and cost inflation and the costs of the acquired Nidera seeds business.

Research and development costs allocated to the region increased by 56 percent, 81 percent at constant exchange rates. Costs were allocated in 2018 on a revised charging basis under which the region bears the cost of development activities on sites in the region except initial development costs of a new active ingredient, where costs are included in All other segments as part of global research and development activities. Costs in 2018 also included the Nidera seeds business.

General and administrative excluding restructuring and impairment was 68 percent higher than 2017, 83 percent higher at constant exchange rates due to the costs of the acquired Nidera seeds business including related amortisation.

Restructuring and impairment charges were $82 million in 2018 and included $30 million for the reversal of inventory step ups, $24 million of provision for indirect tax exposures and approximately $5 million of integration costs from the Nidera acquisition. Other charges in 2018 were for AOL projects. Charges in 2017 were $55 million including $43 million for AOL productivity restructuring projects, including completion of the project to establish an integrated system platform and restructuring of the management and commercial teams in Brazil, and $10 million of share based payment charges related to the ChemChina acquisition.

Asia Pacific	Total as reported under IFRS		Change		Restructuring and impairment		Before restructuring and impairment[1]		Change before restructuring and impairment[1]	
($m, except change %)	2018	2017	Actual %	CER %	2018	2017	2018	2017	Actual %	CER %
Sales	**1,986**	1,942	**2%**	4%	**-**	-	**1,986**	1,942	**2%**	4%
Cost of goods sold	**(1,019)**	(986)	**-3%**	-3%	**-**	(1)	**(1,019)**	(985)	**-3%**	-3%
Gross profit	**967**	956	**1%**	5%	**-**	(1)	**967**	957	**1%**	5%
as a percentage of sales	**49%**	49%					**49%**	49%		
Marketing and distribution	**(319)**	(313)	**-2%**	-2%	**-**	(2)	**(319)**	(311)	**-2%**	-3%
Research and development	**(56)**	(49)	**-15%**	-17%	**-**	-	**(56)**	(49)	**-15%**	-17%
General and administrative	**(57)**	(64)	**12%**	11%	**(11)**	(20)	**(46)**	(44)	**-4%**	-4%
Operating income	**535**	530	**1%**	7%	**(11)**	(23)	**546**	553	**-1%**	4%
as a percentage of sales	**27%**	27%					**28%**	29%		

This table does not represent an income statement prepared under IFRS. Please refer to the segmental information reported in Note 4 to the consolidated financial statements.
1 Amounts before restructuring and impairment are non-GAAP measures. Please refer to Appendix A of the Operating and Financial Review for a more detailed description.

Sales in Asia Pacific, including China, increased by 2 percent, 4 percent at constant exchange rates, including growth of 2 percent in both sales volumes and local currency sales prices, with a strong recovery in South Asia partly offset by a challenging market in Vietnam. See the Sales commentary section above for further information regarding sales in the region. Gross profit margin remained at the same level as in 2017, with higher margins in Seeds, but the impact of increased oil and raw material costs reducing Crop Protection.

Marketing and distribution costs excluding restructuring and impairment were 2 percent higher in 2018, 3 percent at constant exchange rates, with general cost inflation and additional investment in business development in China.

Research and development expense increased by 15 percent, 17 percent at constant exchange rates due to a revised charging basis under which the region bears the cost of development activities on sites in the region except initial development costs of a new active ingredient, where costs are included in All other segments as part of global research and development activities.

General and administrative costs excluding restructuring and impairment were 4 percent higher, also at constant exchange rates, reflecting general cost inflation as well as investment in China offset by productivity savings and rationalization at the regional marketing headquarters.

Restructuring and impairment charges in 2018 were $12 million lower than 2017. Charges of $11 million in 2018 were for AOL restructuring projects, including the restructuring of the rice business. The 2017 amount includes $18 million for AOL restructuring projects including restructuring at the regional headquarters and projects to improve effectiveness of back office support services and $5 million of share based payment charges related to the ChemChina Tender Offer.

All other segments
All other segments consists of:

- the Flowers business, which is managed separately, but is not material enough to report separately;
- sales and costs that are incidental to the commercial strategies
- costs not directly attributable to an operating segment, including global marketing and research and development teams, corporate headquarter functions and some centrally provided support services in the finance, information systems, human resources and procurement areas

Income and expense transactions have been attributed to the geographic regions based on the market destination to which they relate, rather than on the region in which they originated. The operating segments do not include sales and costs of goods sold that are incidental to the announced business strategies. Some costs are not directly attributable to an operating segment, including global marketing and research and development teams, corporate headquarter functions and some centrally provided support services in the finance, information systems, human resources and procurement areas. These costs are presented separately from the operating segments.

Sales in All other segments increased from $442 million in 2017 to $500 million in 2018, an increase of 13 percent, including a 7 percent increase in Flowers sales and 3 percent attributable to currency. Unallocated costs increased by $35 million from 2017 with reduced research and development costs of 10 percent due to a revised charging basis under which the regions bear the cost of development activities on sites in the regions, except initial development costs of a new active ingredient, offset by a 32 percent increase in general and administrative costs.

General and administrative in 2017 included gains reported on changes made to the defined benefit pension plans in the United States and Switzerland. General and administrative in 2018 included increased hedging losses of approximately $59 million and higher incentive costs compared with a low base in 2017. These increases were partly offset by the gain of $69 million recorded on the sale of two buildings at the headquarter site.

Restructuring and impairment costs decreased by $398 million from 2017 to 2018 mainly due to the gains of $365 million recorded in 2018 from the mandated Crop Protection product divestments. Excluding the divestment gains, restructuring and impairment charges were relatively flat with restructuring charges in 2017 of approximately $75 million of transaction costs related to the ChemChina Tender Offer, including charges for the incremental effect of applying cash-settled share based payment accounting, offset by increased impairment charges of $68 million in 2018. Restructuring and impairment costs are described in more detail below.

Defined Benefit Pensions

Defined benefit pension expense was a charge of $127 million in 2018 compared with $71 million in 2017. 2017 expense was lower because of past service gains of $34 million in Switzerland and $41 million in US due to changes made to the pension plans in 2017 as described in Note 22 to the consolidated financial statements. Syngenta expects 2019 defined benefit pension expense, excluding costs associated with restructuring, to be lower by a double digit percentage compared to the 2018 expense at constant exchange rates due to the impact of US plan changes and improved funded status at the end of 2018. However, the final expense will be subject to the prevailing exchange rates in 2019.

Syngenta contributions to defined benefit pension plans were $241 million in 2018 compared with $166 million in 2017. These included early retirement contributions of $11 million in 2018 and $6 million in 2017. In 2019, Syngenta expects contributions to defined benefit pension plans, excluding early retirement contributions associated with restructuring actions, to decrease to approximately $130 million because there will be no one time lump sum payments associated with the 2017 changes to the Swiss pension plan and with the revised schedule of contributions for the UK pension plan, as described in Note 22 to the consolidated financial statements.

Restructuring and impairment

Restructuring and impairment charges for the years ended December 31, 2018 and 2017, broken down into the main restructuring initiatives, consist of the following:

($m)	2018	2017
Accelerating operational leverage programs:		
Cash costs	**155**	283
Non-cash costs	**1**	1
Acquisition, divestment and related costs:		
Associated with industry consolidation, including ChemChina	**-**	7
Other acquisition and related integration costs	**46**	24
Non-cash items	**35**	30
Other non-cash restructuring and impairment:		
Other non-current asset impairments	**77**	10
Total	**314**	355

In 2018, $33 million for the reversal of inventory step ups reported on acquisitions is presented within Cost of goods sold in the consolidated income statement (2017: $nil). The other costs above for the years ended December 31, 2018 and 2017 are presented within Restructuring in the consolidated income statement.

In 2018, in addition to the above, $365 million of divestments gains were recognized on mandated product divestments as part of the anti-trust clearance of the ChemChina acquisition of Syngenta.

In 2017, in addition to the above, of the $95 million share based payment expense charged to the 2017 consolidated income statement, $81 million was the incremental effect of applying cash-settled share based payment accounting due to the share plan amendments related to the ChemChina Tender Offer, as described in Note 3. The $81 million, along with an additional $17 million of related social costs, was presented as costs of the following functions: Cost of goods sold $9 million; Marketing and distribution $31 million; Research and development $12 million and Other general and administrative $46 million. Total share based payment expense charged to the consolidated income statement is disclosed in Note 23 to the consolidated financial statements.

Analysis of restructuring costs

2018

Accelerating operational leverage programs

Cash costs of $101 million, including $25 million for information systems projects, consist of $35 million for initiatives to restructure marketing and commercial operations, $32 million for projects to improve the effectiveness of back office support, $23 million for Research and Development productivity projects, $8 million for activity to optimize production and supply and $3 million for project management. A further $54 million of severance and pension costs were incurred to simplify the layers of management, including at the global headquarters. Non-cash costs included tangible asset write-downs associated with the above projects.

Acquisition, divestment and related costs

A provision for $24 million was charged to the income statement for indirect tax exposures related to the Nidera acquisition. Other cash costs for acquisition and related integration costs include $12 million for merger and acquisition projects and other transaction costs and $10 million incurred for integration projects. Non-cash costs include $33 million for the reversal of inventory step ups reported on acquisitions and $2 million of inventory impairment provisions. Five acquisitions were completed during 2018 as further described in Note 3 to the consolidated financial statements.

Other non-cash restructuring
Other non-current asset impairments consist of $70 million for an intangible asset impairment where further development of technologies held by Syngenta is not considered cost effective and activities have been suspended and $7 million for the impairment of a research collaboration agreement whose expected future benefit no longer supports its value.

2017
Accelerating operational leverage programs
Cash costs of $229 million, including $30 million of severance and pension charges and $44 million of information systems projects, consisted of $97 million for initiatives to restructure marketing and commercial operations, $61 million for projects to improve the effectiveness of back office support, $38 million for Research and Development productivity projects, $27 million for activity to optimize production and supply and $6 million for project management. A further $54 million of severance and pension costs were incurred to simplify the layers of management, including at the global headquarters.

Non-cash costs included tangible asset write-downs associated with the above projects.

Acquisition, divestment and related costs
Cash costs included $7 million of costs related to the ChemChina Tender Offer. Other acquisition and related integration costs included $17 million of transaction costs and $7 million incurred for integration projects. Non-cash items included $45 million of asset impairments and divestment losses related to the Sugar beet business, which was divested during September, gains of $16 million on the sale of product rights in the USA and Mexico and a small impairment for assets acquired in an earlier transaction.

Other non-cash restructuring
Other non-current asset impairments consisted of an additional $5 million for two sites in the US that were sold during the first half of 2017 and the impairment of a research collaboration agreement whose future benefit became less certain.

Financial expense, net

Financial expense, net increased by $175 million in 2018 to $353 million. Net interest expense at $232 million was $222 million higher than 2017 due mainly to the $4,750 million of senior unsecured notes Syngenta issued during April 2018 with various maturities up to 30 years, the proceeds of which were largely paid as a dividend to Syngenta's shareholder, and higher average net debt following the acquisition of Nidera seeds. Currency related financial expenses in 2018 of $79 million were $53 million lower than 2017 due to lower hedging costs following the change in the net Swiss franc exposure after the dividend.

Taxes

In 2018, Syngenta recorded a net tax expense of $275 million on an income before taxes of $1,717 million, an effective tax rate of 16 percent. In 2017, Syngenta recorded a net loss before taxes of $116 million and a net tax credit of $20 million. The loss before taxes arose in 2017 due to the litigation provision discussed in detail in Note 20 to the consolidated financial statements. Syngenta has assumed that all of the provision will be deductible for income tax, but that deductions will be claimed in more than one jurisdiction. Syngenta has used an average of the tax rates of the relevant jurisdictions to estimate the tax credit on the provision. The ultimate benefit realized may be different and this difference may have a material effect on Syngenta's income tax expense for future years.

Syngenta's Swiss domestic statutory tax rate was 22 percent in both years. Income taxed at different rates reduced the effective tax rate by 6 percent in 2018, compared with 8 percent in 2017 due to differences in the mix of jurisdictions in which estimated taxable profits arose in the respective years. Changes to prior year income tax estimates reduced the effective tax rate in 2018 by 2 percent, but had no impact on the effective tax rate in 2017. Non-recognition of deferred tax assets in the US, Argentina and Brazil increased the tax rate by 5 percent in 2018 (4 percent in 2017). In 2018, recognition of previously unrecognized deferred tax assets was not material and did not impact the effective tax rate, whereas in 2017 the effect of tax reforms and improved local profitability in Argentina allowed recognition of deferred tax assets that had not been recognized in prior years, which reduced the tax rate by 3 percent.

The tax rate on restructuring and impairment and divestment gains was minus 23 percent in 2018, compared with 20 percent for 2017, due to the different mix of gains and losses included in the net charge over the period and the varying tax treatments applied in different countries. Future rates applicable to restructuring and impairment will be dependent on the nature and size of the charges and may vary from year to year.

Net income for the period and other supplementary income data

Net income attributable to Syngenta shareholders in 2018 was $1,438 million, compared to a loss of $98 million in 2017. Approximately $1,248 million of the 2017 net loss related to the post-tax impact of the Viptera litigation provision. In addition, income tax expense in 2017 included $96 million due to the impact of US tax reform on pre-existing deferred tax assets. Excluding these items, net income was $1,246 million in 2017.

Sales in 2018 were 7 percent higher and operating income margin, excluding the impact of the litigation provision, was 3 percentage points higher in 2018 than 2017 due to the divestment gains realized in 2018, described above. With the higher financial expense, net income before taxes, excluding the impact of the litigation provision, was 20 percent higher in 2018. Excluding the impacts of the Viptera litigation provision and US tax reform, the 2017 tax rate was 13 percent, compared to 16 percent in 2018. After this higher tax rate, net income in 2018 was 15 percent higher than 2017 adjusted for the litigation provision and US tax reform impacts.

After related taxation, restructuring and impairment income, including the gains on divesting various crop protection products as part of the anti-trust settlement, was $63 million in 2018 compared with charges of $361 million in 2017.

Foreign operations and foreign currency transactions

Syngenta's subsidiaries use their local currency as their functional currency for accounting purposes except where the use of a different currency more fairly reflects their actual circumstances.

Syngenta operates worldwide and its business has grown significantly in emerging markets over the last years, with a broadening of the currency effects that need to be closely monitored. Syngenta regularly analyzes how currency fluctuations will impact its operating results and manages the impact with a combination of commercial actions, such as product pricing, and financial risk management strategies, such as hedging. Next to the Euro, the Swiss franc and the British pound, the Brazilian real gives rise to a major currency exposure due to the large size of Syngenta's business activities in Brazil. Sales prices to customers in Brazil largely are linked to the US dollar, which limits the impact of fluctuations in the US dollar/Brazilian real exchange rate. Similarly, Syngenta manages its currency exposure in Argentina and the CIS, mainly Russia and Ukraine, by linking local currency sales prices to the US dollar to compensate for the fluctuations in sales value from the currency devaluation. During 2018, the Argentine peso devalued by over 100 percent, the Russian ruble devalued by over 20 percent against the US dollar, but the Ukrainian hryvnia remained flat.

Syngenta regularly monitors receivables exposure in all countries in which it operates. In the Eurozone, Greece, Italy, Portugal and Spain have been experiencing weak macro-economic conditions since 2010. Parts of Latin America, including Argentina and Brazil are also experiencing economic and financial difficulties and this has led to continued constraints in the availability of credit; in Brazil the collections performance improved substantially during 2018, whilst in Argentina the economy moved into hyperinflation putting pressure on liquidity and collections. In Venezuela, exchanging local currency into US dollars to pay for imported goods can be difficult. Receivables exposure from customers in Russia and the Ukraine increased slightly during 2018, with 57 percent of 2018 sales in those countries having been collected as of December 31, 2018 compared with 64 percent of 2017 sales.

The following table outlines for the above named countries the aggregate, gross trade receivables, those past due for more than 180 days and the related provision for doubtful receivables at December 31, 2018 and 2017.

($m)	**2018**	2017
Gross trade receivables	**2,447**	2,294
Past due for more than 180 days	**305**	432
Provision for doubtful trade receivables	**259**	360

The reductions in past due for more than 180 days and the provision for doubtful receivables is mainly due to Brazil where collections have improved during 2018 and some receivables that had been fully provided for were sold to a third party on a non-recourse basis and derecognized.

At December 31, 2018, approximately 62 percent of Syngenta's cash and cash equivalents was held in US dollars, approximately 9 percent in Indian rupees, approximately 7 percent in Swiss francs, approximately 3 percent in Euros and approximately 2 percent in each of Canadian dollar, Korean won and Thai baht. No other individual currency made up more than 2 percent.

Liquidity and capital resources

Syngenta's principal source of liquidity is cash generated from operations.

Working capital fluctuations due to the seasonality of the business are supported by short-term funding available from a $2.5 billion Global Commercial Paper program and a $3 billion committed, revolving, multi-currency syndicated credit facility. Operating in a seasonal business, Syngenta typically obtains funds from its short-term facilities during the first half of the year to fund operations during the northern hemisphere growing season and repays these funds during the second half when receivables are collected. Longer-term capital resources include unsecured non-current bonds issued under a Euro Medium Term Note (EMTN) program, unsecured non-current Notes issued under a Note Purchase Agreement in the US Private Placement market and unsecured non-current bonds issued in the US public debt market. In April 2018, $ 4.75 billion of Rule 144/Regulation S under the U.S. Securities Act of 1933 notes were issued. In May 2018, Syngenta AG paid $4.71 billion of the proceeds of those notes to its shareholder as a dividend, allowing CNAC Saturn (NL) BV to pay back its outstanding acquisition debt.

See Capital markets and credit facilities for details of outstanding debt.

For information on Syngenta's funding and treasury policies and objectives in terms of the manner in which treasury activities are controlled, see Note 25 to the consolidated financial statements.

Syngenta reported cash and cash equivalents on December 31, 2018 and 2017 of $1,563 million and $2,253 million, respectively. At December 31, 2018 and 2017, Syngenta had current financial debt of $925 million and $1,022 million, respectively, and non-current financial debt of $7,178 million and $2,860 million, respectively.

Capital markets and credit facilities

Funds for Syngenta's working capital needs were available during the year from its $2,500 million Global Commercial Paper program and a $3 billion committed, revolving, multi-currency syndicated credit facility, which was increased, extended and amended following the change of control related to the ChemChina takeover in May 2017. In 2018, the syndicated credit facility was extended by one year and will now mature in 2023. It provides the possibility to extend by one year in 2019. The amount drawn under the syndicated credit facility at December 31, 2018 was $150 million (2017: $200 million). The average outstanding balance under the syndicated credit facility for the year 2018 was $564 million (2017: $7 million).The amount drawn under the Global Commercial Paper program at December 31, 2018 was $80 million (2017: $473 million). The average outstanding balance under the Global Commercial Paper program for the year 2018 was $570 million (2017: $1,388 million).

Absent major acquisitions, Syngenta targets maintaining an investment grade credit rating, as recognized by major third-party rating agencies, which it currently believes provides an optimal balance between financial flexibility and the cost of capital. At December 31, 2018, Syngenta's credit ratings were investment grade as follows: Fitch Ratings Ltd BBB/F-3; Standard & Poor's Rating Services BBB-/A-3; and Moody's Investors' Services Limited Ba2/NP (December 31, 2017: Moody's Investors' Services Limited Ba2/NP; Standard & Poor's Rating Services BBB-/A-3; and Fitch Ratings Ltd BBB/F3). There are no material legal or economic restrictions on the ability of subsidiaries to transfer funds to the Company in the form of cash dividends except as disclosed in the consolidated cash flow statement.

The table below summarizes Syngenta's unsecured notes in issuance at December 31, 2018:

($m)	Issuance date	Carrying amount	Value at issue
0.750% CHF bond 2019	March 2014	356	396
3.698% US dollar bond 2020	April 2018	748	750
5.110% US dollar private placement 2020	December 2005	39	38
1.875% Eurobond 2021	March 2014	571	689
3.933% US dollar bond 2021	April 2018	747	750
3.125% US dollar bond 2022	March 2012	501	500
4.441% USD bond 2023	April 2018	996	1,000
1.625% CHF bond 2024	March 2014	253	283
4.892% USD bond 2025	April 2018	747	750
5.350% US dollar private placement 2025	December 2005	55	55
1.250% Eurobond 2027	March 2015	568	559
5.182% USD bond 2028	April 2018	995	1,000
2.125% CHF bond 2029	March 2014	152	170
5.590% US dollar private placement 2035	December 2005	11	11
4.375% US dollar bond 2042	March 2012	248	250
5.676% USD bond 2048	April 2018	498	500
Total		7,485	7,701

Management is of the opinion that, absent a major business acquisition or a very significant deterioration in working capital or the rate of receivables collections from that currently expected, the funding available from the sources described above will be sufficient to satisfy Syngenta's working capital, capital expenditures and debt service requirements for the foreseeable future, including cash expenditures relating to restructuring programs. In the event of a major business acquisition, Syngenta would seek additional funding from capital markets or other sources. Syngenta regards as sufficiently remote the likelihood that a very significant deterioration in working capital or unexpected decline in the rate of receivables collections will occur as not to require the development of a detailed contingency funding plan.

Cash flow

The following table sets out certain information about cash flow for each of the periods indicated:

	Year ended December 31,	
($m)	2018	2017
Cash flow from operating activities	1,367	1,839
Cash flow used for investing activities	(1,641)	(577)
Cash flow used for financing activities	(350)	(303)

Cash flow from operating activities

2018 compared with 2017

Cash flow from operating activities decreased by $472 million to $1,367 million in 2018 including the payment of $450 million related to the settlement of the US litigation. Income before taxes after the reversal of non-cash and other reconciling items was $2,600 million on 2018 compared to $2,381 million in 2017. Cash paid in respect of other provisions, which in 2018 included the above $450 million, was $448 million higher than 2017. Interest paid increased by $126 million to $266 million largely as a result of the issuance of $4.75 billion bonds in 2018. Other financial payments were lower including reduced hedging costs. Cash paid in 2017 in respect of share based compensation related to cash settlement of share awards after the ChemChina acquisition. Change in net working capital was an outflow of $55 million in 2018 compared to an inflow of $460 million in 2017. An outflow from trade and other working capital assets of $507 million compared to an inflow of $616 million in 2017 and reflected sales growth and particularly the higher final quarter sales in Latin America. Cash flows from trade and other working capital liabilities were an outflow of $3 million in 2017, but an inflow of $682 million in 2018 including higher sales rebates payable from the increased sales, again particularly in Latin America, and the benefits from harmonizing supplier terms.

Cash flow used for investing activities
2018 compared with 2017
Cash flow used for investing activities was $1,641 million in 2018, $1,064 million more than in 2017. Additions to property, plant and equipment were $54 million lower; a similar level is currently expected in 2019. Purchases of investments in associates and other financial assets were $192 million higher mainly due to purchases of marketable securities. Proceeds from disposals of property plant and equipment were $52 million higher including the sale and leaseback of buildings in Switzerland, while proceeds from disposals of intangible and financial assets increased by $393 million due to the divestment in 2018 of remedy assets as a result of the ChemChina acquisition. Cash outflows for business acquisitions increased by $1,211 million and included the acquisition of Nidera Seeds in 2018. Cash inflows for business divestments in 2017 largely related to the sale of the sugar beet business.

Cash flow used for financing activities
2018 compared with 2017
Cash flow used for financing activities of $350 million was $47 million higher than in 2017. The net cash received from interest-bearing debt increased by $4,214 million due mainly to the new bonds issued in 2018. The dividend paid to shareholders in 2018 increased by $4,237 million compared with 2017 as only the CHF 5.00 per share special dividend related to the ChemChina Tender Offer was paid in 2017. Sales of treasury shares in 2017 related to employee share and share option plans.

Research and development ("R&D")

Syngenta's Research and Development organization is dedicated to developing quality crop protection and seeds products, as well as crop-focused solutions which integrate multiple technologies. R&D focuses on taking a holistic approach to help customers grow their specific crop using the best technology to address their needs, be it a single technology, a combination of technologies, or technologies and services.

Syngenta is committed to improving crop yield and quality in a sustainable way and, through its global product safety group and global regulatory team, is committed to developing and registering products that are safe and effective. Syngenta maximizes its innovation potential by leveraging its industry expertise and partnering with other technology leaders across the globe.

The total spent on research and development was $1,300 million in 2018 and $1,273 million in 2017. For the attribution of research and development costs to reported operating segments, see Note 4 to the consolidated financial statements.

There are no off-balance sheet financing transactions associated with research and development activity.

Contractual obligations, commitments and contingent liabilities

At December 31, 2018 Syngenta had contractual obligations to make future payments in the periods indicated in the following:

($m)	Notes to the financial statements reference	Total	Less than 1 year	1–3 years	3–5 years	5–10 years	More than 10 years
Financial debt	17, 19	**8,042**	**910**	**2,107**	**1,498**	**2,618**	**909**
Interest on fixed rate financial debt	25	**2,511**	**278**	**522**	**396**	**587**	**728**
Other liabilities		**110**	**55**	**53**	**2**	**-**	**-**
Capital lease payments	20	**63**	**19**	**26**	**11**	**7**	**-**
Operating lease payments	20	**241**	**68**	**89**	**37**	**47**	**-**
Capital expenditures	20	**112**	**103**	**9**	**-**	**-**	**-**
Pension contribution commitments	22	**288**	**47**	**134**	**95**	**12**	**-**
Unconditional purchase obligations	20	**1,693**	**1,090**	**464**	**138**	**1**	**-**
Long-term research agreements and other long-term commitments	20	**104**	**70**	**23**	**9**	**2**	**-**
Total		**13,164**	**2,640**	**3,427**	**2,186**	**3,274**	**1,637**

Of the total financial debt, floating rate financial debt is $557 million (mainly local bank loans and overdraft facilities), all of which is due within one year. No interest obligation in respect of this debt is included in the table above. There is no contractual obligation to renew this debt. The debt amount, and the interest payments associated with it, will vary over time according to Syngenta's funding requirements and future interest rates.

Fixed rate debt of $7,485 million is comprised primarily of the outstanding Eurobonds, Swiss franc domestic bonds, $ bonds and private placement notes. Fixed rate interest payments of $2,511 million on these are included above.

Other liabilities arise from deferred payments related to acquisitions and license agreements.

Provisions for long-term liabilities totaling $753 million shown in Syngenta's consolidated balance sheet have not been included in the above table because the timing of their payment is not contractually fixed and cannot be estimated with sufficient certainty within the context of the time periods in the table. This applies particularly to those amounts which are not expected to be paid during 2019. Note 20 to the consolidated financial statements presents the components of the estimated $1,268 million of provisions that are expected to be paid during 2019.

The supply agreements for materials giving rise to the unconditional purchase obligations are entered into by Syngenta to ensure availability of materials meeting the specifications required by Syngenta. Where suppliers have made significant capital investment, these agreements generally provide for Syngenta to pay penalties in the event that it terminates the agreements before their expiry dates.

Pension contribution commitments totaling $288 million represent unconditional fixed payments to the UK pension fund according to the revised schedule of contributions agreed during 2018. Contributions for future service in the UK and Switzerland which are calculated as a fixed percentage of employees' pensionable pay are not included in the above table. The rules of the Swiss pension fund commit Syngenta to contributing a fixed percentage of employees' pensionable pay to the fund.

As disclosed in Note 22 to the consolidated financial statements, Syngenta expects to pay $130 million of contributions to its defined benefit pension plans in 2019, excluding restructuring costs and excluding any accelerated payments which Syngenta may decide to make as business and financial market conditions develop during 2019. $47 million of those contributions are included as commitments in the table above. The remaining $83 million represents 2019 service contributions, which are not included as commitments in the table above.

The above table excludes income tax liabilities of $410 million in respect of uncertain tax positions. These are presented within current income tax liabilities in the consolidated balance sheet because it is not possible to make a reasonably reliable estimate of the actual period of cash settlement with the respective taxing authorities.

Off-balance sheet arrangements

Syngenta had no off-balance sheet arrangements as at December 31, 2018, other than the above contractual obligations, commitments and contingent liabilities. Syngenta has no unconsolidated special purpose entities that are likely to create material contingent obligations.

Critical accounting estimates

Critical accounting estimates and new accounting pronouncements are discussed in Notes 2 and 27 to the consolidated financial statements.

Recent developments

Note 28 to the consolidated financial statements provides details of events which occurred between the balance sheet date and February 14, 2018 that would require adjustment to or disclosure in the consolidated financial statements.

Trend and Outlook

Sales growth in 2018 was negatively impacted by the mandated divestments of several Crop Protection products required by anti-trust authorities and the 2017 disposal of the sugar beet business, but positively impacted by the acquisition of the Nidera seeds business, with the two factors largely offsetting. 2018 sales growth also included significant growth in Crop Protection sales in Brazil off a reduced 2017 base, where sales in 2017 to distributors were below consumption to cut the level of distributor inventories; sales in 2018 were more in line with consumption and sales in 2019 similarly are expected to be more reflective of consumption. In Seeds, sales in 2018 included royalty income of approximately $100 million relating to change of control clauses. Individually, these will not recur in 2019; further royalties may be received, but are not expected currently to be at a similar level. Underlying sales revenue is currently expected to grow by low to mid single digits in crop protection and seeds markets that are both expected to continue to show low single digit growth in 2019.

Based on exchange rates prevailing at the date of publication, a stronger dollar and weaker Euro is expected to reduce reported sales by approximately 2 percent. The impact of exchange rate movements on operating income is discussed below.

Syngenta will continue to focus on and drive productivity savings in 2019. In Research and development, overall expenditure as a percentage of sales is expected to be at a broadly similar level in 2019 as 2018 at constant exchange rates, with productivity savings re-invested. Savings from the productivity focus in Marketing and distribution costs and General and administrative costs (excluding restructuring) are planned partly to be re-invested in increased marketing expenditure to drive future market share growth and to develop further solutions and capabilities in the application of new digital technologies. In 2018, Syngenta completed a sale and leaseback for two buildings at its Basel headquarters, recognizing a $69 million gain on disposal; the remaining buildings on the site were sold under a similar transaction in 2019 and the overall level of gains on disposal of tangible fixed assets in 2019 is expected to be similar to that of 2018. Charges for doubtful receivables in 2018 were at a lower level than the average of the previous 3 years, largely due to better than anticipated customer collections in Brazil; a return towards the previous average is currently expected in 2019.

In 2018, Syngenta recorded a pre-tax gain of $365 million on the divestment of various crop protection products required to be divested under anti-trust agreements; no similar gain is expected to be recorded in 2019. While the AOL productivity program completed in 2018, with cash costs in 2018 of $155 million, the drive for further productivity savings will continue and cash costs in 2019 are expected to be at a broadly similar level. However, in general, the timing of the recognition of charges for particular restructuring events, which is dependent on when irreversible commitments to the events occur, makes it difficult to predict such costs with certainty. Restructuring charges in 2018 also included $70 million related to the impairment of an intangible asset where further development of technologies held by Syngenta was discontinued. It is generally not possible to predict future non-cash impairments.

In 2017, oil prices (Brent) traded in a range of $45-70 per barrel, being towards the upper end of the range in the latter part of the year. In 2018, prices were volatile and traded in a range between $50-85 per barrel, increasing towards the top of the range in the period through to October and then falling back to the bottom of the range around the end of the year. The average of monthly prices in 2018 was approximately $68 per barrel, compared to approximately $53 in 2017. With its current product mix, Syngenta estimates that each $10 movement in the price of a barrel of oil impacts its cost of goods sold by approximately $30-35 million. However, due to supplier production chains and Syngenta's own inventory, it can take from 9 to 12 months for movements in the oil price to feed through into cost of goods sold. As at the end of January 2019, the impact of movements in the price of oil is expected to have an adverse impact on 2019 compared to 2018 of the order of $30-50 million. Further price movements would take time to pass through to Syngenta's cost of goods but increases may have an adverse impact if Syngenta is not able to pass on the increase through increased sales prices. In addition, in 2018, supply constraints of raw material chemicals sourced from China led to cost increases of several raw material and intermediate chemicals used by Syngenta. The impact of these cost increases is currently estimated to be approximately $40 million in 2019. As the impact of both the oil price and China supply shortage is industry-wide, Syngenta will seek to increase sales prices to cover this additional cost, but this may not prove possible.

In 2018, 53 percent of Syngenta's sales were in emerging markets. Emerging markets continue to have higher long-term growth potential because significant crop yield gaps exist versus developed markets; this growth potential is further supported by ongoing technology adoption. Managing volatility in such markets, in particular credit and currency exposures, is integral to Syngenta's business model.

Overall, Syngenta has significant currency exposures, which at a high level can be summarized as:

- a short position against the US dollar in Swiss francs and British pounds
- a net long position in Euros over the course of a full year, relatively minor compared with sales in Euros, but with a long position in the first half selling season and a short position in the second half from more evenly spread Euro-based operating costs including raw material costs
- a long position in Japanese yen, Australian and Canadian dollars and many emerging market currencies

in Brazil and Argentina, a significant portion of sales are effectively priced in US dollars, resulting in a net short local currency exposure, though the linkage has weakened in Brazil and there can be a time lag before local currency prices are adjusted. Syngenta has also acted to link local currency pricing of sales in Russia and the Ukraine (both of which export grain to the global market) to US dollars to reduce the long exposure to these currencies.

Forecast transaction exposures in the major currencies are hedged under a rolling 12 month program, largely through forward contracts. In 2018, Syngenta estimates the net impact on underlying sales and operating costs of exchange rate movements to have been approximately $190 million adverse to 2017, which together with a net hedging cost of $67 million compared with a cost of $8 million in 2017, resulted in an adverse year-on-year impact on operating income from exchange rate movements of approximately $249 million when compared with 2017. The largest driver of the adverse underlying net impact was a weaker Brazilian real; accordingly, the negative exchange movement impact was significantly offset by local currency sales price increases as noted above. At rates prevailing in January 2019, Syngenta expects a 2 percent negative impact on sales from the currency movements, but a relatively minor impact on operating profit as the most significant sales impact comes from sales in Euro, where the net position is relatively minor. A significant portion of emerging market currency exposures in particular are unhedged, so the actual impact may differ positively or negatively from the above estimate. The net hedging result is reported within General and administrative in the consolidated income statement.

Syngenta expects to pay $1.1 billion related to the US litigation settlement in the second quarter of 2019.

Appendix A

Reconciliation of non-GAAP measures to equivalent GAAP measures

A non-GAAP measure is a numerical measure of financial performance, financial position or cash flows that either:

- includes, or is subject to adjustments that have the effect of including, amounts that are excluded in the most directly comparable measure calculated and presented under IFRS; or
- excludes, or is subject to adjustments that have the effect of excluding, amounts that are included in the most directly comparable measure calculated and presented under IFRS.

Syngenta uses non-GAAP measures in this report where they are regarded by management as important for the investor to fully understand Syngenta's performance. The non-GAAP measures presented in this report are measures adjusted for exchange rate movements and to exclude restructuring gains and losses, impairment losses and divestment gains and losses. The Company presents these measures because:

- movements in exchange rates historically have had, and in the future are expected to have, a significant impact on sales and operating income from period to period; and
- restructuring and impairment charges historically have fluctuated, and in the future are expected to fluctuate, significantly from period to period and thereby have a volatile impact on results.

Syngenta has been engaged in significant restructuring activities since the formation of the Company in 2000, including programs to integrate and extract synergies from the combined operations of the Zeneca agrochemicals business and the Novartis agribusiness, the integration of business combinations, the Operational Efficiency programs, the implementation of the integrated crop strategy and, beginning in 2014, the AOL program. The incidence of restructuring charges is periodic and volatile, reflecting the timing of irrevocable commitments related to specific sites and operations. Therefore the impact on reported performance varies from period to period and there is limited continuity in the specific composition or size of such charges. In 2017, measures excluding restructuring and impairment also exclude the incremental effect of applying cash-settled share based payment accounting due to the share plan amendments related to the ChemChina Tender Offer described in Note 3 to the consolidated financial statements. Internal financial reporting and management and employee incentive plans are substantially based on financial measures excluding the charges for restructuring and impairment so that management is incentivized to deliver the benefits of the associated restructuring and not to achieve short-term financial targets by deferring implementation of restructuring plans. Restructuring programs typically deliver benefits with a payback over several years, similar to capital investments, and control over restructuring expenditures is performed on a similar project basis to that applied with capital investments.

Syngenta presents non-GAAP measures on operating income before restructuring and impairment at both the segmental and group levels. Restructuring and impairment charges have had a material effect on operating income in the period covered by the review. In the opinion of management, reporting operating performance excluding restructuring and impairment in addition to the GAAP measures provides a more thorough understanding of business performance. Together with disclosure of the material elements within restructuring and impairment and of the overall anticipated size and timeframe of restructuring programs, these measures may assist investors in forecasting future operating performance.

Syngenta presents non-GAAP information on income before taxes excluding restructuring and impairment together with income tax expense before restructuring and impairment to assist investors to calculate the Group tax rate both including and excluding the impact of restructuring and impairment charges. The tax rate on restructuring and impairment charges has been volatile and different from the tax rate on income before taxes excluding restructuring and impairment, due in part to many categories of restructuring or impairment charges not being deductible for tax purposes.

In addition to GAAP measures, Syngenta uses these measures excluding restructuring and impairment in internal reporting to management and the Board of Directors, and these measures are used in the incentive plans for Syngenta management and other employees. Restructuring and impairment charges have been incurred in all the periods covered by the review and are expected to continue to arise and have a material effect on operating performance in future periods. Consequently, non-GAAP measures of operating income before restructuring and impairment do not present a complete picture of operating performance and these measures should be seen only as supplementary to the GAAP measure.

For improved clarity, the definitions of these non-GAAP measures and reconciliations of non-GAAP measures to the appropriate GAAP measure are provided below. The tables below are included to show the reconciliation of the GAAP measures to the non-GAAP measures used in the report and do not represent income statements prepared under IFRS.

Reconciliation of net income excluding restructuring and impairment (non-GAAP measure) to profit for the period (GAAP measure)

2018 ($m, except percentage)	**Total**	**Restructuring and impairment**	**Before restructuring and impairment**
Operating income	**2,068**	**51**	**2,017**
Income/(loss) from associates and joint ventures	**2**	**-**	**2**
Financial expense, net	**(353)**	**-**	**(353)**
Income/(loss) before taxes	**1,717**	**51**	**1,666**
Income tax (expense)/benefit	**(275)**	**12**	**(287)**
Net income/(loss)	**1,442**	**63**	**1,379**
Attributable to non-controlling interests	**(4)**	**-**	**(4)**
Net income/(loss) attributable to Syngenta AG shareholders	**1,438**	**63**	**1,375**
Tax rate	**16%**	**(23)%**	**17%**

2017 ($m, except percentage)	Total	Restructuring and impairment	Before restructuring and impairment
Operating income	54	(453)	507
Income from associates and joint ventures	8	-	8
Financial expense, net	(178)	-	(178)
Income/(loss) before taxes	(116)	(453)	337
Income tax (expense)/benefit	20	92	(72)
Net income/(loss)	(96)	(361)	265
Attributable to non-controlling interests	(2)	-	(2)
Net income attributable to Syngenta AG shareholders	(98)	(361)	263
Tax rate	17%	20%	21%

2016 ($m, except percentage)	Total	Restructuring and impairment	Before restructuring and impairment
Operating income	1,647	(477)	2,124
Income from associates and joint ventures	5	-	5
Financial expense, net	(291)	-	(291)
Income before taxes	1,361	(477)	1,838
Income tax expense	(180)	87	(267)
Net income	1,181	(390)	1,571
Attributable to non-controlling interests	(3)	-	(3)
Net income attributable to Syngenta AG shareholders	1,178	(390)	1,568
Tax rate	13%	18%	15%

2015 ($m, except percentage)	Total	Restructuring and impairment	Before restructuring and impairment
Operating income	1,841	(388)	2,229
Income from associates and joint ventures	7	-	7
Financial expense, net	(256)	-	(256)
Income before taxes	1,592	(388)	1,980
Income tax expense	(248)	88	(336)
Net income	1,344	(300)	1,644
Attributable to non-controlling interests	(5)	-	(5)
Net income attributable to Syngenta AG shareholders	1,339	(300)	1,639
Tax rate	16%	23%	17%

2014 ($m, except percentage)	Total	Restructuring and impairment	Before restructuring and impairment
Operating income	2,105	(206)	2,311
Income from associates and joint ventures	7	-	7
Financial expense, net	(217)	-	(217)
Income before taxes	1,895	(206)	2,101
Income tax expense	(273)	38	(311)
Net income	1,622	(168)	1,790
Attributable to non-controlling interests	(3)	-	(3)
Net income attributable to Syngenta AG shareholders	1,619	(168)	1,787
Tax rate	14%	18%	15%

Constant exchange rates

Syngenta compares results from one period to another period in this report using variances calculated at constant exchange rates ("CER"). To present that information, current period results for entities reporting in currencies other than US dollars are converted into US dollars at the prior period's exchange rates, rather than the exchange rates for the current year. See Note 26 to the consolidated financial statements for information on average exchange rates in 2018 and 2017. For example, if a European entity reporting in CHF sold CHF 100 million of products in 2018 and 2017, Syngenta's financial statements would report $102 million of revenues in 2018 (using 0.98 as the rate, which was the average exchange rate in 2018) and $101 million in revenues in 2017 (using 0.99 as the rate, which was the average exchange rate in 2017). The CER presentation would translate the 2018 results using the 2017 exchange rates and indicate that underlying revenues were flat. Syngenta presents this CER variance information in order to assess how its underlying business performed before taking into account currency exchange fluctuations. Syngenta also presents its actual reported results in order to provide the most directly comparable data under GAAP.

Consolidated Income Statement

(for the years ended December 31, 2018 and 2017)

($m, except share and per share amounts)	Notes	2018	2017
Sales	4, 5	**13,523**	12,649
Cost of goods sold		**(7,288)**	(6,491)
Gross profit		**6,235**	6,158
Marketing and distribution		**(2,190)**	(2,197)
Research and development		**(1,300)**	(1,273)
General and administrative:			
Restructuring, excluding divestment gains	6	**(281)**	(355)
Divestment gains	3	**434**	-
Other general and administrative		**(830)**	(2,279)
Operating income		**2,068**	54
Income from associates and joint ventures		**2**	8
Interest income	26	**147**	155
Interest expense	26	**(379)**	(165)
Other financial expense		**(42)**	(36)
Currency losses, net	26	**(79)**	(132)
Financial expense, net		**(353)**	(178)
Income/(loss) before taxes		**1,717**	(116)
Income tax (expense)/benefit	7	**(275)**	20
Net income/(loss)		**1,442**	(96)
Attributable to:			
Syngenta AG shareholders	8	**1,438**	(98)
Non-controlling interests		**4**	2
Net income/(loss)		**1,442**	(96)
Earnings per share ($):			
Basic	8	**15.57**	(1.06)
Diluted	8	**15.57**	(1.06)
Weighted average number of shares:			
Basic		**92,382,473**	92,354,881
Diluted		**92,382,473**	92,366,107

The accompanying notes form an integral part of the consolidated financial statements.

All activities were in respect of continuing operations.

Consolidated Statement of Comprehensive Income

(for the years ended December 31, 2018 and 2017)

($m)	Notes	2018	2017
Net income/(loss)		**1,442**	(96)
Components of other comprehensive income/(loss) (OCI)			
Items that will not be reclassified to profit or loss:			
Gains on equity investments at fair value through OCI	26	**15**	5
Actuarial gains of defined benefit post-employment plans	15, 22	**18**	262
Income tax relating to items that will not be reclassified to profit or loss	7	**(12)**	(55)
		21	212
Items that may be reclassified subsequently to profit or loss:			
Unrealized gains/(losses) on derivatives designated as cash flow and net investment hedges and related hedging costs	25	**31**	(27)
Currency translation effects		**(566)**	372
Income tax relating to items that may be reclassified subsequently to profit or loss	7	**(24)**	12
		(559)	357
Total OCI		**(538)**	569
Total comprehensive income		**904**	473
Attributable to:			
Syngenta AG shareholders		**902**	470
Non-controlling interests		**2**	3
Total comprehensive income		**904**	473

The accompanying notes form an integral part of the consolidated financial statements.

All activities were in respect of continuing operations.

Consolidated Balance Sheet

(at December 31, 2018 and 2017)

($m, except share amounts)	Notes	2018	2017
Assets			
Current assets:			
Cash and cash equivalents	26	**1,563**	2,253
Trade receivables	9, 26	**4,398**	4,087
Other accounts receivable	26	**536**	836
Inventories	11	**4,292**	4,174
Derivative and other financial assets	26	**425**	343
Other current assets	10	**385**	198
Income taxes recoverable		**145**	168
Total current assets		**11,744**	12,059
Non-current assets:			
Property, plant and equipment	12	**3,362**	3,460
Intangible assets	13	**4,221**	2,973
Deferred tax assets	7	**1,099**	1,099
Financial and other non-current assets	14, 26	**492**	550
Investments in associates and joint ventures	15	**192**	192
Total non-current assets		**9,366**	8,274
Assets held for sale	10	**140**	-
Total assets		**21,250**	20,333
Liabilities and equity			
Current liabilities:			
Trade accounts payable	16, 26	**(3,613)**	(3,174)
Contract liabilities	16	**(445)**	(480)
Current financial debt and other financial liabilities	17, 26	**(1,195)**	(1,141)
Income taxes payable		**(539)**	(474)
Other current liabilities	18, 26	**(895)**	(773)
Provisions	20	**(1,268)**	(676)
Total current liabilities		**(7,955)**	(6,718)
Non-current liabilities:			
Financial debt and other non-current liabilities	19, 26	**(7,415)**	(3,064)
Deferred tax liabilities	7	**(925)**	(613)
Provisions	20	**(753)**	(1,938)
Total non-current liabilities		**(9,093)**	(5,615)
Total liabilities		**(17,048)**	(12,333)
Shareholders' equity:			
Issued share capital 2018 and 2017: 92,578,149 ordinary shares	8	**(6)**	(6)
Retained earnings		**(2,369)**	(5,629)
Other reserves		**(1,868)**	(2,408)
Treasury shares: 2018 and 2017: 195,676 ordinary shares	8	**67**	67
Total shareholders' equity		**(4,176)**	(7,976)
Non-controlling interests		**(26)**	(24)
Total equity		**(4,202)**	(8,000)
Total liabilities and equity		**(21,250)**	(20,333)

The accompanying notes form an integral part of the consolidated financial statements.

Consolidated Cash Flow Statement

(for the years ended December 31, 2018 and 2017)

($m)	Notes	2018	2017
Income/(loss) before taxes		**1,717**	(116)
Reversal of non-cash and other reconciling items	21	**883**	2,497
Cash (paid)/received in respect of:			
Interest received		**142**	156
Interest paid		**(266)**	(140)
Other financial receipts		**99**	86
Other financial payments		**(166)**	(310)
Income taxes		**(183)**	(224)
Restructuring costs	20	**(73)**	(80)
Contributions to pension plans, excluding restructuring costs	20	**(229)**	(160)
Other provisions	20	**(502)**	(54)
Share based compensation	3	**-**	(276)
Operating cash flow before change in net working capital		**1,422**	1,379
Change in net working capital:			
Change in inventories		**(230)**	(153)
Change in trade and other working capital assets		**(507)**	616
Change in trade and other working capital liabilities		**682**	(3)
Cash flow from operating activities		**1,367**	1,839
Additions to property, plant and equipment	12	**(448)**	(394)
Proceeds from disposals of property, plant and equipment		**127**	75
Purchases of intangible assets	13	**(193)**	(184)
Purchases of investments in associates and other financial assets		**(239)**	(47)
Proceeds from disposals of intangible and financial assets		**486**	93
Business acquisitions	3	**(1,375)**	(164)
Business divestments, net of cash divested	3	**1**	44
Cash flow used for investing activities		**(1,641)**	(577)
Proceeds from increase in third party interest-bearing debt	21	**4,936**	872
Repayments of third party interest-bearing debt	21	**(579)**	(729)
Sales of treasury shares and options over own shares	23	**-**	24
Distributions paid to shareholders		**(4,707)**	(470)
Cash flow used for financing activities		**(350)**	(303)
Net effect of currency translation on cash and cash equivalents		**(66)**	10
Net change in cash and cash equivalents		**(690)**	969
Cash and cash equivalents at the beginning of the year		**2,253**	1,284
Cash and cash equivalents at the end of the year		**1,563**	2,253

Of total cash and cash equivalents of $1,563 million (2017: $2,253 million), $119 million (2017: $99 million) is required to meet insurance solvency requirements of the Group's insurance subsidiaries. These amounts therefore were not readily available for the general purposes of the Group. There are no other significant restrictions on Syngenta's ability to use assets or settle liabilities.

At December 31, 2018 cash equivalents totaled $1,059 million (2017: $1,617 million) and consisted of bank and money market fund deposits.

The accompanying notes form an integral part of the consolidated financial statements.

Consolidated Statement of Changes in Equity

(for the years ended December 31, 2018 and 2017)

($m)	Par value of ordinary shares	Additional paid-in capital	Treasury shares, at cost	Fair value reserves	Cumulative translation adjustment	Retained earnings	Total share-holders' equity	Non-controlling interests	Total equity
	Attributable to Syngenta AG shareholders								
January 1, 2017	6	3,416	(125)	(49)	(1,316)	6,018	7,950	21	7,971
Net income						(98)	(98)	2	(96)
OCI				(15)	374	209	568	1	569
Total comprehensive income	-	-	-	(15)	374	111	470	3	473
Transactions with owners as owners:									
Share based compensation			58			(37)	21		21
Distributions paid to shareholders						(470)	(470)		(470)
Other				(2)		7	5		5
December 31, 2017	6	3,416	(67)	(66)	(942)	5,629	7,976	24	8,000
Net income						**1,438**	**1,438**	**4**	**1,442**
OCI				**36**	**(581)**	**9**	**(536)**	**(2)**	**(538)**
Total comprehensive income	**-**	**-**	**-**	**36**	**(581)**	**1,447**	**902**	**2**	**904**
Transactions with owners as owners:									
Distributions paid to shareholders						**(4,707)**	**(4,707)**		**(4,707)**
Other				**5**	**-**	**-**	**5**	**-**	**5**
December 31, 2018	**6**	**3,416**	**(67)**	**(25)**	**(1,523)**	**2,369**	**4,176**	**26**	**4,202**

The accompanying notes form an integral part of the consolidated financial statements.

The amount available for dividend distribution is based on Syngenta AG's shareholders' equity determined in accordance with the legal provisions of the Swiss Code of Obligations. On May 7, 2018, a dividend of $4,707 million was paid to Syngenta's parent company, CNAC Saturn (NL) B.V. In 2017, a special dividend of CHF 5.00 ($5.05) per share was paid as further disclosed in Note 3.

Included within the fair value reserves are (i) cash flow hedge reserves, which comprise the effective portion of the cumulative net change in the fair value of cash flow hedging instruments related to hedged items that have not yet been recognized in profit or loss, and (ii) fair value reserves, which comprise the cumulative net change in the fair value of equity investments at fair value through OCI. Movements in the cash flow hedge reserves are shown in Note 25. Movements in the fair value reserves for equity investments are shown in Note 26. Amounts within OCI related to actuarial gains and losses of defined benefit post-employment plans are presented within retained earnings.

The cumulative translation adjustment comprises all foreign currency differences arising from the translation of the financial statements of foreign operations, as well as from the translation of long-term monetary items that are part of net investments in foreign subsidiaries.

1. Basis of preparation of the consolidated financial statements

These consolidated financial statements have been prepared in accordance with International Financial Reporting Standards (IFRS or IFRSs) as issued by the International Accounting Standards Board (IASB). The consolidated financial statements have been prepared on an historical cost basis, except for items that are required by IFRSs to be measured at fair value, principally certain financial instruments and biological assets, which are valued at fair value less costs to sell.

The consolidated financial statements incorporate the financial statements of Syngenta AG, a company domiciled and incorporated in Switzerland, and all of its more than 150 subsidiaries globally (together referred to as "Syngenta") and Syngenta's interests in associates and joint ventures. Approximately 40 subsidiaries are considered to be significant legal entities. There are no material non-controlling interests or structured entities. Syngenta's main research and development facilities are located in Switzerland, UK and USA and its main production sites are in Switzerland, UK, USA, France, China and Brazil. Syngenta AG's principal executive offices are at Schwarzwaldallee 215, 4058 Basel, Switzerland.

The parent of Syngenta is CNAC Saturn (NL) B.V., a private company incorporated in the Netherlands. The ultimate parent of Syngenta is China National Chemical Corporation, a state-owned enterprise of the People's Republic of China.

The consolidated financial statements are presented in United States dollars ("$") as this is the major currency in which revenues are denominated. "$m" refers to millions of United States dollars. The functional currency of Syngenta AG is the Swiss franc ("CHF").

Syngenta is a world leading agribusiness operating in the crop protection, seeds, controls and flowers markets. Crop protection chemicals include herbicides, insecticides, fungicides and seed treatments to control weeds, insects and diseases in crops, and are essential inputs enabling growers around the world to improve agricultural productivity and food quality. In Seeds, Syngenta operates in the high value commercial sectors of field crops (including corn, oilseeds and cereals) and vegetables. The controls business provides turf and landscape and professional pest management products, and the flowers business provides flower seeds, cuttings and young plants, to professional growers and consumers.

The preparation of financial statements requires management to exercise judgment when applying accounting policies and to make estimates and assumptions that affect the reported amounts of assets and liabilities, the disclosure of contingent assets and liabilities at the date of the financial statements and the reported amounts of revenues and expenses during the reporting period. Actual results could differ from those estimated. Note 2 below includes further discussion of certain critical accounting estimates.

The consolidated financial statements were approved for issue by the Board of Directors on February 14, 2019.

2. Significant accounting policy judgments and estimates

This note describes the impact on Syngenta's consolidated financial statements of significant accounting judgments made when applying IFRSs and critical assumptions and accounting estimates.

Application of critical accounting policies

Royalty and license income
Individual agreements licensing to third parties the right to use Syngenta technology can and do have unique terms and, consequently, the accounting judgments required to apply IFRS 15 to each such agreement can differ significantly. Syngenta recognizes revenue for non-refundable lump sum and guaranteed minimum license income at the start of a license only when the license is distinct from any related Syngenta obligations to supply licensed products during the license term and Syngenta has performed any obligations related to the license grant. For licenses of seed germplasm and trait technology, Syngenta considers that these criteria are met when the license has become effective, the licensee either has control of biological material from which it can independently breed, produce and sell seeds containing the technology Syngenta has licensed to it under the agreement or can obtain any seed purchase requirements in the market from producers other than Syngenta. For licenses of crop protection technology, Syngenta considers that these criteria are met when the license grants the right to manufacture and sell chemical products containing the licensed technology, the right to obtain related manufacturing and formulation know-how and to use existing regulatory data necessary for the licensee to establish its own independent registration to sell the licensed products.

Impairment
For purposes of testing goodwill for impairment, goodwill is allocated to cash generating units (CGUs). Syngenta generally defines each crop protection product active ingredient and each seed crop as a CGU. However, where one active ingredient is sold in mixture with other active ingredients to a significant extent, the active ingredients concerned are grouped together into a single CGU because independent cash inflows only exist at this higher level. Each CGU is generally defined on a global basis, reflecting the international nature of the business, and contains tangible assets such as Property, plant and equipment (PP&E) as well as intangible assets such as product and patent rights.

North America corn and soybean seeds are defined as a single CGU because of common intellectual property and other interdependencies between these two crops, which do not apply to other crops. Goodwill on certain major acquisitions, principally Zeneca agrochemicals business goodwill of $548 million, was allocated to each Syngenta operating segment in proportion to each such segment's relative value at the time Syngenta established its current basis of segmentation, and is tested for impairment at those levels by relating the allocated amount for each segment to the total cash flows of the respective segment. The goodwill amounts allocated to segments and significant other CGUs are disclosed in Note 13.

For CGUs to which no goodwill is allocated, a reduction in forecast sales within management's five year forecast horizon compared with the previous year's five year forecast cycle, combined with a reduction in latest forecasts of current year sales compared with the current year budget, is generally considered an indicator of market related impairment and results in the performance of detailed impairment tests. Syngenta also performs detailed impairment tests when there are asset specific indicators of impairment such as withdrawal of or restrictions placed upon product registrations, plans to divest products or, for property, plant and equipment, plans to restructure or close a site. Higher discount rates are used to test property, plant and equipment for impairment in the case of restructuring because of the higher risk associated with remaining cash flows when operations are being physically relocated. The value in use calculation takes account of cash flows from the remaining period of operations and includes decommissioning costs.

If a CGU becomes impaired, the impairment loss is allocated first to any goodwill in the CGU, and then to reduce the CGU's other assets pro rata.

Critical accounting estimates

Acquisition accounting

Applying the acquisition method of accounting requires significant management judgment to estimate the fair values and useful lives of the acquired assets, in particular intangible assets such as intellectual property (IP) related to currently marketed products and in-process research and development (IPR&D). In 2018, Syngenta recognized new intangible assets, excluding goodwill, of $737 million (2017: $nil) resulting from acquisitions, principally the Nidera Seeds acquisition. These acquisitions and the fair values recognized for the acquired intangible assets are set out in Note 3. Key valuation assumptions include market size and share, sales pricing trends and competitors' reaction, cost and efficiency of the production process for the products; and the period over which the products are likely to generate economic benefits. Forecast cash flows for each asset are discounted using a rate developed from the estimated Weighted Average Cost of Capital (WACC) of the acquired company. Where Syngenta considers the risks applicable to an asset are not fully reflected in the forecast data available, it incorporates a risk premium into the discount rate. If actual cash flows are materially different from those used in calculating fair values, this may lead to changes in amortization expense or asset specific impairment losses in future periods.

For Nidera Seeds, from the February 6, 2018 acquisition date onwards, Syngenta has charged to the consolidated income statement amortization of acquired intangible assets based on estimated useful lives of 18 to 20 years on a straight-line basis, consistent with its cash flow forecasts for these assets, its accounting policy and the useful lives for other Syngenta intangible assets of a similar nature. Had useful lives of 15 years been applied instead for acquired Nidera intangible assets, annualized amortization expense would have increased by approximately $10 million. Fair value measurements of identifiable intangible assets are based on the forecast cash flows which Syngenta believes a typical potential buyer would use to value the assets, excluding Syngenta specific synergy benefits which consequently increase the amount of goodwill recognized on acquisition. Syngenta includes forecast cost synergies from integrating the acquired entity in the fair value measurements of the assets, as a typical buyer would generally be able to realize these synergies. Significant judgment is required to determine which revenue synergies are relevant to the valuation of each asset, which of these are Syngenta specific and which could be also realized by a typical buyer. Many of Syngenta's forecast synergies for the Nidera Seeds acquisition relate to expected new product introductions from breeding Syngenta's proprietary traits into Nidera's seed germplasm portfolio. In the opinion of Syngenta, trait technology and germplasm technology are separate and, as Nidera Seeds had no significant rights to Syngenta traits at the acquisition date, Syngenta has excluded trait related synergies from the valuation of Nidera's IP for current products and its IPR&D. In deciding to what extent to include revenue synergies in the fair value of Nidera's brand name and customer relationships, Syngenta has reflected its belief that a minority of potential buyers would be able to realize lower synergies than Syngenta's forecasts, and that the majority of buyers would not be able to realize any synergies. If Syngenta had considered that all its forecast synergies could also be realized by typical buyers, the fair value of intangible assets and deferred tax liabilities recognized would have been approximately $400 million and $120 million higher respectively, goodwill on acquisition would have been $280 million lower, and 2018 amortization expense would have been approximately $20 million higher, than the amounts actually recognized.

Adjustments to revenue and trade receivables

Syngenta's products are consumed mainly by growers, but Syngenta invoices the majority of its sales to distributors. The timing and amount of cash inflows received by growers is impacted by a broad range of economic and political risks, including crop yields and prices, the availability of credit, and the cost of agricultural inputs such as the products sold by Syngenta and its competitors. The cash flows of distributors that supply Syngenta's products to growers and represent the majority of Syngenta's customers are also impacted by these factors. These distributors vary in size and nature from large publicly owned entities to small or medium sized owner-managed businesses. Syngenta's customer base reflects the geographical diversity of its operations, which encompass more than 90 countries and all significant agriculture areas. Considerable management effort and judgment is applied to actively manage and mitigate the risks to Syngenta from these factors and to determine the accounting estimates associated with them, which are set out below:

– the estimated cost of incentive programs that provide rebates and discounts is dependent upon achievement of sales targets, as well as cash discounts for punctual payment of accounts receivable. Syngenta records the estimated cost of these programs when the related sales are made, based on the programs' terms, market conditions and historical experience. At December 31, 2018, trade accounts payable include $1,597 million (2017: $1,360 million) of accruals for customer rebates and incentive programs.

– commercial terms in certain markets also provide a right of return, subject to eligibility restrictions by product and either an annual cap equal to a percentage of sales in the immediately prior year, or a return period typically extending up to the end of the agricultural season in which the product was originally sold, which can be 9 months. Accruals for estimated product returns are based on contractual sales terms and on historical experience of actual returns where Syngenta considers these to be reliable estimates of future returns. At December 31, 2018, trade accounts payable includes $255 million (2017: $284 million) of accruals for sales returns. Actual returns can vary significantly from estimates in market segments where the distribution channel holds several months' sales of Syngenta products at the reporting date, forecast consumption of those products by growers could be materially affected if market or weather conditions after the reporting date were significantly different from those expected and the volume of products returned by distributors varies with changes in grower consumption. This is especially relevant to Brazil and certain other markets in the southern hemisphere given the Group's financial reporting year-end falls in the middle of the peak demand season for the Group's crop protection products. Actual sales returns in 2017 in Brazil of crop protection products Syngenta sold during 2016 were $201 million, representing 12% of relevant sales. This exceeded the $87 million provided at December 31, 2016, mainly due to two reasons: firstly, high inventories arose in the distribution channel in southern Brazil from continuing lower levels of pest pressure and crop prices than in prior years. A significant proportion of 2017 returns resulted from Syngenta working with customers to manage their inventory levels and accounts receivable. This significantly reduced receivable balances through increased collections as well as credits for returned products. Secondly, Syngenta repositioned its key fungicide Elatus™ to ensure growers receive maximum benefit from using the product as the Brazilian crop protection industry addresses performance issues growers have experienced from applying carboxamide fungicides. Returns of Elatus™ in 2017 were $50 million. Actual sales returns in 2018 in Brazil of crop protection products Syngenta sold during 2017 were $137 million, representing 11 percent of relevant sales. This is less than the $171 million provided at December 31, 2017. In accordance with IFRS 15, sales subject to returns are recognized only to the extent that it is highly probable that a significant reversal in the amount of revenue recognized will not occur when the uncertainty associated with the amount of returns is subsequently resolved. Syngenta expects significantly lower levels of sales returns in 2019 compared to 2018 for the following reasons:

- Syngenta believes that channel inventories of crop protection products are lower than at the end of 2017.
- consumption of crop protection products in the 2018/19 agricultural season is expected to be higher than in 2017/18 by a high single digit percentage, driven by growth in the cotton area planted and in the sugar cane market, increased use of herbicides due to the spread of weed resistance, and adoption of premium fungicide products by growers.

– The effect of these positive factors is expected to be partly offset by the impact of adverse weather patterns in Southern Brazil. At December 31, 2018, Syngenta has recorded a $110 million allowance for sales returns of crop protection products in Brazil, representing 7 percent of relevant sales in 2018.

– allowances for doubtful receivables, which are estimated by critically analyzing individual receivable account balances, taking into account historical levels of recovery and the value of any security held or agreed barter programs which mitigate credit exposure, the economic condition of individual customers, and the overall economic and political environment in relevant countries. As shown in Note 9, the provision for doubtful receivables at December 31, 2018 amounted to $375 million, or 8 percent (2017: $448 million or 10 percent) of total trade receivables, of which $98 million and $60 million (2017: $230 million and $52 million) related respectively to sales made to the Brazilian and Venezuelan markets. In Brazil in 2017, Syngenta increased the allowance because lower crop prices and high inventory levels resulted in several customers experiencing payment difficulties. In Venezuela the collection shortfall is due to constraints on availability of credit and foreign currency at both customer and country level. In 2018, Syngenta reported $33 million bad debt expense (2017: $69 million). The main reason for the reduced expense was successful recovery of certain overdue receivables in Brazil and release of the related allowances made at December 31, 2017.

Syngenta records these estimates as separate allowances, but its estimation process recognizes their interdependency, as the level of credits to accounts receivable for discounts and product returns may affect the probability of receiving full payment of the net receivable balances.

Deferred tax assets

At December 31, 2018, Syngenta's deferred tax assets are $1,099 million (2017: $1,099 million), as further analyzed in Note 7. Included in this balance are deferred tax assets for unused tax losses and tax credits of $101 million (2017: $31 million), of which $88 million (2017: $13 million) relates to tax losses. The ultimate realization of deferred tax assets is dependent upon the generation of future taxable income during the periods in which those temporary differences become deductible or in which tax losses can be utilized. The tax effect of unused tax losses is recognized as a deferred tax asset when it becomes probable that the tax losses will be utilized. In making assessments regarding deferred tax assets, management considers the scheduled reversal of deferred tax liabilities, projected future taxable income and tax planning strategies. At December 31, 2018, based upon the level of historical taxable income and projections for future taxable income over the periods in which deferred tax assets are deductible, management believes that it is more likely than not that Syngenta will realize the benefits of these deductible differences.
The amount of deferred tax assets considered realizable could however be reduced in subsequent years if estimates of future taxable income during their carry forward periods are reduced, or rulings by the tax authorities are unfavorable. Estimates are therefore subject to change due to both market related and government related uncertainties, as well as Syngenta's own future decisions on restructuring and other matters. Syngenta is unable to accurately quantify the future adjustments to deferred income tax expense that may occur as a result of these uncertainties.

The principal jurisdictions where deferred tax assets have not been recognized at December 31, 2018 are Brazil, the USA and Argentina (2017: Brazil and Belgium). At December 31, 2018, Syngenta has recognized $87 million (2017: $131 million) of net deferred tax assets in Brazil and has not recognized $77 million (2017: $73 million) of deferred tax assets. Restriction of the amount recognized increased 2018 deferred income tax expense by $4 million (2017: $49 million). Syngenta has assumed local profitability in 2019 and future years similar to the historical average. In making this assessment, the forecast horizon used for taxable profits is 5 years. Taxable profits that may arise beyond the 5 year horizon are subject to greater uncertainty and have not been considered.

Interpretation of the US tax law enacted in December 2017 indicates that stricter criteria limiting interest deductions will apply. At December 31, 2018, Syngenta has recognized $170 million (2017: $110 million) of net deferred tax assets in the USA, and has not recognized $48 million (2017: $nil) of deferred tax assets relating to a $190 million temporary difference for interest carryforwards. Syngenta has performed an analysis in order to determine the amount of deferred tax asset it should recognize, assuming that the level of debt financing of Syngenta's US subsidiaries will remain stable. In 2017, Syngenta had remeasured its US deferred tax assets to take account of the tax reforms. That remeasurement increased Syngenta's 2017 deferred tax expense by $96 million.

At December 31, 2018, Syngenta has recognized $78 million (2017: $33 million) of net deferred tax assets in Argentina, and has not recognized $16 million (2017: $nil) of deferred tax assets. The tax law enacted in December 2018 restricts deduction of financial expenses and limits carryforward to 5 years. There is now uncertainty as to whether Syngenta will be able to recover deductions carried forward. A further extension of this rule is that foreign exchange losses arising on loans in foreign currencies are also subject to the limitation.

Uncertain tax positions

Syngenta estimates and accrues taxes that will ultimately be payable when reviews or audits by tax authorities of tax returns are completed. These estimates include significant management judgments about the eventual outcome of the reviews and audits of all open years based on the latest information available about the positions expected to be taken by each tax authority. Actual outcomes and settlements may differ significantly from the estimates recorded in these consolidated financial statements. This may affect income tax expense reported in future years' consolidated income statements.

Syngenta has a global supply chain, and intellectual property rights owned by Syngenta are used internationally within the Group. Transfer prices for the delivery of goods and charges for the provision of services, which include contract research and development, contract manufacturing and internal financing arrangements, by one Syngenta subsidiary to another may be subject to challenge by the national tax authorities in any of the jurisdictions in which Syngenta operates. Syngenta has a global transfer pricing policy in place and applies, to the maximum extent possible, a consistent methodology on a global basis. Transfer pricing determination in general, and the benchmarking process in particular, involve significant judgment and therefore a certain level of uncertainty remains as to whether tax authorities will challenge the pricing applied in the light of the new, complex transfer pricing guidelines in connection with the Base Erosion and Profit Shifting (BEPS) initiative.

At December 31, 2018, Syngenta's balance sheet includes assets of $145 million (2017: $168 million), and liabilities of $539 million (2017: $474 million), for current income taxes. These liabilities include $410 million in respect of the uncertain tax positions described above (2017: $413 million).

Releases of uncertain tax liabilities during 2018 and 2017 related to changes in tax legislation, closure of previously open tax computations through expiry and settlement of tax audits. The liability for uncertain income tax positions that Syngenta expects will be resolved in 2019 is approximately 9 percent of total recognized current income tax liabilities.

Significant management judgment has been required to estimate the income tax benefits associated with the $1,100 million (2017: $1,500 million) Viptera litigation provision described in Note 20 because the Syngenta entities named as parties to the litigation are incorporated in different tax jurisdictions. Syngenta's estimates at December 31, 2018 and 2017 assume that all the provision will be deductible for income taxes but that deductions will be claimed in more than one jurisdiction. Syngenta estimated the benefit using an average of the tax rates of the relevant jurisdictions. The ultimate benefit realized may be different from this estimate and this difference may have a material effect on Syngenta's income tax expense for 2019 and/or future periods.

In Brazil, Syngenta received adverse rulings at administrative court level in transfer pricing disputes for fiscal years 2003 and 2011, and has filed appeals at civil court level. Additionally, Syngenta has appealed at administrative level against a transfer pricing assessment for fiscal year 2013. Syngenta believes these appeals will succeed and has recognized no liability for the estimated aggregate $104 million (2017: $93 million) contingent liabilities in these disputes.

Seeds inventory valuation and allowances

Inventories of $4,292 million (2017: $4,174 million) reported in Note 11 include $1,221 million (2017: $1,123 million) of seeds, which are subject to the risk of loss through physical deterioration at all stages of the operating cycle. Syngenta accounts for normal losses that occur during production, both in the pre-harvest growing and the post-harvest processing stages, as part of the cost of inventories of in-process and finished seeds. Normal losses in production, which include the cost of seeds discarded before processing because they do not meet Syngenta's quality standards, are therefore expensed when the related finished seed is sold to customers. Losses of finished seeds are expensed as incurred. Syngenta records allowances against the cost of seeds inventories for both quality and obsolescence. Syngenta records allowances for quality for finished seed which is currently of defective quality and for finished seed which is expected to deteriorate physically before sale, based on past experience. Syngenta records allowances for obsolescence for excess seed for which there is insufficient forecast customer demand over the expected remaining commercial life of each seed variety. For excess seeds that Syngenta is likely to be able to sell in the commodity market, the allowance is the cost of the seed minus its net realizable value, which is estimated as the expected net proceeds of commodity sale. If commodity sale is not probable, the allowance is the full cost of the excess seed inventories.

To determine the allowances required, management effort and judgment is applied to analyze at crop, variety and batch level seed inventory quantity, quality and forecast sales data, developing commercial practices, available markets and the speed of expected product portfolio changes. The rapidly evolving combination of corn seed genetics and trait stacks in North America and Latin America result in shorter commercial lives of a typical hybrid seed variety than in other crops and regions, with variation between actual and previously forecast sales and consequent greater risk of excess seed at individual hybrid level. Excess seed quantities are also affected by harvest yield, which is influenced by unpredictable weather and growing conditions. Seeds inventory allowance expense for 2018 was $174 million, with increased soybean seeds provision expense driven by lower commodity prices (2017: $179 million, which included $29 million directly related to divestment of the sugar beet seeds business), and the allowance balance at December 31, 2018 was $233 million (2017: $240 million), with lower provisions required in vegetables seeds and EAME.

Impairment review

At December 31, 2018, Syngenta has reported intangible assets of $2,260 million (2017: $1,659 million) for goodwill and $1,961 million (2017: $1,314 million) for intangible assets other than goodwill, as reported in Note 13. The recoverable amount for goodwill has been determined based on value in use of the relevant operating segment, CGU or group of CGUs to which the goodwill is allocated. The recoverable amounts of all material intangible assets and property, plant and equipment (PP&E) have also been based on their value in use.

The main assumptions used in determining the recoverable amounts for operating segments and other CGUs include market size and Syngenta's market share, future sales prices and volumes, future development expenditures required to maintain products' marketability and registration in the relevant jurisdictions, and products' lives. At operating segment level, the key assumptions related to sales volume and value are expressed separately for each product line, market segment and crop, and assumptions related to expenses are expressed by region. At CGU level, assumptions are expressed by product. The assumptions are reviewed annually as part of management's budgeting and strategic planning cycles. These assumptions can be subject to significant adjustment from such factors as changes in crop growing patterns in major markets (for example, as a result of movements in crop prices), changes in product registration, or pressure from competitor products. Estimated cash flows for operating segments and other CGUs are based on Syngenta management forecasts, cover a five year horizon except where a longer horizon is required to reflect cash flows from the development and introduction of new products due to the length of the product development cycle, and include a terminal value which assumes a 2.0 percent long-term growth rate (2017: 2.0 percent). Syngenta's forecasts for the North America corn and soybean seed CGU also include the following key assumptions for revenue from seed sales:

– for each of the two crops, market size expressed as acres planted, Syngenta's market share, crop commodity prices, and licensing revenues;

– for new genetic traits, the timing of regulatory approval and marketing launch, and seed pricing compared with existing products.

Management believes, based on recent and expected future growth in agricultural markets, that there are long-term prospects for continued growth in Syngenta's business.

The key inputs used to calculate the pre-tax discount rates used to discount the estimated future cash flows included in the value in use calculations are as follows:

– post-tax weighted average cost of capital: 7.2 percent (2017: 7.0 percent)

– risk-free rate: 3.2 percent (2017: 2.9 percent) equal to market yields on 30-year government bonds at the date of performing the annual impairment test

– equity risk premium 5.0 percent (2017: 5.0 percent).

The discount rate determined in this way is considered to include market estimates of industry sector risk premium. Syngenta's CGUs generally reflect the global nature of its Crop Protection and Seeds product sales, and a country risk premium is applied only to those CGUs where the geographical scope of operations and cash flows is limited. The pre-tax discount rates used for all segments, CGUs and groups of CGUs ranged from 7.9 percent to 14.9 percent (2017: 7.8 percent to 11.4 percent).

At December 31, 2018 and 2017, the largest amounts of goodwill were allocated to the Asia Pacific operating segment (2018: $326 million; 2017: $343 million), the North America corn and soybean CGU (2018: $318 million; 2017: $315 million) and the Rest of World (excluding North America) corn and soybean CGU (2018: $571 million including Nidera Seeds which was acquired during the year; 2017: $35 million). The pre-tax discount rate used for goodwill impairment testing was 8.4 percent (2017: 9.3 percent) for Asia Pacific, 8.5 percent (2017: 8.1 percent) for the North America corn and soybean CGU and 8.6 percent (2017: 8.2 percent) for the Rest of World corn and soybean CGU. The forecast terminal growth rate was 2.0 percent (2017: 2.0 percent) for all three CGUs.

For the North America corn and soybean CGU, recoverable amount exceeds carrying amount by $823 million at the 8.5 percent discount rate used, and is approximately equal to carrying amount at a 12.5 percent discount rate. In the opinion of Syngenta, the outcomes of the impairment tests are not sensitive to reasonably likely changes in any of the assumptions underlying the cash flow projections used for the impairment tests or in the discount rate in the periods presented for any other segment, CGU or group of CGUs for which the carrying amount of goodwill is significant.

For the year ended December 31, 2018, impairment losses for intangible assets were $77 million (2017: $5 million) relating mainly to a seeds crop CGU where further development of certain technologies held by Syngenta is not considered cost effective and activities have been suspended. At December 31, 2018, the recoverable amount of this CGU was $56 million and its carrying amount included non-current assets of $39 million.

Environmental provisions
At December 31, 2018, Syngenta reported in Note 20 provisions for environmental remediation of $176 million (2017: $186 million). Remediation of environmental damage at sites with which Syngenta is associated typically takes a long time to complete due to the substantial amount of planning and regulatory approvals normally required before remediation activities can begin. The assumptions used by Syngenta to estimate its environmental provisions may change significantly before or during the remediation period due to changes in the extent of remediation required or the method used to remediate the damage. In addition, increases in or releases of environmental provisions may be necessary whenever new developments occur or additional information becomes available. The major uncertainties that impact the outcome of remediation are:

– the extent of the contaminated land area, which is not always limited to land occupied by the Syngenta site. Ongoing monitoring or remediation work may identify changes in the area believed to be contaminated.

– the nature of the work Syngenta will be obliged to perform or pay for. This depends upon the current or proposed use of contaminated land, substantively enacted legislation, and land zoning by and negotiation with the relevant regulatory authorities. In Switzerland, proposed remediation plans at certain sites may be subject to public referenda.

– sharing of costs with other past and present occupiers of Syngenta's sites. At certain shared sites, Syngenta is responsible for an agreed proportion of remediation costs, which may change following discussions with authorities and the affected third parties. At other sites, third parties have agreed to reimburse Syngenta for some or all of the costs it incurs.

Consequently, environmental provisions can change significantly. Because of the inherent uncertainties in estimating such long-term future obligations, Syngenta periodically supplements its internal expertise with external expertise when determining environmental provisions.

In 2018 and 2017, except for $12 million (2017: $11 million) of cash outflows reflecting remediation activity, there were no significant changes to environmental provisions.

Proposals have been made suggesting remediation of the existing contamination on certain shared sites in preference to monitoring and containment. Syngenta will negotiate the proposals with the relevant authorities but the final adopted solution is subject to regulatory uncertainty and the ultimate liability may be higher or lower than the amount provided. Taken together, the provisions at December 31, 2018, for these shared sites comprise approximately 25 percent of total environmental provisions. The top ten exposures at the end of 2018 comprise approximately 78 percent of the total environmental provisions. In the opinion of management, reasonably possible increases in the provisions related to these top 10 exposures would not exceed 85 percent of the total environmental provision recognized at December 31, 2018.

At Syngenta's Monthey, Switzerland, production site, the majority of the work currently needed to remediate groundwater and soil contamination at the site has been carried out. Future expenditure will be related to the ongoing remediation of contamination hot spots and the groundwater treatment programs. The responsibility for these activities lies with Syngenta and one other chemical enterprise. In management's opinion, based on its current knowledge, Syngenta's environmental provisions are adequate to cover Syngenta's share of the expected costs to perform this remediation and no significant change to the provision has been made in 2018 or 2017. However, the final extent of the remediation work required, the cost estimates and their allocation continue to be subject to uncertainty.

Defined benefit post-employment benefits

At December 31, 2018, Syngenta has reported other non-current assets of $nil (2017: $13 million) and provisions of $421 million (2017: $577 million) as net defined benefit (DB) pension assets and liabilities, respectively, as set out in Note 22. These amounts may change significantly from one accounting period end to another due not only to expense recognized in profit and loss and cash payments, but also to changes in the actuarial assumptions used to measure the defined benefit obligation (DBO) and to variances between those assumptions and actual outcomes ("experience variances"), both of which are recognized in OCI. Significant judgment is required when selecting key assumptions for measuring post-employment benefit expense for a period and the DBO at the period end for each defined benefit plan. The specific assumptions used and experience variances are disclosed in Note 22. These variances were caused principally by external financial market movements in corporate bond yields used to benchmark the discount rate, and in asset prices affecting the actual return on assets. These factors are outside Syngenta's direct control, and it is reasonably possible that future variances will be at least as great as past variances.

At December 31, 2018 and 2017, for each of Syngenta's three largest defined benefit pension plans, the sensitivity of the DBO to a change in each significant actuarial assumption is as follows:

($m)	2018			2017		
Increase (decrease) in DBO	**Switzerland**	**UK**	**USA**	Switzerland	UK	USA
Discount rate – 25 basis point decrease in rate	**96**	**106**	**23**	103	143	26
Discount rate – 25 basis point increase in rate	**(90)**	**(103)**	**(22)**	(96)	(139)	(26)
Pension increase – 25 basis point increase in rate	**n/a**	**94**	**n/a**	n/a	127	n/a
Pension increase – 25 basis point decrease in rate	**n/a**	**(92)**	**n/a**	n/a	(124)	n/a
Interest credit rate – 25 basis point increase in rate	**17**	**n/a**	**n/a**	19	n/a	n/a
Interest credit rate – 25 basis point decrease in rate	**(16)**	**n/a**	**n/a**	(19)	n/a	n/a
Life expectancy[1]	**63**	**107**	**8**	64	134	10

1 The life expectancy sensitivity is calculated using the difference between the reported DBO amount and the DBO amount projected using a one year increase, compared with the assumptions actually used, in the life expectancy for each plan member. This alternative projection is calculated using mortality rates that produce an immediate increase of one year for a plan member at normal retirement date, with corresponding changes at other ages.

Each sensitivity amount is calculated assuming that all other assumptions are held constant. It should be noted that economic factors and conditions often affect multiple assumptions simultaneously. For the UK pension plan, the discount rate and pension increase sensitivities shown are relative to price inflation, because limited price indexation of pensions in payment and deferred pension rights is required both by the Syngenta UK pension plan rules and by UK statutory pension regulations. For Syngenta's Swiss and US plans, the sensitivities are for changes in the nominal discount rates, because the rules and statutory regulations applicable to those plans contain no inflation linkage and indexation of benefits to inflation is not general market practice in those countries. Syngenta is not able to predict the extent of likely future changes in the discount rate or life expectancy assumptions, but based on past experience, the discount rate for each plan could change by up to 150 basis points (bp) within a twelve month period. Pensionable pay is now permanently frozen for the UK DB pension plan as explained below, and the sensitivity of the DBO to the assumed rate of increase in pensionable pay is not material for the Swiss or US plans.

To select the discount rate, Syngenta uses yields of AA rated corporate bonds. The relevant yield is determined either by analyzing a population of bonds whose cash flows collectively approximate the estimated cash flow profile of benefit payments by a Syngenta plan (UK and USA), or by using the yield of a published bond index and adjusting it in line with the relevant market yield curve to the extent that the average maturity of the bonds in the index is different from that of the relevant Syngenta benefits (Switzerland). In 2018, Syngenta excluded government bonds from the bond population used to estimate its UK discount rate. The effect of this change in estimate was to increase the discount rate by approximately 15 bp. Nominal discount rates at December 31, 2018 are as follows:

Switzerland	0.75 percent	(2017: 0.65 percent)
UK	2.80 percent	(2017: 2.38 percent)
USA	4.25 percent	(2017: 3.60 percent)

In valuing the UK DBO at December 31, 2018, the UK long-term rate of retail price inflation (RPI) is assumed to be 3.23 percent (2017: 3.19 percent). Future statutory pension increases are based on consumer price inflation (CPI). Most Syngenta UK pension plan members have benefits specifically linked to RPI in accordance with the plan rules, but some members will see increases linked to CPI. CPI is assumed to be 100 basis points (2017: 100 basis points) below RPI.

Over the last 20 years, life expectancy estimates steadily increased in all major countries in which Syngenta sponsors pension plans, although available data for the UK and USA for the two most recent years indicates a slowing of the rate of increase compared to previous projections, and Syngenta's projections of future life expectancy improvement have reduced accordingly. Syngenta sets mortality assumptions after considering the most recent statistics practicable. Syngenta uses generational mortality tables to estimate probable future mortality improvements. These tables assume that the trend of increasing life expectancy will continue, resulting in pension benefit payments to younger members being likely to be paid for longer time periods than older members' pensions, given that assumed retirement ages are those defined in the rules of each plan. At December 31, 2018, the UK DBO was estimated using mortality rates based on the UK Institute and Faculty of Actuaries' CMI SAPS Pensioner Amounts Light Tables with 1.75 percent per annum long term trend from 2008-2018 (2017: CMI SAPS Pensioner Amounts Light tables reflecting long cohort improvements from 2002-2012), with assumed future improvement of 1.25 percent (2017: 1.25 percent) per annum in line with the CMI Core Projections model 2017 (2017: CMI Core Projections model 2016). Mortality assumptions were updated in 2018 following the most recent triennial valuation for UK statutory purposes at March 31, 2018, reducing the DBO by $54 million (2.2 percent) Syngenta's use of updated future improvement projections in 2017 reduced the DBO in that year by $51 million. The next statutory valuation of the plan will be performed at the latest at March 31, 2021.

At December 31, 2018 and 2017 Syngenta valued the benefit obligation for its Swiss pension plan using mortality, disability and employee turnover assumptions from the BVG 2015 generational table. When Syngenta began to apply that table in 2016, the Swiss DBO increased by $75 million (3.4 percent). At December 31, 2018, Syngenta valued the benefit obligation for its US pension plan using mortality assumptions from the RP-2017 generational mortality table together with Scale MP-2017 mortality improvements starting with base year 2017 (2017: base year 2006). This resulted in no material change in the benefit obligation compared to the assumptions previously used.

Syngenta's major pension plans give members lump sum or annuity benefit payment options. Syngenta values its pension liabilities on the assumption that the choices made by members who will retire in the future will be consistent with choices made by members who have retired recently.

In 2014, Syngenta amended the benefits of the UK plan so that pensionable pay will remain frozen at January 1, 2016 levels. The plan remains open to benefit accrual for existing members, and pay increases awarded after January 1, 2016, which are not part of defined benefit pensionable pay, are pensionable under the Syngenta Group Personal Pension (GPP), a separate defined contribution plan, for those who choose to join. Employees who choose to leave the defined benefit section of the UK pension plan are able to join the GPP. From 2014 up to and including 2017, Syngenta assumed that 10 per cent of members would opt-out from the DB section of the plan in future due to the pensionable pay freeze. In 2018, because of the time that has elapsed since the plan amendment, Syngenta no longer considers such an assumption to be necessary, Recent regulatory changes allow members aged at least 55 to transfer their benefits out of the plan into arrangements which allow flexible cash withdrawals, in contrast to the previous requirement that members take at least 75% of their benefit in annuity form. Market conditions in 2018 and 2017 resulted in transfer values favorable to members. These factors resulted in $203 million (2017: $261 million) of benefit payments out of the UK plan as certain members withdrew all their benefits. Syngenta has not made any allowance for future transfers out in connection with the regulatory changes. Available data indicates that if transfers were to continue at the current rate until the next statutory valuation, this would not cause Syngenta to recognize a material actuarial gain or loss in its consolidated financial statements.

Certain UK pension plans, including the Syngenta UK plan, were required by legislation in force between 1978 and 1997 to accrue part of their members' pension ("GMP") in a way that gave rise to inequalities between men and women, but also had a formula independent of GMP for the total pension, resulting in the non-GMP part of total pension also being unequal. The European Court of Justice in *Barber v Guardian Royal Exchange Assurance Group* [1991] ruled that pensions earned from that point onwards must treat men and women equally. However, given GMP benefits were unequal but were prescribed in legislation, it was unclear what would need to be equalized or how. This remained the case until the October 2018 UK High Court decision in *Lloyds Trustees vs Lloyds Bank PLC and Others* (the Lloyds case), which confirmed that pension plans are required to equalize the non-GMP part of members' benefits earned between 1990 and 1997, when legislation changed so that GMPs ceased to accrue. The Lloyds case decision also indicated that the employers could require the plan trustees to choose a particular approach to equalization, "Method C2", which requires comparison of the pension payable to each member with the pension that would be payable to a notional member identical to the member in all respects except gender, and retrospective payment of accumulated pension equal to the higher of the unequalized male or female benefit, together with interest on the underpaid amount. Syngenta has increased the UK DBO in 2018 by $22 million to reflect the effect of applying Method C2 as set out in the Lloyds case decision using estimates based on current aggregate member data, accounting for this as an actuarial loss. This estimate is subject to significant uncertainty because certain points remain to be clarified following the court judgment, detailed calculations by member are not yet available and the actual effect of equalizing benefits may differ.

IFRSs require Syngenta to estimate the economic benefit it can obtain from the amount by which the fair value of assets held in a DB plan exceeds the DBO measured in accordance with IAS 19 ("surplus"), and recognize a reduction in the net DB asset to the extent that the future economic benefit is lower than the actual surplus at the reporting date, or an increase in the net DB liability if the future economic benefit is lower than the projected future surplus that would arise when Syngenta meets an existing minimum funding obligation. Accounting recognition of a surplus in Syngenta's UK defined benefit pension plan is supported by the economic benefit of future contribution savings and, when that benefit is less than the surplus, also by the future refund, net of applicable taxes, which will be unconditionally available to Syngenta when all liabilities have been settled. At December 31, 2018, Syngenta recognized $72 million (2017: $20 million) additional liability, mainly because the projected surplus increased due to lower discount rate and mortality rate assumptions (2017: due to the 2017 funding agreement between Syngenta and the plan Trustee described in detail in Note 22 below). This additional liability represents taxes Syngenta would suffer on the portion of the projected surplus supported by Syngenta's refund rights. In 2017, Syngenta's main US pension plan was amended to freeze benefit accrual for existing members as from December 31, 2018, as further described in Note 22 below. At December 31, 2018, Syngenta has recognized $nil ($12 million) of the $5 million (2017: $26 million) surplus as an asset, because without future service cost there is no economic benefit from future contribution savings, and US pension regulations do not permit a refund. At December 31, 2018 and 2017, there was no surplus in Syngenta's Swiss pension plan.

Litigation provisions
Syngenta's accounting estimates related to provisions for litigation are disclosed in Note 20.

3. Acquisitions, divestments and other significant transactions

The following significant transactions occurred during 2018 and 2017.

2018

Acquisition of Nidera Seeds
On February 6, 2018, Syngenta completed the acquisition of the global seeds business of Nidera from Nidera B.V., a subsidiary of COFCO International Ltd., by acquiring 100% of the issued shares of Nidera Seeds Holding B.V.. The acquisition of Nidera Seeds will strengthen Syngenta's position in the Latin American seeds market and create value by leveraging Nidera's corn and soybean seed germplasm, strong research and development pipeline and broad footprint in Latin America.

Other acquisitions

On February 1, 2018, Syngenta acquired 100% of the stock of FarmShots, Inc., a US-based innovator of high-resolution satellite imagery that, *inter alia*, detects plant health by analyzing absorbed light from field images. This platform with proprietary processing and multiple plant health index capabilities provides actionable insights normally acquired by walking through a farm and visually inspecting plants. It enables growers to reduce field scouting by as much as 90 percent and helps them focus on areas of need. The acquisition will enhance Syngenta's offer to growers.

On March 30, 2018, Syngenta purchased the business of Abbott & Cobb, a US-based privately owned global breeder and seller of proprietary hybrid vegetable seeds. The acquisition will strengthen Syngenta's sweet corn vegetable seeds business.

On April 30, 2018, Syngenta purchased 100% of the quotas of Strider Desenvolvimento de Software Ltda ("Strider"), a company incorporated in Brazil. Strider is an important participant in the Latin American digital agriculture market. Strider develops and markets technological tools and digital farm management solutions. The acquisition will enhance Syngenta's digital agriculture capability, and hence its offer to growers, in Latin America and globally.

On July 26, 2018 Syngenta acquired 100% of the shares of Icepage Limited, the holding company of Floranova, a respected UK based flower and home garden vegetable seeds breeder. The acquisition covers some important gaps in Syngenta's portfolio of flower seeds crops and enhances its flower business in fast growing Asian markets.

The assets, liabilities and acquisition-date fair value of consideration currently recognized for all 2018 business combinations are as follows:

($m)	Nidera	Other	Total
Cash and cash equivalents	**23**	**1**	**24**
Inventories	**97**	**10**	**107**
Trade receivables and other current assets	**240**	**5**	**247**
Property, plant and equipment	**79**	**5**	**84**
Intangible assets	**710**	**27**	**737**
Deferred tax and other non-current assets	**6**	**2**	**6**
Trade and other liabilities	**(74)**	**(3)**	**(77)**
Deferred tax liabilities	**(197)**	**(5)**	**(202)**
Net assets acquired	**884**	**42**	**926**
Purchase price	**1,473**	**85**	**1,558**
Goodwill	**589**	**43**	**632**

The purchase price of other acquisitions includes $9 million of contingent and deferred consideration. Transaction costs related to all the above acquisitions were $6 million. Syngenta currently does not expect to be able to claim significant tax deductions in respect of the above goodwill.

Cash flow from these acquisitions was as follows:

($m)	Nidera	Other	Total
Total cash paid	**(1,473)**	**(76)**	**(1,549)**
Net cash acquired	**23**	**1**	**24**
Net cash outflow	**(1,450)**	**(75)**	**(1,525)**

As noted below, a deposit of $150 million was paid into escrow in 2017 for the acquisition of Nidera Seeds.

For the Nidera acquisition, amounts included in the 2018 consolidated income statement were sales of $315 million and net loss of $58 million. The net loss includes both the purchase accounting impacts of $30 million for releases of inventory step up and $19 million of amortization of intangible assets and the provision for indirect tax exposures of $24 million described in Note 6. The amounts that would be included in a 2018 consolidated income statement on a proforma basis, as though the acquisition had occurred on January 1, 2018 are sales of $326 million and net loss of $80 million. The gross contractual amounts of acquired receivables were $203 million and the estimate of uncollectible amounts was $17 million. For the other acquisitions the amounts are immaterial.

Divestment of remedy assets

On October 24, 2017, Syngenta announced that Adama Agricultural Solutions Ltd ("Adama") and Syngenta had entered into binding agreements with Nufarm Limited ("Nufarm") to sell a portfolio of crop protection product rights for a total agreed transaction value of $490 million, of which $95 million related to Syngenta product rights. Syngenta, Adama and Nufarm completed these transactions on March 16, 2018. The combined portfolio of products divested includes off-patent crop protection formulations in the herbicides, fungicides, insecticides and other categories in the European Economic Area (EEA), and related inventories. No other physical assets or personnel were transferred by Syngenta as part of the transaction. The transaction was carried out in accordance with the commitments given to the European Commission relating to ChemChina's acquisition of Syngenta.

In connection with this transaction, Syngenta agreed to divest and license to Adama certain of its crop protection products, and Adama agreed to grant Syngenta distribution rights to certain of its crop protection products in EAME. The parties also entered into necessary transitional supply agreements. In relation to all the transactions mentioned above, Adama agreed to transfer to Syngenta the cash consideration, net of taxes and transaction costs, which it received for the divestment of its crop protection products, amounting to $313 million, together with the distribution rights to Adama products mentioned above, the fair value of which Syngenta has estimated at $26 million.

The $365 million gain recognized by Syngenta on the above transactions is reported within Divestment gains in the consolidated income statement.

Sale and leaseback of Syngenta headquarters

On December 31, 2018, Syngenta completed a sale and leaseback transaction for two buildings at its Basel headquarters site, recognizing a $69 million gain on disposal within Divestment gains in the consolidated income statement. Syngenta has classified the leases as operating leases in accordance with IAS 17.

2017

Public tender offer for Syngenta AG shares by CNAC Saturn (NL) B.V. ("the Offeror")

Syngenta AG registered shares and ADSs

As of March 23, 2016, CNAC Saturn (NL) B.V. ("the Offeror"), a subsidiary of ChemChina, launched public tender offers in Switzerland and the United States to acquire all the publicly held registered shares and, in the U.S. offer, also all American Depositary Shares (ADSs) of Syngenta AG ("the ChemChina Tender Offer") for $465 per registered share in cash. On May 10, 2017, it was announced that, as of the end of the Main Offer Period, 76,128,826 Syngenta AG registered shares (including those represented by ADSs), corresponding to 82.23% of the voting rights, had been tendered in the ChemChina Tender Offer and that the Offer had been successful. On May 31, 2017, it was further announced that, as of the end of the Additional Acceptance Period, the definitive end result of the ChemChina Tender Offer was that the Offeror's participation was 87,650,988 Syngenta AG registered shares (including those represented by ADSs), corresponding to 94.68% of the voting rights. On July 13, 2017, following the purchase of additional Syngenta shares, ChemChina announced that its participation in Syngenta AG had exceeded 98 percent of Syngenta's share capital. As a consequence, following filing of a petition by ChemChina, on December 18, 2017, Syngenta announced that the Appellate Court Basel-City had cancelled all publicly held registered shares of Syngenta AG. Holders of cancelled shares were paid a cash compensation in the amount of $465 for each cancelled share. Syngenta AG shares were delisted from SIX Swiss Exchange on January 8, 2018, with the last trading day being January 5, 2018. Syngenta ADSs were delisted from the New York Stock Exchange effective on January 18, 2018, with trading of the ADSs suspended prior to the market opening on January 8, 2018.

Special dividend

On May 16, 2017, as a result of the ChemChina Tender Offer being declared successful, Syngenta AG paid a special dividend of $470 million (CHF 5.00 per share).

Amendments to Syngenta's Equity Plans

On February 1 and 2, 2016 the Syngenta Board of Directors and the Compensation Committee of the Board of Directors, amended Syngenta's Equity Plans for Directors and Employees, respectively. Under the amended terms of the Equity Plans, on the ChemChina Tender Offer being declared unconditional:

- all blocking and holding periods for vested shares held in the plans were waived to enable holders of these shares to tender them into the ChemChina Tender Offer during the Additional Acceptance Period;
- all outstanding share awards and Restricted Share Units were converted into Syngenta shares, deferral and vesting periods were waived, and matching shares were granted, Performance Share Units vested at target levels of performance and were converted into Syngenta shares, options vested and their exercise periods lapsed, and performance options vested at target levels of performance and their exercise periods lapsed. Phantom awards and ADSs have been treated in an analogous way to the above.

On June 7, 2017, Syngenta AG paid $276 million to settle all outstanding awards, other than Syngenta shares to which the Equity Plan participants had acquired valid title before the ChemChina Tender Offer became unconditional, in cash instead of Syngenta shares. As a result of these amendments, Syngenta applied cash-settled share based payment accounting for these awards from the date the plans were amended until the outstanding awards were settled. As a result of this change, $81 million of share based payment expense was recognized in function expenses according to where the related personnel costs were charged for 2017, in addition to the $14 million charge that would have been made under equity-settled share based payment accounting for the periods during which the awards were outstanding.

Under cash-settled share based payment accounting, the fair value of the awards is charged to profit or loss and no equity instruments are assumed to be issued on settlement. Therefore, basic and diluted numbers of shares were the same in respect of cash-settled awards.

Change of Control payments

Changes in the credit rating of Syngenta AG following acquisition by ChemChina required Syngenta Finance N.V. to make an offer to note holders of three US private placements issued in December 2005, to prepay the notes at par together with interest thereon to the prepayment date selected by Syngenta. The acceptance deadline for the prepayment offer was July 13, 2017. On July 20, 2017, $147 million of the notes were repaid to note holders who had accepted the offer. As note holders have no further prepayment rights following expiry of the offer, the amount of notes that remains outstanding is presented within non-current liabilities in the consolidated balance sheet.

Acquisitions

On November 6, 2017, Syngenta and COFCO International Ltd. announced that Syngenta had entered into a binding agreement to acquire the global seeds business of Nidera, from Nidera B.V., a subsidiary of COFCO International Ltd.

In the 2017 consolidated cash flow statement, business acquisitions of $164 million were as follows:

($m)	2017
Escrow deposit for the acquisition of Nidera Seeds	(150)
Deferred consideration paid in relation to acquisitions completed in prior periods	(14)
Total	(164)

Divestment of Sugar Beet seeds business

On September 29, 2017, Syngenta completed the sale of its global Sugar Beet seeds business to DLF Seeds A/S (DLF) for a final cash consideration of $49 million. The divestment of the Sugar Beet seeds business resulted in $47 million of asset impairment and divestment losses being incurred.

The net cash received on the divestment is included in Cash flow used for investing activities in the consolidated cash flow statement as follows:

($m)	
Gross proceeds	49
Cash and cash equivalents divested	(18)
Net cash flow received from the divestment	31

$14 million cash outflows included in the above net cash flow are reflected within change in net working capital in the consolidated cash flow statement.

In addition to cash and cash equivalents, aggregate assets and liabilities divested were as follows:

($m)	Carrying amounts
Inventories	39
Trade receivables and other current assets	31
Total non-current assets	8
Trade accounts payable	(11)
Other current liabilities	(33)
Net assets divested	34

4. Segmental breakdown of key figures for the years ended December 31, 2018 and 2017

As further described in Note 27, Syngenta has adopted new segment reporting in 2018. Segment reporting for 2017 has been restated accordingly. There are six operating segments consisting of five geographic regions, which include the Crop Protection, Seeds and Controls businesses, and the global Flowers business. Segment performance is managed based on segment operating income, which is the measure of segment profit or loss presented, and is based on the same accounting policies as consolidated operating income.

The China geographic operating segment has been aggregated with Asia Pacific. China is managed separately, but the underlying nature of the business and economic characteristics are similar to the rest of Asia Pacific.

All other segments consists of:

- the Flowers business, which is managed separately, but is not material enough to report separately;
- sales and costs that are incidental to the commercial strategies;
- costs not directly attributable to an operating segment, including global marketing and research and development teams, corporate headquarter functions and some centrally provided support services in the finance, information systems, human resources and procurement areas.

2018 ($m)	Europe, Africa, Middle East	North America	Latin America	Asia Pacific incl. China	All other segments	Group
Product sales - to third parties	3,837	3,293	3,615	1,980	474	13,199
Royalty and license income - from third parties	40	221	31	6	26	324
Total segment sales	3,877	3,514	3,646	1,986	500	13,523
Cost of goods sold	(1,850)	(1,855)	(2,158)	(1,019)	(406)	(7,288)
Gross profit	2,027	1,659	1,488	967	94	6,235
Marketing and distribution	(607)	(624)	(511)	(319)	(129)	(2,190)
Research and development	(161)	(146)	(96)	(56)	(841)	(1,300)
General and administrative:						
Restructuring	(79)	(17)	(51)	(11)	(123)	(281)
Divestment gains	-	-	-	-	434	434
Other general and administrative	(129)	(75)	(100)	(46)	(480)	(830)
Operating income/(loss) - continuing operations	1,051	797	730	535	(1,045)	2,068
Included in the above operating income from continuing operations are:						
Personnel costs	(565)	(486)	(501)	(317)	(1,024)	(2,893)
Depreciation of property, plant and equipment	-	-	-	-	(346)	(346)
Amortization of intangible assets	-	-	-	-	(253)	(253)
Impairment of property, plant and equipment, intangible and financial assets	-	-	-	(1)	(72)	(73)
Other non-cash items including charges in respect of provisions	-	-	-	-	184	184
Gains/(losses) on hedges reported in operating income	5	9	11	-	(69)	(44)

Segment operating income/(loss) reconciles to consolidated income before taxes as follows:

2018 ($m)	
Segment operating income	2,068
Income from associates and joint ventures	2
Financial expense, net	(353)
Income before taxes	1,717

2017 ($m)	Europe, Africa, Middle East	North America	Latin America	Asia Pacific incl. China	All other segments	Group
Product sales - to third parties	3,831	3,276	2,888	1,939	354	12,288
Royalty and license income - from third parties	40	211	19	3	88	361
Total segment sales	3,871	3,487	2,907	1,942	442	12,649
Cost of goods sold	(1,799)	(1,793)	(1,665)	(986)	(248)	(6,491)
Gross profit	2,072	1,694	1,242	956	194	6,158
Marketing and distribution	(602)	(573)	(603)	(313)	(106)	(2,197)
Research and development	(80)	(138)	(62)	(49)	(944)	(1,273)
General and administrative:						
Restructuring	(155)	(36)	(44)	(18)	(102)	(355)
Other general and administrative	(149)	(1,675)	(64)	(46)	(345)	(2,279)
Operating income/(loss) - continuing operations	1,086	(728)	469	530	(1,303)	54
Included in the above operating income from continuing operations are:						
Personnel costs	(584)	(495)	(454)	(285)	(1,024)	(2,842)
Depreciation of property, plant and equipment	-	-	-	-	(335)	(335)
Amortization of intangible assets	-	-	-	-	(199)	(199)
Impairment of property, plant and equipment, intangible and financial assets	(3)	-	-	-	(14)	(17)
Other non-cash items including charges in respect of provisions	-	(1,550)	-	-	(139)	(1,689)
Gains/(losses) on hedges reported in operating income	2	8	6	-	(8)	8

Segment operating income/(loss) reconciles to consolidated loss before taxes as follows:

2017 ($m)	
Segment operating income	54
Income from associates and joint ventures	8
Financial expense, net	(178)
Loss before taxes	(116)

The analysis of revenue by major product line for the years ended December 31, 2018 and 2017 is as follows:

($m)	**2018**	2017
Selective herbicides	**2,821**	2,720
Non-selective herbicides	**857**	791
Fungicides	**3,117**	2,896
Insecticides	**1,895**	1,632
Seedcare	**1,129**	1,055
Controls	**504**	495
Other crop protection	**90**	150
Total Crop Protection	**10,413**	9,739
Corn and soybean	**1,693**	1,503
Diverse field crops	**659**	701
Vegetables	**652**	622
Total Seeds	**3,004**	2,826
Elimination of Crop Protection sales to Seeds	**(94)**	(102)
Flowers	**200**	186
Group sales	**13,523**	12,649

Summarized additional information on the nature of expenses for the years ended December 31, 2018 and 2017 is as follows:

($m)	2018	2017
Salaries, short-term employee benefits and other personnel expense	2,710	2,641
Pension and other post-employment benefit expense	183	106
Share based payment expense	-	95
Total personnel costs	**2,893**	2,842
Depreciation of property, plant and equipment	346	335
Impairment of property, plant and equipment	1	6
Amortization of intangible assets	253	199
Impairment of intangible assets	77	5

Pension and other post-employment benefit expense for 2017 included $89 million of gains on amendments of benefit plans. See Note 22 for further discussion.

5. Regional breakdown of key figures for the years ended December 31, 2018 and 2017

The following countries individually accounted for more than 5 percent of one or more of the respective Syngenta totals for the years ended December 31, 2018 and 2017.

($m, except %)	Sales[1]				Total non-current assets[2]			
Country	2018	%	2017	%	2018	%	2017	%
Argentina	557	4	466	4	526	6	27	-
Brazil	2,463	18	1,845	15	971	12	316	4
France	579	4	574	5	146	2	152	2
Switzerland	73	1	50	-	2,695	33	2,742	39
UK	184	1	174	1	476	6	474	7
USA	3,141	23	3,163	25	1,960	24	1,930	27
Rest of world	6,526	49	6,377	50	1,409	17	1,411	21
Total	**13,523**	**100**	12,649	100	**8,183**	**100**	7,052	100

1 Sales by location of third party customer
2 Excluding deferred tax assets, defined benefit pension assets and derivative financial assets

No single customer accounted for 10 percent or more of Syngenta's total sales.

6. Restructuring

Restructuring for the years ended December 31, 2018 and 2017, broken down into the main restructuring initiatives, consists of the following:

($m)	2018	2017
Accelerating operational leverage programs:		
Cash costs		
Charged to provisions	**54**	75
Expensed as incurred	**101**	208
Non cash costs	**1**	1
Acquisition, divestment and related costs:		
Cash costs		
Associated with industry consolidation, including ChemChina	**-**	7
Charged to provisions	**24**	-
Other, expensed as incurred	**22**	24
Non-cash items	**35**	30
Other non-cash restructuring:		
Other non-current asset impairments	**77**	10
Total restructuring	**314**	355

In 2018, $33 million for the reversal of inventory step ups reported on acquisitions is presented within Cost of goods sold in the consolidated income statement (2017: $ nil). The other costs above for the years ended December 31, 2018 and 2017 are presented within Restructuring in the consolidated income statement.

In 2017, in addition to the above, of the $95 million share based payment expense charged to the 2017 consolidated income statement, $81 million was the incremental effect of applying cash-settled share based payment accounting due to the share plan amendments related to the ChemChina Tender Offer, as described in Note 3. The $81 million, along with an additional $17 million of related social costs, was presented as costs of the following functions: Cost of goods sold $9 million; Marketing and distribution $31 million; Research and development $12 million and Other general and administrative $46 million. Total share based payment expense charged to the consolidated income statement is disclosed in Note 23.

Analysis of restructuring costs

2018

Accelerating operational leverage programs
Cash costs of $101 million, including $25 million for information systems projects, consist of $35 million for initiatives to restructure marketing and commercial operations, $32 million for projects to improve the effectiveness of back office support, $23 million for Research and Development productivity projects, $8 million for activity to optimize production and supply and $3 million for project management. A further $54 million of severance and pension costs were incurred to simplify the layers of management, including at the global headquarters. Non-cash costs included tangible asset write-downs associated with the above projects.

Acquisition, divestment and related costs
A provision for $24 million was charged to the income statement for indirect tax exposures related to the Nidera acquisition. Other cash costs for acquisition and related integration costs include $12 million for merger and acquisition projects and other transaction costs and $10 million incurred for integration projects. Non-cash costs include $33 million for the reversal of inventory step ups reported on acquisitions and $2 million of inventory impairment provisions. Five acquisitions were completed during 2018 as further described in Note 3.

Other non-cash restructuring
Other non-current asset impairments consist of $70 million for an intangible asset impairment where further development of technologies held by Syngenta is not considered cost effective and activities have been suspended and $7 million for the impairment of a research collaboration agreement whose expected future benefit no longer supports its value.

2017

Accelerating operational leverage programs
Cash costs of $229 million, including $30 million of severance and pension charges and $44 million of information systems projects, consisted of $97 million for initiatives to restructure marketing and commercial operations, $61 million for projects to improve the effectiveness of back office support, $38 million for Research and Development productivity projects, $27 million for activity to optimize production and supply and $6 million for project management. A further $54 million of severance and pension costs were incurred to simplify the layers of management, including at the global headquarters. Non-cash costs included tangible asset write-downs associated with the above projects.

Acquisition, divestment and related costs

Cash costs included $7 million of costs related to the ChemChina Tender Offer. Other acquisition and related integration costs included $17 million of transaction costs and $7 million incurred for integration projects. Non-cash items included $45 million of asset impairments and divestment losses related to the Sugar Beet business, which was divested during September, gains of $16 million on the sale of product rights in the USA and Mexico and a small impairment for assets acquired in an earlier transaction.

Other non-cash restructuring

Other non-current asset impairments consisted of $5 million for two sites in the US that were sold during the first half of 2017 and the impairment of a research collaboration agreement whose future benefit became less certain.

7. Income taxes

Income before taxes from continuing operations for the years ended December 31, 2018 and 2017 consists of the following:

($m)	**2018**	2017
Switzerland	**932**	138
Foreign	**785**	(254)
Total income/(loss) before taxes	**1,717**	(116)

Income tax (expense)/benefit on income from continuing operations for the years ended December 31, 2018 and 2017 consists of the following:

($m)	**2018**	2017
Current income tax (expense):		
Switzerland	**(109)**	(15)
Foreign	**(139)**	(162)
Total current income tax (expense)	**(248)**	(177)
Deferred income tax (expense)/benefit:		
Switzerland	**(6)**	1
Foreign	**(21)**	196
Total deferred income tax (expense)/benefit	**(27)**	197
Total income tax (expense)/benefit:		
Switzerland	**(115)**	(14)
Foreign	**(160)**	34
Total income tax (expense)/benefit:	**(275)**	20

The components of current income tax (expense)/benefit on income from continuing operations for the years ended December 31, 2018 and 2017 are:

($m)	**2018**	2017
Current tax (expense) relating to current years	**(348)**	(266)
Adjustments to current tax for prior periods	**100**	89
Total current income tax (expense)	**(248)**	(177)

The components of deferred income tax (expense)/benefit on income from continuing operations for the years ended December 31, 2018 and 2017 are:

($m)	**2018**	2017
Origination and reversal of temporary differences	**69**	268
Changes in tax rates or legislation	**(11)**	(98)
Other adjustments to deferred tax for prior periods	**(6)**	(6)
Utilization of tax losses previously recognized as deferred tax assets	**(11)**	(8)
Benefit of previously unrecognized deferred tax assets	**12**	41
Non-recognition of deferred tax assets	**(80)**	-
Total deferred income tax (expense)/benefit	**(27)**	197

OCI and Income tax relating thereto, for each component of equity, for the years ended December 31, 2018 and 2017 are as follows:

	2018			2017		
($m)	**Pre-tax**	**Tax**	**Post-tax**	Pre-tax	Tax	Post-tax
Items that will not be reclassified to profit or loss:						
Fair value reserves: Equity investments at fair value through OCI	**15**	**(3)**	**12**	5	3	8
Retained earnings: Actuarial gains/(losses)	**18**	**(9)**	**9**	262	(58)	204
Items that may be reclassified to profit or loss:						
Fair value reserves: Cash flow and net investment hedges	**31**	**(8)**	**23**	(27)	4	(23)
Currency translation effects	**(566)**	**(16)**	**(582)**	372	8	380
Total	**(502)**	**(36)**	**(538)**	612	(43)	569

Income tax (charges)/credits recognized in OCI on cash flow and net investment hedges were $1 million (2017: $8 million). Income tax charges/(credits) reclassified to profit or loss were $(9) million (2017: $(4) million).

No income tax was (charged)/credited to shareholders' equity for the years ended December 31, 2018 and 2017.

Analysis of tax rate

The table below presents the main elements causing Syngenta's effective tax rate to differ from the statutory tax rate for the years ended December 31, 2018 and 2017. Syngenta's statutory rate consists of the domestic Swiss tax rate. Syngenta applies the domestic Swiss tax rate as it is more meaningful than using the weighted average tax rate.

The domestic Swiss tax rate consists of the Swiss federal income tax rate (8.50 percent) and the income tax rate of the canton Basel (20.00 percent). Federal and canton tax rates are deductible from the tax basis, therefore the Swiss domestic tax rate is 22.18 percent in 2018 and 2017.

	2018 %	2017 %
Statutory tax rate	**22**	22
Effect of income taxed at different rates	**(6)**	(8)
Effect of other disallowed expenditures and income not subject to tax	**(2)**	-
Tax deduction for amortization and impairments not recognized for IFRS	**(1)**	-
Restructuring and impairment	**-**	(2)
Effect of changes in tax rates and laws on previously recognized deferred tax assets and liabilities	**1**	7
Effect of recognition of previously unrecognized deferred tax assets	**-**	(3)
Effect of recognition of previously unrecognized tax losses	**(1)**	-
Changes in prior year estimates and other items	**(2)**	-
Effect of non-recognition of deferred tax assets	**5**	4
Effect of Viptera litigation settlement provision	**-**	(3)
Effective tax rate	**16**	17

Effect of income taxed at different rates includes rate differences from the domestic Swiss tax rate attributable to income generated from intellectual property that is taxed at reduced rates and the effect of lower tax rates in certain countries with regard to treasury, investment, group funding and regional management activities as well as logistical operations management. In most of these countries, Syngenta has entered into advance pricing agreements. To enhance comparability of Syngenta's effective tax rate for 2018 and 2017, the entire effect of the 2017 Viptera litigation settlement provision has been presented separately in the table above; therefore all other elements causing Syngenta's effective tax rate to differ from the statutory rate were calculated on a pretax profit that excluded the Viptera litigation settlement provision.

The movements in deferred tax assets and liabilities during the year ended December 31, 2018 are as follows:

2018 ($m)	January 1	Recognized in net income	Recognized in OCI	Currency translation effects	Other movements and acquisitions	December 31
Assets associated with:						
Inventories	**418**	**(27)**	**(18)**	**(13)**	**2**	**362**
Accounts receivable	**336**	**(41)**	**-**	**(35)**	**6**	**266**
Pensions and employee costs	**148**	**2**	**(9)**	**(8)**	**(1)**	**132**
Provisions	**453**	**27**	**-**	**(11)**	**-**	**469**
Unused tax losses and tax credits	**31**	**79**	**-**	**(9)**	**-**	**101**
Financial instruments, including derivatives	**14**	**2**	**-**	**(1)**	**1**	**16**
Other	**46**	**8**	**-**	**(2)**	**(1)**	**51**
Deferred tax assets	**1,446**	**50**	**(27)**	**(79)**	**7**	**1,397**
Liabilities associated with:						
Property, plant and equipment	**(300)**	**(12)**	**-**	**6**	**7**	**(299)**
Intangible assets	**(245)**	**16**	**-**	**3**	**(199)**	**(425)**
Inventories	**(132)**	**18**	**-**	**10**	**(11)**	**(115)**
Financial instruments, including derivatives	**(41)**	**(4)**	**(5)**	**1**	**-**	**(49)**
Other provisions and accruals	**(176)**	**(102)**	**-**	**(1)**	**-**	**(279)**
Other	**(66)**	**7**	**-**	**3**	**-**	**(56)**
Deferred tax liabilities	**(960)**	**(77)**	**(5)**	**22**	**(203)**	**(1,223)**
Net deferred tax asset/(liability)	**486**	**(27)**	**(32)**	**(57)**	**(196)**	**174**

The movements in deferred tax assets and liabilities during the year ended December 31, 2017 are as follows:

2017 ($m)	January 1	Recognized in net income	Recognized in OCI	Currency translation effects	Other movements and acquisitions	December 31
Assets associated with:						
Inventories	483	(72)	8	(1)	-	418
Accounts receivable	210	126	-	-	-	336
Pensions and employee costs	248	(53)	(58)	11	-	148
Provisions	366	87	-	-	-	453
Unused tax losses and tax credits	35	(8)	-	4	-	31
Financial instruments, including derivatives	28	(14)	-	-	-	14
Other	43	1	-	2	-	46
Deferred tax assets	1,413	67	(50)	16	-	1,446
Liabilities associated with:						
Property, plant and equipment	(308)	16	-	(8)	-	(300)
Intangible assets	(259)	20	-	(6)	-	(245)
Inventories	(163)	34	-	(3)	-	(132)
Financial instruments, including derivatives	(54)	(6)	21	(2)	-	(41)
Other provisions and accruals	(204)	37	-	(9)	-	(176)
Other	(94)	29	-	(1)	-	(66)
Deferred tax liabilities	(1,082)	130	21	(29)	-	(960)
Net deferred tax asset/(liability)	331	197	(29)	(13)	-	486

The deferred tax assets and liabilities at December 31, 2018 and 2017 reconcile to the amounts presented in the consolidated balance sheet as follows:

($m)	2018	2017
Deferred tax assets	**1,397**	1,446
Adjustment to offset deferred tax assets and liabilities[1]	**(298)**	(347)
Adjusted deferred tax assets	**1,099**	1,099
Deferred tax liabilities	**(1,223)**	(960)
Adjustment to offset deferred tax assets and liabilities[1]	**298**	347
Adjusted deferred tax liabilities	**(925)**	(613)

1 Deferred tax assets and liabilities relating to income taxes levied by the same taxation authority on the same taxable entity or on entities which intend to settle current tax assets and liabilities on a net basis or to realize the assets and settle the liabilities simultaneously are offset for presentation on the face of the consolidated balance sheet where a legal right of set-off exists

The gross value at December 31, 2018 and 2017 of unused tax loss carry forwards and other deductible temporary differences for which no deferred tax asset has been recognized, by expiration date, is as follows:

($m)	2018	2017
One year	**1**	16
Two years	**-**	-
Three years	**9**	3
Four years	**2**	3
Five years	**1**	1
More than five years	**518**	537
No expiry	**554**	273
Total	**1,085**	833

The above losses consist mainly of US state tax loss carry forwards. The applicable tax rate for these US state tax carry forwards is 0.1 percent (2017: 0.1 percent) of the gross amounts.

Deferred tax assets, other than those related to unused tax losses, are not subject to expiry except as follows:

– A $52 million unrecognized tax credit carry forward in one jurisdiction will expire in more than five years.

– A $15 million temporary difference for deferred deduction of interest paid in one jurisdiction will expire in five years.

A deferred tax liability has not been recognized at December 31, 2018 and 2017 on the following items:

($m)	2018	2017
Temporary differences associated with investments in subsidiaries for which deferred tax liabilities have not been recognized	**989**	1,011

There are no income tax consequences for Syngenta of paying a dividend to its shareholders.

8. Earnings per share and share capital

Basic earnings per share amounts are calculated by dividing net income for the year attributable to ordinary shareholders of Syngenta AG by the weighted average number of ordinary shares outstanding during the year.

Diluted earnings per share amounts are calculated by dividing the net income attributable to ordinary shareholders of Syngenta AG by the sum of the weighted average number of ordinary shares outstanding during the year plus the weighted average number of ordinary shares that would be issued on the conversion of all the dilutive potential ordinary shares into ordinary shares. Unvested share awards subject to Syngenta specific performance conditions are included in potential ordinary shares only if those conditions would have been met based on cumulative actual performance from the start of the performance period up to December 31 in the year concerned.

Treasury shares are deducted from total shares in issue for the purposes of calculating earnings per share.

As disclosed in Note 3, the majority of outstanding awards under employee share participation plans were accounted for as cash-settled with effect from February 2, 2016. Under cash-settled share based payment accounting, the fair value of the awards is charged to profit or loss and no equity instruments are assumed to be issued on settlement. Therefore adjustments for dilutive potential ordinary shares include only those shares that would have vested prior to the cash settlement. There were no Syngenta AG shares and options granted that would have had an antidilutive effect on the calculation of diluted earnings per share.

($m, except number of shares)	2018	2017
Net income/(loss) attributable to Syngenta AG shareholders	**1,438**	(98)
Weighted average number of shares		
Weighted average number of shares – basic	**92,382,473**	92,354,881
Adjustments for dilutive potential ordinary shares:		
Grants of Syngenta AG shares under employee share participation plans	**-**	11,226
Weighted average number of shares – diluted	**92,382,473**	92,366,107

Each Syngenta ordinary share carries one vote at the shareholder's meetings of Syngenta. Voting rights may be exercised only after a shareholder has been registered in Syngenta's share register. Registration as a shareholder with voting rights is subject to certain declarations on the ownership of Syngenta shares. The number of ordinary shares of par value CHF 0.10 that were authorized, issued, fully paid and outstanding at, and the movements during the years ended, December 31, 2018 and 2017 are presented in the table below.

	2018		2017	
(Millions of shares)	**Shares in issue**	**Treasury shares held**	Shares in issue	Treasury shares held
January 1	**92.5**	**(0.2)**	92.5	(0.4)
Issue of ordinary shares under employee share purchase and option plans	**-**	**-**	-	0.2
December 31	**92.5**	**(0.2)**	92.5	(0.2)

At December 31, 2018 and 2017 Syngenta had no open options accounted for as equity instruments.

9. Trade and other accounts receivable

Trade receivables at December 31, 2018 and 2017 are as follows:

($m)	2018	2017
Trade receivables, gross	**4,773**	4,535
Provision for doubtful trade receivables	**(375)**	(448)
Trade receivables, net	**4,398**	4,087

Information relating to Syngenta's credit risk exposure at December 31, 2018 and movements in the provision for expected credit losses (ECL) on trade and other receivables and amortized cost financial assets in accordance with IFRS 9 for the years ended December 31, 2018 and 2017 are as follows:

	2018		2017	
($m)	**12-month ECL**	**Lifetime ECL (collectively assessed)**	12-month ECL	Lifetime ECL (collectively assessed)
Maximum exposure to credit risk	**506**	**4,773**	757	4,535
Collateral held	**-**	**179**	-	219
Impairment provisions				
January 1	**(13)**	**(448)**	(9)	(396)
Additions due to business acquisitions	**-**	**(18)**	-	-
Amounts credited/(charged) to income	**5**	**(33)**	(6)	(69)
Amounts written off	**-**	**87**	2	17
Currency translation effects and other	**1**	**37**	-	-
December 31	**(7)**	**(375)**	(13)	(448)
Carrying value, net	**499**	**4,398**	744	4,087

Analysis of gross carrying amount by internal rating grades:

($m)	2018 Lifetime ECL (collectively assessed)	2017 Lifetime ECL (collectively assessed)
Amounts not yet due	**3,842**	3,576
Amounts past due:		
0-90 days	**375**	348
90-180 days	**148**	102
180 days-1 year	**220**	475
More than 1 year	**188**	34
Maximum exposure to credit risk	**4,773**	4,535

The carrying amount of trade receivables includes $15 million (2017: $46 million) that are due more than one year from the balance sheet date.

The carrying amount of trade receivables transferred in full and partial recourse factoring arrangements, but not derecognized is $52 million (2017: $55 million). Related liabilities of $52 million (2017: $55 million) are disclosed in Note 17. The amount of these receivables before the transfer transactions was $67 million (2017: $56 million).

The fair value of trade receivables containing embedded exchange rate options that Syngenta has classified as at fair value through profit or loss at December 31, 2018 was $9 million (2017: $26 million). These amounts represent Syngenta's maximum exposure to credit risk relating to these types of trade receivables. Amounts charged to profit or loss in relation to these trade receivables for the years ended December 31, 2018 and 2017 were not material.

10. Other current assets and assets held for sale

Other current assets at December 31, 2018 and 2017 are as follows:

($m)	2018	2017
Prepaid expenses	**305**	128
Assets held under barter agreements	**49**	47
Other	**31**	23
Total	**385**	198

Assets classified separately on the balance sheet as held for sale of $140 million relate principally to the buildings and land at the Syngenta headquarters in Basel, Switzerland other than those disposed of in 2018 as disclosed in Note 3. Syngenta entered into binding contracts to sell and lease back the parts of the headquarter site which were still owned by Syngenta at December 31, 2018. The buildings, other than those disposed of in 2018, will be leased back for an initial term of ten years. In 2017, assets held for sale were immaterial and are included in Other in the table above.

11. Inventories

Inventories at December 31, 2018 and 2017 are as follows:

($m)	2018	2017
Raw materials and consumables	**519**	551
Biological assets	**37**	36
Work in progress	**1,105**	1,234
Finished products	**2,631**	2,353
Total	**4,292**	4,174

Finished products includes $120 million (2017: $175 million) of inventory held by customers under a sale with a right of return.

Movements in inventory write-downs for the years ended December 31, 2018 and 2017 are as follows:

($m)	2018	2017
January 1	(308)	(319)
Additions charged to income	(256)	(238)
Reversals of inventory write-downs	52	31
Amounts utilized on disposal of related inventories	190	224
Currency translation effects and other	14	(6)
December 31	**(308)**	(308)

Reversals of inventory write-downs arise in the normal course of business when actual outcomes are more favorable than assumptions made in prior periods about Syngenta's future ability to sell inventories that are subject to risks of degradation and obsolescence, such as germination of seeds.

Movements in biological assets for the years ended December 31, 2018 and 2017 are as follows. These include amounts classified as other non-current assets.

($m)	2018	2017
January 1	36	31
Changes in fair value	133	128
Additions to cost	16	7
Sales and harvest	(147)	(133)
Currency translation effects and other	(1)	3
December 31	**37**	36
Of which: carried at fair value less costs to sell	**34**	34

Syngenta's inputs for measuring the fair value of those assets that are carried at fair value less costs to sell include both market data from actual sales and inputs based on the stage of growth of immature assets, which is not observable in the market. The fair values therefore represent a level 3 measurement in the fair value hierarchy as defined by IFRS 13. Their sensitivity to changes in the unobservable inputs is not material to the consolidated financial statements.

Quantities of biological assets in inventories at December 31, 2018 and 2017 are:

	2018	2017
(Millions of plants)		
Plants	76	78
Cuttings	529	523
(Thousands of hectares cultivated)		
Growing crops	1	1

12. Property, plant and equipment

Movements in property, plant and equipment for the year ended December 31, 2018 are as follows:

2018 ($m)	Land	Buildings	Machinery and equipment	Assets under construction	Total
Cost					
January 1	**152**	**2,169**	**5,283**	**317**	**7,921**
Additions	**1**	**44**	**193**	**241**	**479**
Additions due to acquisitions	**10**	**37**	**37**	**-**	**84**
Disposals	**(2)**	**(85)**	**(251)**	**-**	**(338)**
Classified as held-for-sale	**(1)**	**(88)**	**(84)**	**-**	**(173)**
Transfers between categories	**-**	**33**	**86**	**(119)**	**-**
Currency translation effects and other	**(4)**	**(45)**	**(110)**	**(53)**	**(212)**
December 31	**156**	**2,065**	**5,154**	**386**	**7,761**
Accumulated depreciation and impairment losses					
January 1	**-**	**(1,112)**	**(3,349)**	**-**	**(4,461)**
Depreciation charge	**-**	**(70)**	**(277)**	**-**	**(347)**
Depreciation on disposals	**-**	**62**	**223**	**-**	**285**
Classified as held-for-sale	**-**	**10**	**27**	**-**	**37**
Currency translation effects and other	**-**	**22**	**65**	**-**	**87**
December 31	**-**	**(1,088)**	**(3,311)**	**-**	**(4,399)**
Net book value – December 31	**156**	**977**	**1,843**	**386**	**3,362**

Additions to property, plant and equipment of $479 million (2017: $409 million) comprise $448 million (2017: $394 million) of cash purchases and $31 million (2017: $15 million) of other additions, including initial recognition of finance leases and capitalized borrowing costs.

The net book value of property, plant and equipment accounted for as finance lease assets at December 31, 2018 was $63 million (2017: $58 million) of which $54 million is classified as Machinery and equipment (2017: $48 million) and $9 million is classified as Buildings (2017: $10 million).

Movements in property, plant and equipment for the year ended December 31, 2017 were as follows:

2017 ($m)	Land	Buildings	Machinery and equipment	Assets under construction	Total
Cost					
January 1	156	1,987	4,864	360	7,367
Additions	1	48	148	212	409
Disposals	(1)	(21)	(156)	(11)	(189)
Classified as held-for-sale	-	-	-	-	-
Transfers between categories	-	27	131	(158)	-
Currency translation effects and other	(4)	128	296	(86)	334
December 31	152	2,169	5,283	317	7,921
Accumulated depreciation and impairment losses					
January 1	-	(1,007)	(3,062)	-	(4,069)
Depreciation charge	-	(68)	(267)	-	(335)
Impairment losses	-	(5)	(1)	-	(6)
Depreciation on disposals	-	18	141	-	159
Currency translation effects and other	-	(50)	(160)	-	(210)
December 31	-	(1,112)	(3,349)	-	(4,461)
Net book value – December 31	152	1,057	1,934	317	3,460

13. Intangible assets

Movements in intangible assets for the year ended December 31, 2018 are as follows:

2018 ($m)	Goodwill	Product rights	Trademarks	Patents	Software	Other intangibles	Total
Cost							
January 1	**1,933**	**3,077**	**74**	**41**	**564**	**425**	**6,114**
Additions from business combinations	**632**	**337**	**111**	**-**	**8**	**281**	**1,369**
Additions	**-**	**218**	**-**	**-**	**37**	**16**	**271**
Retirements and disposals	**(1)**	**(143)**	**(12)**	**(1)**	**(39)**	**(1)**	**(197)**
Currency translation effects	**(33)**	**(18)**	**1**	**-**	**(8)**	**(9)**	**(67)**
December 31	**2,531**	**3,471**	**174**	**40**	**562**	**712**	**7,490**
Accumulated amortization and impairment losses							
January 1	**(274)**	**(2,248)**	**(53)**	**(27)**	**(344)**	**(195)**	**(3,141)**
Amortization charge	**-**	**(154)**	**(9)**	**(2)**	**(52)**	**(36)**	**(253)**
Impairment losses	**-**	**(77)**	**-**	**-**	**-**	**-**	**(77)**
Retirements and disposals	**-**	**123**	**12**	**1**	**39**	**2**	**177**
Currency translation effects	**3**	**11**	**1**	**-**	**4**	**6**	**25**
December 31	**(271)**	**(2,345)**	**(49)**	**(28)**	**(353)**	**(223)**	**(3,269)**
Net book value – December 31	**2,260**	**1,126**	**125**	**12**	**209**	**489**	**4,221**

Additions in 2018 and 2017 include intangible assets arising from license agreements involving non-monetary exchanges or where the cash flows related to the acquisition of the asset are payable over several years. Internally developed intangible assets of $52 million (2017: $111 million) are included within Additions. Cash paid to acquire and develop intangible assets was $193 million (2017: $184 million).

Amortization is included partly within cost of goods sold and partly within general and administrative expenses.

Other intangibles consist principally of values assigned to leases, supply contracts, production know-how and customer relationships acquired in business combinations.

Movements in intangible assets for the year ended December 31, 2017 were as follows:

2017 ($m)	Goodwill	Product rights	Trademarks	Patents	Software	Other intangibles	Total
Cost							
January 1	1,894	2,919	82	47	459	401	5,802
Additions	-	145	-	-	90	24	259
Retirements and disposals	-	(11)	(9)	(8)	(3)	(8)	(39)
Classified as held-for-sale	-	(29)	-	-	-	-	(29)
Currency translation effects	39	53	1	2	18	8	121
December 31	1,933	3,077	74	41	564	425	6,114
Accumulated amortization and impairment losses							
January 1	(267)	(2,127)	(55)	(30)	(286)	(174)	(2,939)
Amortization charge	-	(120)	(5)	(2)	(43)	(29)	(199)
Impairment losses	-	(4)	-	(1)	-	-	(5)
Retirements and disposals	-	9	9	8	1	8	35
Classified as held-for-sale	-	25	-	-	-	-	25
Currency translation effects	(7)	(31)	(2)	(2)	(16)	-	(58)
December 31	(274)	(2,248)	(53)	(27)	(344)	(195)	(3,141)
Net book value – December 31	1,659	829	21	14	220	230	2,973

The net book value at December 31, 2018 and 2017 of goodwill is allocated to Syngenta's operating segments and other CGUs as summarized below. As further described in Note 27, Syngenta has adopted new segment reporting in 2018 and the allocation of goodwill to Syngenta's operating segments and other CGUs for 2017 has been restated accordingly.

($m)	2018	2017
Allocated to operating segments:		
Europe, Africa and Middle East	**241**	246
North America	**220**	218
Latin America	**178**	174
Asia Pacific	**326**	343
Flowers	**14**	15
Total allocated to operating segments	**979**	996
Allocated to other individual CGUs:		
North America Corn and Soybean seed	**318**	315
Corn and Soybean seed rest of world	**571**	35
Other, not individually significant	**392**	313
Total allocated to other individual CGUs	**1,281**	663
Total goodwill	**2,260**	1,659

14. Financial and other non-current assets

Financial and other non-current assets at December 31, 2018 and 2017, are as follows:

($m)	2018	2017
Equity securities at fair value through OCI	**123**	94
Precious metal catalysts	**59**	70
Royalties receivable	**81**	95
Other non-current receivables	**145**	168
Post-employment benefit assets (Note 22)	**54**	67
Long-term derivative financial assets (Note 26)	**30**	56
Total financial and other non-current assets	**492**	550

15. Associates, Joint ventures and transactions and agreements with related parties

Associates and joint ventures

Investments in associates and joint ventures at December 31, 2018 are $192 million (2017: $192 million).

None of Syngenta's investments in associates and joint ventures are publicly quoted. At December 31, 2018, these investments consist mainly of $114 million (2017: $109 million) for a 50 percent ownership of the joint venture CIMO Compagnie Industrielle de Monthey SA, Switzerland (CIMO), which provides utility services to Syngenta and other occupants of the Monthey manufacturing site, $41 million (2017: $44 million) for a 49 percent ownership of the associate Sanbei Seeds Co. Ltd., China and $29 million (2017: $30 million) for a 40 percent ownership of the associate Maisadour Semences SA, France (Maisadour). The latter two entities produce and sell seeds. Maisadour sells seeds to Syngenta.

During 2018, Syngenta's share of CIMO's actuarial gains recognized in OCI is $2 million (2017: $6 million). Other effects on Syngenta's consolidated income statement for the periods presented, or any financial statement line items of the above associates and joint ventures themselves, are not material.

Transactions between Syngenta and its associates and joint ventures during the year ended December 31, 2018 are as follows:

– Goods and services provided by Syngenta to its associates and joint ventures $9 million (2017: $7 million)

– Goods and services provided by associates and joint ventures to Syngenta $87 million (2017: $92 million)

– Non-current assets and research and development provided by Syngenta to an associate of $2 million (2017: $2 million)

At December 31, 2018 Syngenta has accounts receivable and accrued income from associates and joint ventures of $6 million (2017: $5 million) and accrued liabilities to associates and joint ventures of $6 million (2017: $6 million).

A bank overdraft guarantee of $8 million (2017: $9 million) has been provided to an associate.

On November 12, 2013 Syngenta agreed to advance EUR 9 million ($10 million at December 31, 2018 currency translation rates) to Maisadour for 7 years to help finance the planned expansion of corn seed processing capacity in Maisadour Ukraine LLC, a subsidiary of Maisadour, which is a supplier of corn seeds to Syngenta. This current account advance will be made in instalments when called by Maisadour and bears a market rate of interest. At December 31, 2018 the balance outstanding was $7 million (2017: $7 million). By a deed between Syngenta, Maisadour and the European Bank for Reconstruction and Development (EBRD), repayment of the principal is subordinated to a loan between the EBRD and Maisadour Ukraine LLC which is guaranteed by Maisadour.

Key management personnel

Key management personnel are considered to be the members of the Syngenta Executive Team and the Board of Directors. Their compensation is as follows for the years ended December 31, 2018 and 2017:

($m)	**2018**	2017
Fees, salaries and other short-term benefits	**23**	16
Post-employment benefits	**1**	1
Payments to end of contractual notice period	**1**	6
Share based compensation	**-**	16
Total	**25**	39

During 2017, $1 million in aggregate was paid to two former Executive Team members in relation to non-compete agreements, which Syngenta concluded with them in 2016.

Members of the Syngenta Executive Team and Board of Directors receive their cash compensation in Swiss francs, except one member of the Executive Team who is based in the US and is paid in US dollars. The compensation amounts presented above have been converted into US dollars using the average currency exchange rate in effect during each year reported. The average Swiss franc per US dollar exchange rate for the year ended December 31, 2018 is 0.98 (2017: 0.99).

Post-employment benefits include healthcare, disability, death in service and pension costs.

As described in Note 3, all outstanding share awards were settled during 2017 and there is no share based compensation in 2018. For 2017, the amount disclosed for share based compensation is the expense for the period calculated in accordance with IFRS 2, "Share Based Payment" and as described in Notes 3 and 27, relating to key management personnel. The cost of a share based compensation award is spread over the vesting period of the award. Therefore the charge for each year comprises parts of that year's awards and those of preceding years that had not already vested at the start of the year.

ChemChina and its subsidiaries

The Transaction Agreement between ChemChina, its subsidiary China National Agrochemical Corporation (CNAC) and Syngenta AG relating to the ChemChina Tender Offer provides that after the first settlement of the Offer, 4 out of 10 members of Syngenta's Board of Directors shall be persons who have no affiliation with ChemChina or its affiliates (each, an Independent Director). Certain matters will require the affirmative vote of at least two Independent Directors, including, among others, (i) any change in the location of Syngenta's headquarters, (ii) any raising of new debt or making of distributions which would lower the rating of Syngenta to a level below investment grade (by Moody's and Standard & Poor's), (iii) any reduction in Syngenta's Research and Development budget in any given year to a level below 80 percent of the average Research and Development spend in the years 2012– 2015, (iv) any material change in the agricultural sustainability programs or reduction of funding of the Syngenta Foundation for Sustainable Agriculture to a level below 80 percent of the average funding per year 2012–2015, (v) any material change to Syngenta's Health, Safety and Environment Policy and Standards and (vi) any material change to Syngenta's Code of Conduct. Approval by the Independent Directors will also be required, subject to certain exceptions, for any transaction between any member of the ChemChina group, on the one hand, and any member of the Syngenta group, on the other hand, if the transaction is not made at market terms. The above corporate governance arrangements shall remain in place until the earlier of (i) five years following the first settlement of the ChemChina Tender Offer and (ii) a re-listing of Syngenta shares through an initial public offering.

Transactions between Syngenta and fellow subsidiaries of ChemChina, its ultimate parent company, during the year ended December 31, 2018 and the period following the successful completion of the Offer to December 31, 2017 are as follows:

- Goods and services provided to fellow subsidiaries of ChemChina $151 million (2017: $42 million)
- Goods and services provided by fellow subsidiaries of ChemChina to Syngenta $32 million (2017: $3 million)

At December 31, 2018, Syngenta has accounts receivable from fellow subsidiaries of ChemChina of $51 million (2017: $19 million) and accounts payable to fellow subsidiaries of ChemChina of $7 million (2017: $3 million).

In respect of the 2018 transaction with Adama described in Note 3 for the divestment of remedy assets, each product transfer agreement also contains an ongoing supply agreement, whereby Syngenta agrees to provide the divested active ingredients and formulated products to various subsidiaries of Adama to their required level of demand for the duration of the non-compete period in each agreement, none of which exceed five years. During the year ended December 31, 2018, Syngenta made sales under these agreements of $88 million.

On June 12, 2017 Syngenta divested and licensed the U.S. rights to certain products to Adama Celsius B.V, a fellow subsidiary of ChemChina, for cash consideration of $8 million, settled on the same date. As part of this agreement, Syngenta entered into a non-compete undertaking and under related agreements, will supply each of the products for the U.S. market to Makhteshim Agan of North America Inc., another fellow subsidiary. The terms of these agreements do not exceed five years. Pursuant to the agreements, sales of inventory totaling $8 million were made by Syngenta to Adama Celsius B.V in the year ended December 31, 2018 ($8 million in the period ended December 31, 2017).

Other related party transactions

Transactions and balances between Syngenta and its employee post-retirement benefit plans are disclosed in Note 22.

16. Trade accounts payable and contract liabilities

The contractual maturities of trade accounts payable at December 31, 2018 and 2017 are as follows:

($m)	Total	0–90 days	90–180 days	180 days–1 year
2018	**3,613**	**2,026**	**435**	**1,152**
2017	3,174	1,920	345	909

Included within trade accounts payable are rebates payable and provisions for sales returns. Movements in these liabilities with customers for the years ended December 31, 2018 and 2017 are as follows:

($m)	2018	2017
January 1	**1,645**	1,526
Changes in liabilities recognized in the period from:		
Products supplied in the period	**2,909**	2,645
Prior period estimates	**(43)**	112
Rebates settled and product returns received	**(2,574)**	(2,668)
Currency translation effects and other	**(85)**	30
December 31	**1,852**	1,645

Contract liabilities consists of advance payments from customers and deferred revenue, mainly from customer loyalty programs.

Movements in contract liabilities for the years ended December 31, 2018 and 2017 are as follows:

($m)	2018	2017
January 1	**480**	-
Effect of adoption of IFRS 15	**-**	517
Advance payments received from customers	**1,144**	1,740
Performance obligations recognised in the period	**59**	110
Revenue recognized in the period from:		
Amounts included in the contract liability at the beginning of the period	**(482)**	(590)
Contract liabilities applied to current period	**(744)**	(1,317)
Currency translation effects and other	**(12)**	20
December 31	**445**	480

At December 31, 2018, contract liabilities for customer loyalty programs are $52 million (2017: $44 million) and will be recognized as revenue as the promised goods and services are transferred to the customers, which is expected to occur over the next three years.

17. Current financial debt and other financial liabilities

Current financial debt and other financial liabilities at December 31, 2018 and 2017 are as follows:

($m)	2018	2017
Bank and other financial debt	**501**	951
Receivables factored with recourse	**52**	55
Current portion of financial debt (Note 19)	**372**	16
Total current financial debt	**925**	1,022
Short-term derivative and other financial liabilities	**270**	119
Total	**1,195**	1,141

The contractual maturities of current financial debt at December 31, 2018 and 2017 are as follows:

($m)	Total	0–90 days	90–180 days	180 days–1 year
2018	**925**	**454**	**60**	**411**
2017	1,022	848	66	108

The maturities of short-term derivatives are presented in Note 25. The maturities of other financial liabilities is as follows: $74 million 0-90 days; $41 million 90-180 days and $39 million 180 days-1 year (2017: $25 million 0-90 days and $15 million 180 days-1 year).

Information about fair values of financial liabilities is presented in Note 26.

18. Other current liabilities

Other current liabilities at December 31, 2018 and 2017 consist of the following:

($m)	2018	2017
Accrued short-term employee benefits	**406**	311
Taxes other than income taxes	**129**	114
Accrued utility costs	**83**	53
Social security and pension contributions	**59**	62
Other payables	**116**	92
Other accrued expenses	**102**	141
Total	**895**	773

The maturities of other current liabilities are as follows. For liabilities without a contractual maturity date, the analysis represents the estimated timing of cash outflows.

($m)	Total	0–90 days	90–180 days	180 days-1 year
2018	**895**	**501**	**58**	**336**
2017	773	555	39	179

19. Financial debt and other non-current liabilities

In April 2018, Syngenta issued USD senior unsecured notes with various maturities up to 30 years representing a total issuance amount of $4,750 million. Financial debt and other non-current liabilities at December 31, 2018 and 2017 are as follows:

($m)	2018	2017
0.750% CHF bond 2019	**356**	359
3.698% USD bond 2020	**748**	-
$ private placement notes	**105**	106
1.875% Eurobond 2021	**571**	598
3.933% USD bond 2021	**747**	-
3.125% $ Notes 2022	**501**	506
4.441% USD bond 2023	**996**	-
1.625% CHF bond 2024	**253**	256
4.892% USD bond 2025	**747**	-
1.250% Eurobond 2027	**568**	594
5.182% USD bond 2028	**995**	-
2.125% CHF bond 2029	**152**	153
4.375% $ Notes 2042	**248**	248
5.676% USD bond 2048	**498**	-
Unsecured bond issues and US private placement notes	**7,485**	2,820
Liabilities to banks and other financial institutions	**4**	1
Finance lease obligations	**61**	55
Less: current portion of financial debt (Note 17)	**(372)**	(16)
Total non-current financial debt	**7,178**	2,860
Non-current derivative financial liabilities	**90**	104
Other non-current liabilities and deferred income	**147**	100
Total	**7,415**	3,064

Information about fair values of financial liabilities is presented in Note 26.

Other non-current liabilities and deferred income relates to license and acquisition agreements with several counterparties and long-term incentive programs. Related cash flows of $55 million (2017: $nil) are payable between one and five years and $92 million of deferred income at December 31, 2018 (2017: $100 million) will be recognized in income as related licensed product sales occur.

Interest paid on non-current financial debt was $169 million (2017: $65 million). All non-current debt ranks equally.

Syngenta AG has fully and unconditionally guaranteed on a senior unsecured basis the due and punctual payment of the principal of and any premium and interest on the debt securities issued by Syngenta Finance N.V., which is an indirect, wholly-owned finance subsidiary. The guarantees will rank equally with all of Syngenta's other unsecured and unsubordinated debt. No other subsidiary of Syngenta guarantees such debt securities.

20. Provisions, commitments and contingencies

Provisions

Provisions at December 31, 2018 and 2017 are as follows:

($m)	2018	2017
Restructuring provisions	**77**	70
Employee benefits:		
Pensions (Note 22)	**421**	564
Other post-retirement benefits (Note 22)	**18**	21
Other long-term employee benefits	**57**	61
Environmental provisions	**173**	184
Provisions for legal and product liability settlements	**1,210**	1,659
Other provisions	**65**	55
Total	**2,021**	2,614

($m)	2018	2017
Current portion of:		
Restructuring provisions	**63**	62
Employee benefits	**61**	112
Environmental provisions	**8**	13
Provisions for legal and product liability settlements	**1,112**	467
Other provisions	**24**	22
Total current provisions	**1,268**	676
Total non-current provisions	**753**	1,938
Total	**2,021**	2,614

The timing of payment in respect of non-current provisions is, with few exceptions, not contractually fixed and cannot be estimated with certainty. Key assumptions and sources of estimation uncertainty are discussed in Note 2.

At December 31, 2018, Syngenta recognized $17 million (2017: $16 million) in Financial and other non-current assets in respect of virtually certain reimbursements related to the above provisions.

Syngenta has recorded provisions for environmental liabilities at some currently or formerly owned, leased and third party sites throughout the world. These provisions are estimates of amounts payable or expected to become payable and take into consideration the number of other potentially responsible parties at each site and the identity and financial positions of such parties in light of the joint and several nature of certain of the liabilities. The material components of Syngenta's environmental provisions are based on a risk assessment involving investigation of the various sites.

It is reasonably possible that Syngenta may be required to make expenditures in excess of the established provisions to remediate environmental liabilities at some currently or formerly owned, leased and third party sites throughout the world. Further, in cases where it is not possible to estimate reliably the remediation costs that may be incurred in the future for environmental damage that has occurred at sites currently in operation and having no present obligation for environmental damage remediation, no provisions have been made. This is because it is neither possible to determine a time limit beyond which the sites will no longer be operated, nor what remediation costs may be required upon their eventual closure.

In the USA, Syngenta and/or its indemnitors or indemnitees, have been named under federal legislation (the Comprehensive Environmental Response, Compensation and Liability Act of 1980, as amended) as a potentially responsible party ("PRP") in respect of several sites. Syngenta expects to be indemnified against a proportion of the liabilities associated with a number of these sites by the sellers of the businesses associated with such sites and, where appropriate, actively participates in or monitors the clean-up activities at the sites in respect of which it is a PRP.

Provisions for legal and product liability settlements include the settlement fund discussed under the VIPTERA™ heading below. Other provisions for legal and product liability settlements, all of which are individually immaterial, relate to various legal proceedings incidental to the normal conduct of Syngenta's business, including proceedings involving product liability claims, commercial claims, employment and wrongful termination claims, patent infringement claims, competition law claims, tax assessment claims, regulatory compliance claims, waste disposal claims and tort claims relating to the release of chemicals into the environment.

Other provisions mainly comprise provisions for long-term contractual obligations under license and other agreements.

Movements in provisions for the year ended December 31, 2018 are as follows:

($m)	January 1	Charged to income	Release of provisions credited to income	Payments	Actuarial (gains)/ losses	Transfers offset in defined benefit pension assets	Currency translation effects/ other	December 31
Restructuring provisions:								
Employee termination costs	51	51	(1)	(72)	-	-	(3)	26
Other third party costs	19	28	-	(1)	-	-	5	51
Employee benefits:								
Pensions	564	129	(2)	(229)	(14)	(13)	(14)	421
Other post-retirement benefits	21	1	(2)	1	(1)	-	(2)	18
Other long-term employee benefits	61	1	-	(4)	-	-	(1)	57
Environmental provisions	184	5	(2)	(12)	-	-	(2)	173
Provisions for legal and product liability settlements	1,659	17	(13)	(459)	-	-	6	1,210
Other provisions	55	55	(9)	(28)	-	-	(8)	65
Total	**2,614**	**287**	**(29)**	**(804)**	**(15)**	**(13)**	**(19)**	**2,021**

Provisions for employee termination costs include severance, pension and other costs directly related to affected employees.

Provisions for other third party costs principally include payments for early termination of contracts with third parties related to redundant activities.

Commitments

Minimum future lease payments at December 31, 2018 for finance leases are $63 million (2017: $57 million), of which $19 million is due within one year (2017: $16 million), $37 million after more than one but less than five years (2017: $32 million) and $7 million thereafter (2017: $9 million).

Fixed-term, non-cancelable operating lease commitments total $241 million at December 31, 2018 (2017: $209 million) of which $68 million is due within one year (2017: $72 million), $126 million after more than one and less than five years (2017: $120 million) and $47 million thereafter (2017: $17 million). Operating lease payments relate to leases of buildings, office equipment and vehicles. Operating lease expense in 2018 is $88 million (2017: $99 million).

Commitments for the purchase of property, plant and equipment at December 31, 2018 are $112 million (2017: $104 million).

At December 31, 2018 and 2017, Syngenta had entered into long-term commitments to purchase minimum quantities of certain raw materials, long-term research agreements with various institutions to fund various research projects, and other commitments. The estimated timing of minimum future committed payments is as follows:

	2018		2017	
($m)	Materials purchases	Other	Materials purchases	Other
Within one year	**1,090**	**70**	1,089	70
From one to two years	**301**	**16**	273	22
From two to three years	**163**	**7**	226	13
From three to four years	**66**	**5**	107	4
From four to five years	**72**	**4**	25	4
After more than five years	**1**	**2**	23	8
Total	**1,693**	**104**	1,743	121

Syngenta has no material contingent liabilities related to associates and joint ventures.

Syngenta's sales are made subject to normal warranties, which cover product technical specifications and, in some cases, products' performance effect on grower crop yields. Certain license agreements indemnify the other party against liabilities arising from claims related to the intellectual property licensed to or by Syngenta. Leases may require indemnification for liabilities Syngenta's actions may create for the lessor or lessee. Syngenta has also issued warranties to purchasers of businesses or product lines relating to events that arose before the sales. It is not possible to predict the maximum future payments possible under these or similar provisions because it is not possible to predict whether any of these contingencies will occur.

Syngenta has obtained licenses from others for the rights to sell certain products, or products containing certain technology, under agreements which require Syngenta to pay royalties based on its future sales of those products or that technology.

Contingencies

Litigation matters

Litigation is subject to many uncertainties, and the outcome of individual matters cannot be predicted with certainty. Consequently, it is reasonably possible that the final resolution of some of these matters could require Syngenta to make expenditures in excess of the established provisions that are reported above. Further, the range of amounts involved, as well as the period of time over which many of these expenditures may be made, cannot be reasonably estimated.

Syngenta maintains general liability insurance, including product liability insurance, covering claims on a worldwide basis with coverage limits and retention amounts which management believes to be adequate and appropriate in relation to Syngenta's businesses and the risks to which it is subject.

Significant recent or on-going legal proceedings are described below.

VIPTERA™

Beginning on September 12, 2014, several thousand lawsuits were filed against Syngenta in state and federal courts in the United States by plaintiffs seeking damages from Syngenta for commercializing its AGRISURE VIPTERA® (MIR162) and DURACADE™ corn seed in the United States without having obtained import approval from China for those products. Many of these lawsuits were filed by individual plaintiffs (including growers, grain elevators and exporters such as Cargill, Archer Daniels Midland ("ADM") and Louis Dreyfus), and approximately 107 by putative classes of growers and others allegedly affected, including ethanol plants, on the theory that China's 2013 rejection of U.S. corn based on the alleged presence of MIR162 caused increased costs and U.S. commodity prices to drop. The cases were pending in multiple jurisdictions, including (1) cases that were initially filed in federal court that were consolidated for pre-trial proceedings in a federal multi-district litigation ("MDL") action in the District of Kansas; (2) a consolidated state court proceeding in Hennepin County, Minnesota; (3) federal court in the Southern District of Illinois; and (4) various state courts in Illinois, Indiana, Iowa, Louisiana, Nebraska, Michigan, and Ohio. In September 2016, the federal MDL court certified a nationwide class of corn growers alleging violations of the Lanham Act and eight statewide classes of corn growers, and in November 2016, the court presiding over the Minnesota state court consolidated proceedings certified a class of Minnesota corn growers. In April 2017, the federal MDL court granted significant portions of Syngenta's motion for summary judgment, including by dismissing plaintiffs' Lanham Act claim and thereby eliminating the sole basis for a nationwide class, while allowing plaintiffs' state-law negligence claims to proceed. In September 2017 plaintiffs and Syngenta reached a pending settlement to resolve all claims on behalf of all U.S. non-Viptera and Viptera producers as well as grain elevators and ethanol plants. On April 10, 2018, preliminary court approval was granted in respect of the pending settlement, and the establishment of a Qualified Settlement Fund of $1.51 billion was granted for the submission of claims by eligible claimants who contracted to price corn or DDGs (distillers dried grains with solubles) after September 2013. Syngenta was directed to make the first and second installments of $200 million each into an escrow account (at December 31, 2017, Syngenta reported $400 million in current provisions and $1.1 billion in non-current provisions; the latter are due for payment on April 1, 2019 and as such are classified in current provisions at December 31, 2018). Final approval of the settlement was provided by court order dated December 7, 2018, dismissing the claims of producers, grain elevators, and ethanol plants on a class wide basis except for sixteen individual producers and one ethanol plant that timely and validly opted out of the settlement. Objectors to the settlement have appealed the court's final approval order. That appeal is pending.

The settlement of the producer cases does not cover claims of the exporter plaintiffs such as Cargill, ADM, Louis Dreyfus, Trans Coastal Supply Company, Inc. and Agribase International, Inc. ADM and Syngenta reached in December 2017 a settlement of the Viptera litigation that ADM had brought against Syngenta in Louisiana Court, which was paid during 2018. Syngenta is continuing to defend against the claims of the other exporters. The (rescheduled) presumptive trial date for the Cargill lawsuit pending in Louisiana Court is April 2019. The court ordered several mediation sessions in 2018 and 2019. Expert reports quantifying damages were submitted but cannot be disclosed under the applicable protective order. However, Cargill claims to have suffered alleged damages relating to delayed, rejected and re-routed shipments of U.S. corn to China of over $90 million and additional lost profits. The Louis Dreyfus case is at the discovery stage, and the presiding Kansas federal court has set a trial date of September 2019. The Louis Dreyfus lawsuit refers to damages of $71.5 million. Syngenta believes that the claims in these cases are without merit and will defend the lawsuits.

In December 2015, a claim was filed in Ontario, Canada by a proposed representative plaintiff on behalf of a putative class comprising all farmers in Canada against Syngenta Canada Inc. and Syngenta AG seeking damages from Syngenta for commercializing its AGRISURE VIPTERA® (MIR162) and DURACADE™ corn seed in the North American corn market without having obtained import approval from China for those products. The causes of action referred to in the lawsuit include negligence and negligent misrepresentations. The allegations include claims that Syngenta actively misled farmers about the importance of the Chinese market, the timing and substance of the application for approval in China, its ability to channel VIPTERA™ corn into non-Chinese markets and its ability to contain the infiltration of VIPTERA™ corn to the North American corn supply. The proposed representative plaintiff is seeking on behalf of the putative class general and special damages of 300 million Canadian dollars ($220 million at December 31, 2018 exchange rates), punitive and aggravated damages of 100 million Canadian dollars ($73 million at December 31, 2018 exchange rates), the costs of distributing all monies awarded to class members, pre-judgment interest, and costs on a substantial indemnity basis. Syngenta's motion to strike this action was argued in April 2018, and on November 28, 2018, the judge dismissed the plaintiff's action in its entirety. The plaintiff has appealed this decision. The appeal will likely be heard in the second half of 2019. Syngenta believes that the claims in this action are without merit and will oppose the appeal.

On February 14, 2017, a similar action was filed in Quebec against Syngenta Canada Inc. and Syngenta AG. The Petitioners are seeking essentially the same relief as in the Ontario action on behalf of all corn producers conducting business in Quebec who sold corn for commercial purposes after November 18, 2013. They allege that Syngenta was negligent and engaged in illegal commercial practices, contrary to the Competition Act and the Civil Code of Quebec, and that damages (amount unspecified) will continue to accrue until the corn business between North America and China is re-established at the levels that existed before Syngenta's negligence occurred. Punitive damages, pre-judgment interest and costs are also claimed. Syngenta has entered an appearance in the action. No other steps have been taken. Syngenta believes that the claims in this action are without merit and will defend it.

Canada beekeeper lawsuits

In September 2014, a claim was filed in Ontario, Canada by two proposed representative members on behalf of a putative class comprising all beekeepers who have owned or continue to own and operate honey producing, pollinating, and/or queen bee rearing businesses in Canada since January 1, 2006, against a number of Syngenta legal entities together with certain entities of a second manufacturer of neonicotinoid insecticides. Plaintiffs allege negligence through the sale by that manufacturer and by Syngenta of products containing such insecticides in the knowledge that they would be injurious to bees and by virtue of misrepresentations and concealment relating thereto. Plaintiffs claim 400 million Canadian dollars ($294 million at December 31, 2018 exchange rates) general and 50 million Canadian dollars ($37 million at December 31, 2018 exchange rates) punitive damages. The pleadings in the Ontario proceedings were subsequently amended by plaintiffs' counsel to add waiver of tort and unlawful conspiracy to the single cause of action, negligence, which was previously pleaded. Both of the additional causes of action are ancillary to and largely dependent on the negligence claim. The class has not yet been authorized.

In October 2014, a Motion for Authorization was filed by the same firm of plaintiffs' counsel in Montréal, Quebec seeking permission to bring a similar class proceeding in that province. The proposed representative plaintiff operates a family business specialized in the breeding of queen bees. The Quebec litigation closely resembles the original Ontario lawsuit claiming negligence except that, rather than a nationwide class, it alleges a class limited to Quebec. At this early stage damages are unspecified. The Motion for Authorization was argued in November 2017. The Quebec class has been authorized on August 20, 2018, and notices have been sent to potential class members.

Syngenta will defend these lawsuits, the claims in which are without foundation.

Atrazine related litigation

In August 2013, a personal injury complaint relating to atrazine was filed under seal in St. Clair County, Illinois state court, on behalf of a minor and his parents against Syngenta Crop Protection LLC, Syngenta AG, a third party distributor, and three local dealers. The Court granted the minor permission to proceed in the public record under the fictitious name "James Doe" - and for his parents to use the names "Jane Doe" and "John Doe". The lawsuit alleges that James Doe's congenital birth defect, hypospadias, was caused by his mother consuming atrazine-contaminated drinking water while she was pregnant. The Complaint alleges public nuisance, strict liability and negligence, and seeks unspecified damages together with the costs of suit. Answers and Affirmative Defenses were filed on behalf of the defendants in January and February 2014. Fact discovery in the litigation started in early 2014 and is continuing. No trial date has been fixed to date. No further claims have been filed. Syngenta believes that the claims are without merit and is defending against the action.

Paraquat Parkinson's disease litigation

In early 2016, the law firm which is prosecuting the atrazine personal injury litigation notified Syngenta Crop Protection, LLC that they intended to file suit on behalf of numerous plaintiffs who allege that the herbicide paraquat caused them to develop Parkinson's disease. Counsel for Syngenta spoke with and, in one instance, met with that law firm regarding the firm's allegations, its proposal for litigating them, and its purported clients. No agreements with the firm were reached. In September 2017, a complaint was filed in St. Clair County, Illinois state court on behalf of plaintiffs Thomas Hoffman and Diana Hoffman against Syngenta Crop Protection, LLC, Syngenta AG, and Growmark, Inc. The complaint alleges that Mr. Hoffman suffers from Parkinson's disease caused by chronic exposure to paraquat while working as a farmer in Illinois. On October 6, 2017 an amended complaint was filed in the same court on behalf of 12 plaintiffs (7 men who are said to have been diagnosed with Parkinson's disease and 5 of their wives), including Mr. and Mrs. Hoffman who were named in the initial complaint, against Syngenta Crop Protection, LLC, Syngenta AG, Chevron Phillips Chemical Company, and Growmark, Inc. The amended complaint alleges the following counts: (1) Strict Liability - Design Defect; (2) Strict Liability - Failure to Warn; (3) Negligence; (4) Public Nuisance; (5) Consumer Fraud & Deceptive Business Practices Act; and (6) Breach of Implied Warranty of Merchantability. Syngenta's Motion to Dismiss was denied in July 2018. Syngenta filed its answer to the amended complaint in October 2018. In that case, the parties are now engaged in discovery. On December 13, 2018, the same counsel filed a further complaint in St. Clair County, Illinois state court on behalf of plaintiffs Marvin Wendler and his wife against Syngenta Crop Protection, LLC, Syngenta AG, and various third parties. Syngenta Crop Protection, LLC agreed to accept service and the parties are negotiating a responsive pleading date. An additional complaint was filed by the same counsel in St. Clair County, Illinois state court on December 21, 2018, on behalf of plaintiffs Lloyd Pulcher and his wife against Syngenta AG and Growmark, Inc. These new complaints assert the same claims as the Hoffman complaint. Syngenta AG has not yet been served with either of the two new complaints. Syngenta believes that all of these claims are without merit and will defend the lawsuits.

Tax matters

Significant management judgment is required to estimate the tax provisions related to the eventual outcome of reviews and audits by tax authorities of tax returns filed by Syngenta's subsidiaries. Tax returns filed by many of Syngenta's subsidiaries during the past several years are either currently under examination by tax authorities or are open for future examination until expiry under statutes of limitation. Syngenta is also subject to certain tax claims pending before the judiciary. See Note 2 "Uncertain tax positions" for detail regarding two on-going transfer pricing disputes in Brazil. In Syngenta's opinion, the likelihood is remote that a material amount in excess of recorded provisions will result from the resolution of any such examination or case. However, it is reasonably possible that actual outcomes and settlements may differ significantly from the estimated liabilities shown in the consolidated balance sheet for income taxes and in Note 18 for other taxes.

Contingencies summary

Given the inherent difficulties in estimating liabilities relating to litigation, tax, environmental and certain other matters due to uncertainty concerning both the amount and timing of future expenditures, it is reasonably possible that additional costs may be incurred materially in excess of provisions recorded for such liabilities. Such expenditures, in excess of established provisions, could have a material effect on Syngenta's consolidated operating results and cash flows for a particular reporting period, but management does not believe they will have a materially adverse effect on Syngenta's consolidated financial position or liquidity, although there can be no assurances in this regard.

21. Notes to the consolidated cash flow statement

Non-cash and other reconciling items included in income before taxes

The following table analyzes non-cash and other reconciling items included in income before taxes for the years ended December 31, 2018 and 2017:

($m)	2018	2017
Depreciation, amortization and impairment of:		
Property, plant and equipment	**347**	341
Intangible assets	**330**	204
Financial assets	**(5)**	6
Deferred revenue and other gains and losses	**2**	1
Gains on disposal of non-current assets	**(444)**	(33)
Charges in respect of share based compensation	**-**	95
Charges in respect of pension provisions (Note 20)	**127**	69
Charges in respect of other provisions (Note 20)	**131**	1,652
Financial expense, net	**353**	178
Losses/(gains) on hedges reported in operating income	**44**	(8)
Income from associates and joint ventures	**(2)**	(8)
Total	**883**	2,497

See Note 3 for a description of the change in accounting treatment of share based payment arrangements.

Change in liabilities arising from financing activities

Movements in assets and liabilities arising from financing activities for the year ended December 31, 2018 are as follows:

			Non-cash changes			
2018 ($m)	**January 1**	**Cash flows**	**Changes in fair value**	**Other**	**Currency translation effects**	**December 31**
Current financial debt (Note 17)	**1,022**	**(396)**	**-**	**369**	**(70)**	**925**
Non-current financial debt (Note 19)	**2,860**	**4,727**	**(6)**	**(335)**	**(68)**	**7,178**
Total financial debt	**3,882**	**4,331**	**(6)**	**34**	**(138)**	**8,103**
Bond hedges net liability	**49**	**-**	**74**	**(35)**	**7**	**95**
Margin deposit liability (Note 25)	**25**	**19**	**-**	**-**	**-**	**44**
Margin deposit asset (Note 25)	**(118)**	**7**	**-**	**-**	**-**	**(111)**
Net liabilities arising from financing activities	**3,838**	**4,357**	**68**	**(1)**	**(131)**	**8,131**

Movements in assets and liabilities arising from financing activities for the year ended December 31, 2017 are as follows:

			Non-cash changes			
2017 ($m)	January 1	Cash flows	Changes in fair value	Other	Currency translation effects	December 31
Current financial debt (Note 17)	767	(55)	-	169	141	1,022
Non-current financial debt (Note 19)	2,854	-	(15)	(156)	177	2,860
Total financial debt	3,621	(55)	(15)	13	318	3,882
Bond hedges net liability	251	(49)	(127)	(34)	8	49
Margin deposit liability	9	16	-	-	-	25
Margin deposit asset	(349)	231	-	-	-	(118)
Net liabilities arising from financing activities	3,532	143	(142)	(21)	326	3,838

See Note 25 for a description of bond hedges and margin deposits. Bond hedges are presented in the consolidated balance sheet as follows: non-current assets of $30 million (2017: $54 million) are included within “Financial and other non-current assets”, current liabilities of $35 million (2017: $nil) are included within “Current financial debt and other financial liabilities” and non-current liabilities of $90 million (2017: $103 million) are included within “Financial debt and other non-current liabilities”.

Margin deposit liabilities are included within “Current financial debt and other financial liabilities”, and margin deposit assets are included within “Derivative and other financial assets”.

Cash flows are presented in the consolidated cash flow statement as follows:

($m)	2018	2017
Increases in third party interest-bearing debt	**4,936**	872
Repayment of third party interest-bearing debt	**(579)**	(729)
Net	**4,357**	143

22. Post-employment benefits

Syngenta has, apart from legally required social security arrangements, numerous independent pension plans, which are either “defined contribution” plans where company contributions and resulting benefit costs are a set percentage of employees’ pay or “defined benefit” plans where benefits are generally based on employees’ length of service and pensionable pay. Syngenta’s contributions to defined contribution plans were $54 million for the year ended December 31, 2018 (2017: $51 million). Approximately 33 percent of Syngenta’s employees are members of defined benefit plans and a significant proportion of these are members of both defined benefit and defined contribution plans. All of Syngenta’s major defined benefit plans are funded through legally separate trustee administered funds. The cash funding of these plans, which may from time to time involve special payments, is designed to ensure that present and future contributions should be sufficient to meet future liabilities. Syngenta’s main defined benefit pension plans are in the UK, Switzerland and the USA.

UK

In accordance with its rules, Syngenta’s UK Pension Fund (the UK Fund) is governed by a company (the Trustee) that is controlled by a publicly listed independent professional trustee corporation. That corporation appoints the Trustee’s directors, including its own representative, Syngenta nominated and member nominated directors. The Trustee manages the UK Fund and appoints professional advisers independently to assist it in doing so. The UK Fund is subject to UK pensions legislation, is regulated by the UK Pensions Regulator and is exempt from most UK taxation through its registered status. The defined benefit section of the UK Fund has been closed to new members since 2002. New employees since 2002 instead joined a defined contribution pension plan also within the UK Fund. This was open to new members until August 31, 2013. After that date, new employees join a separate defined contribution plan. The defined benefit section of the UK Fund is open to future accrual for employees who were members before 2002; however, effective January 1, 2016, pensionable pay for these employees has been frozen, as described in Note 2. At retirement date, defined benefit members have the right to take up to 25 percent of the value of their benefits as a lump sum, with the balance being paid as an annuity. Alternatively, after taking appropriate advice, members may transfer their defined benefits to a different authorized pension arrangement.

The Trustee is required by the UK Fund’s rules to increase pensions in payment and accrued deferred pension rights each year by the lower of 5 percent and price inflation, as measured by the UK Retail Price Index (RPI) or Consumer Price Index (CPI), as applicable. An independent actuary is required to value the UK Fund’s liabilities in accordance with UK pension regulations and certify the required contributions, both for future service and elimination of any deficit, at least every three years. Following each such valuation, employer contribution amounts must be formally agreed between Syngenta and the Trustee, subject to review by the Pensions Regulator, and remain binding until re-assessed in the following valuation. The solvency of the UK Fund, defined as its ability to pay benefits as they fall due, is guaranteed by the sponsoring subsidiary, Syngenta Ltd., and by Syngenta AG. In addition, certain benefits under the UK Fund are guaranteed by the UK Pension Protection Fund.

The Trustee agrees the investment strategy for the UK Fund’s assets and implements it through an investment sub-committee (the UK Investment Committee) it appoints from among the Trustee directors. The investment objectives are to ensure the assets are appropriately diversified and liquid to generate sufficient returns to meet the benefit liability and control the long term costs of the UK Fund. These objectives are achieved through appointing and monitoring a number of third party investment managers, each with specific investment mandates that collectively cover a wide range of investment classes and geographical markets and utilize both asset liability matching and return seeking strategies. Asset liability matching is achieved both through underlying investment class selection (e.g. fixed interest) and through using derivatives to limit the potential impact of changes in interest rates, price inflation and foreign currency exchange rates on the benefits payable by and assets of the UK Fund.

Switzerland

The Swiss federal law on occupational old age, survivors’ and disability pensions (“BVG”) sets minimum standards for occupational pension plans, which Syngenta’s Swiss pension fund (the Swiss Fund) exceeds. All employees having had an employment contract for more than three months with any of Syngenta’s Swiss subsidiaries or with its CIMO joint venture entity (see Note 15) and whose age and income exceed the minimum stipulated by BVG are automatically insured in the Swiss Fund. The benefits payable on retirement are calculated according to the capital sums that each member accumulates through transfer of benefits from previous employments, employer and employee contributions during service with Syngenta or with CIMO, interest and member voluntary contributions. Disability and survivors’ death in service benefits are defined on the basis of the member’s insured remuneration. Leavers before retirement are required to transfer their accumulated retirement and capital savings to the occupational pension plan of their new employment. The Swiss Fund is governed by a twelve member Board of Trustees. Six members, including the President, are nominated by Syngenta (five members) and CIMO (one member), and six are elected by insured plan members from among the employees. Its decisions regarding certain items, including rates of retirement credits for service and interest credits, conversion rates on retirement and plan asset investment strategy require a two-thirds majority vote. Legal conformity of the Swiss Fund's regulations is verified by the Swiss Pension Inspectorate. Syngenta's legal obligations, including required employer contributions, are defined in the pension fund rules which are agreed by the Board of Trustees.

Employer and employee contributions are payable according to an age related scale of percentages of pay. Under BVG, the Swiss Fund guarantees the vested benefit amount as confirmed annually to members. Interest may be added to member balances at the discretion of the Board of Trustees. Members have the right to take their retirement benefit as a lump sum, an annuity or part as a lump sum with the balance converted to a fixed annuity at the rates defined in the Fund's rules. The Board of Trustees may increase the annuity at their discretion subject to the Swiss Fund's funded status including sufficient free funds as determined according to Swiss statutory valuation rules. Syngenta accounts for the Swiss Fund as a defined benefit pension plan.

An actuarial balance sheet is usually drawn up annually by the Swiss Fund's actuary. If the balance sheet reveals a deficit, the Board of Trustees defines appropriate measures to eliminate the deficit. If necessary, and after consultation with the actuary, the contributions payable by employees and by Syngenta may be increased or the benefits, including current pensions, may be adjusted to the funds available. The Board of Trustees manages the Swiss Fund's assets in conformity with the investment policy rules laid down by Swiss law, with the objectives of achieving investment that is secure, produces an appropriate yield and meets the liquidity needs of the Swiss Fund. This is implemented through an investment sub-committee similar to the UK Investment Committee mentioned above.

In March 2017, in order to secure the financial stability of the Swiss Fund, the Board of Trustees of the Syngenta Pension Fund adopted revised rules. These changes were communicated to the employees in May 2017. The principal changes effective from January 1, 2018 were to reduce the technical interest rate (discount rate) applied on savings belonging to the retirees from 2.5 per cent to 2.0 per cent and to reduce the annuity conversion rates applicable from age 60 onwards. The conversion rates at retirement reduce gradually from 6.1 per cent (age 65) in 2017 to 5.3 per cent (age 65) in 2021. To mitigate the impact of these changes, Syngenta made a one - off contribution to active member balances within the Fund of $34 million in January 2018. Syngenta has accounted for these changes as a plan amendment. Based on an actuarial valuation at the date of the change, Syngenta recognized a past service gain of $34 million in full within General and administrative for 2017.

USA

Syngenta's main US defined benefit pension plan (the US Plan) is a non-contributory defined benefit pension plan subject to the provisions of the Employee Retirement Income Security Act of 1974, as amended (ERISA) and the US Internal Revenue Code of 1986, as amended (Code). In addition, certain benefits under the US Plan are guaranteed by the US Pension Benefit Guaranty Corporation. The US Plan was closed to new members effective January 1, 2009. Employees joining Syngenta after that date participate in a defined contribution pension plan. The defined benefits of existing members of the US Plan were not affected by this change. The US Plan offers members the choice of taking their retirement benefits, which are generally based on their age, pay and years of service, as a full lump sum at retirement date or as a fixed annuity. In these financial statements, the benefit obligation has been valued assuming that 90% of current eligible members will take the lump sum option at normal retirement or other permissible commencement dates. This assumption is consistent with historical and expected future member choices.

US plan assets are held in a separate trust with State Street Bank and Trust Company as trustee and custodian. The assets must generally remain in the trust until all pension benefits are paid. An Investment Committee of Syngenta employees (the US Investment Committee), appointed by the Board of Directors of Syngenta Corporation, a wholly owned subsidiary of Syngenta AG, oversees the investment of the plan assets, either directly or through the appointment of investment managers. The US Investment Committee develops and implements an investment strategy that takes into account the liability profile of the US Plan. Asset classes are selected that include equities, fixed income and alternative assets. Interest rate derivatives may be used to hedge the interest rate risk of the US Plan. The Plan's key risks include interest rate risk that impacts the value of the liability and the fixed income assets of the US Plan, investment performance volatility, and to a lesser degree inflation and longevity risk. An actuarial valuation is required each year and is used to determine the valuation and characteristics of the liability of the US Plan.

Syngenta Corporation's funding policy is to contribute to the US Plan amounts necessary on an actuarial basis to at least satisfy the minimum funding requirements of the Code. Additional discretionary contributions above the minimum funding requirements can be made and are generally based on the annual administrative expense of the plan, along with an adjustment for any over/under funding.

In December 2017, the Board of Syngenta Corporation Pension Plan announced amendments to the US plan. Benefits under the plan were frozen effective December 31, 2018, and no participants shall accrue additional benefits after that date. Syngenta has accounted for this change as a plan amendment. Based on an actuarial valuation at the date of the change, Syngenta recognized a past service gain of $41 million in full within General and administrative for 2017.

Defined benefit plan disclosures

The status of Syngenta's defined benefit plans at December 31, 2018 and 2017 using actuarial assumptions determined in accordance with IAS 19 is summarized below. The following tables provide reconciliations of benefit obligations, plan assets and funded status of the defined benefit pension plans to the amounts recognized in the consolidated balance sheet at December 31, 2018 and 2017:

($m)	2018	2017
Benefit obligations		
January 1	**6,451**	6,222
Current service cost	**121**	130
Past service gain	**-**	(75)
Employee contributions	**35**	37
Interest cost	**112**	128
Actuarial losses/(gains):		
From changes in demographic assumptions	**(43)**	(76)
From changes in financial assumptions	**(275)**	87
From actual experience compared to assumptions	**57**	51
Benefit payments	**(436)**	(456)
Currency translation effects and other	**(196)**	403
December 31	**5,826**	6,451
Of which arising from:		
Funded plans	**5,666**	6,275
Wholly unfunded plans	**160**	176

($m)	2018	2017
Plan assets at fair value		
At January 1	**5,933**	5,399
Actual return on plan assets	**(92)**	442
Employer contributions	**241**	166
Employee contributions	**35**	37
Benefit payments	**(436)**	(456)
Currency translation effects and other	**(185)**	345
December 31	**5,496**	5,933

Actual return on plan assets can be analyzed as follows:

($m)	2018	2017
Interest on plan assets	**106**	112
Actuarial (losses)/gains	**(198)**	330
Total	**(92)**	442

Funded status	**(330)**	(518)
Effect of asset ceiling	**(91)**	(46)
Net accrued benefit liability	**(421)**	(564)
Amounts recognized in the balance sheet:		
Prepaid benefit costs (Note 14)	**-**	13
Accrued benefit liability	**(421)**	(577)
Net amount recognized	**(421)**	(564)

All material changes in the amount shown for the asset ceiling arose from the effect of applying the ceiling at each period end. Changes in the asset ceiling amount due to interest and foreign currency translation during 2018 and 2017 were immaterial.

Of the accrued benefit liability for pensions of $421 million at December 31, 2018, $421 million is included in Note 20 as pension provisions (2017: $564 million as pension provisions; $13 million as restructuring provisions).

The following table shows the estimated undiscounted future defined benefit payments that are projected to occur within ten years from the balance sheet date. Actual payments may differ from those shown because of uncertain future events, including members' choice of benefit options as described above.

($m)	
2019	267
2020	259
2021	271
2022	282
2023	269
Years 2024-2028	1,398
Total 2019-2028	**2,746**

Syngenta's estimate of employer contributions to be paid to defined benefit plans in 2019 is $130 million, excluding restructuring costs. Actual payments could differ materially from this estimate if any new funding regulations or laws are enacted or due to business and market conditions, which may result in Syngenta prepaying contributions. Additional contributions, the amount and timing of which are uncertain, may also be required as Syngenta's restructuring programs are implemented.

In accordance with UK pension regulations, during the 2015 valuation Syngenta agreed with the Trustee to pay fixed contributions of $34 million per year from 2017 to 2019 and $32 million in 2020 to meet the valuation deficit at March 31, 2015, administration costs and part of the costs of employee service in those years. The balance of the costs of employee service is payable as a percentage of pensionable pay in those years. In 2018 and 2017, $95 million and $34 million of fixed contributions were paid respectively. On November 30, 2017, and subsequently on October 4, 2018 during the 2018 valuation, Syngenta agreed revised pension funding arrangements with the Trustee. Under these arrangements, as long as the Fund is in deficit on a UK statutory basis, in addition to future service contributions, the fixed contributions required to repair the deficit in the Fund are $34 million per annum from April 1, 2017 until March 31, 2024, and two additional payments of $62 million by January 31, 2018 and $39 million by December 31, 2020. This agreement will apply until March 30, 2021.

The fair values of assets and liabilities of the major defined benefit pension plans, together with aggregated data for other defined benefit plans, are as follows. Unquoted investments represent investments in pooled funds in which the underlying investments are unquoted or those where the pooled fund does not have liquidity on at least a weekly basis:

	Fair value ($m, except assumptions)					
At December 31, 2018	Switzerland	UK	USA	Other plans	Total	%
Investments quoted in active markets:						
Equities	579	259	67	16	921	17
Real estate funds	305	-	-	-	305	6
Bonds	834	632	374	32	1,872	34
Other assets	57	78	-	14	149	3
Unquoted investments:						
Equities	61	247	30	-	338	6
Real estate	37	340	-	-	377	7
Bonds	-	331	-	-	331	6
Other assets	358	489	147	1	995	18
Cash and cash equivalents	41	153	14	-	208	3
Fair value of assets	2,272	2,529	632	63	5,496	100
Benefit obligation	(2,456)	(2,532)	(642)	(196)	(5,826)	
of which:						
Active members	(1,277)	(378)	(347)			
Deferred members	n/a	(559)	(78)			
Pensioners and dependants	(1,179)	(1,595)	(217)			
Funded status	(184)	(3)	(10)	(133)	(330)	
Effect of asset ceiling	-	(72)	(5)	(14)	(91)	
Net pension liability	(184)	(75)	(15)	(147)	(421)	
Net periodic benefit cost	75	25	14	13	127	
Significant actuarial assumptions:						
Discount rate (%)	0.8	2.8	4.3	-	1.8	
Inflation (RPI) (%)	n/a	3.2	n/a			
Pensionable pay increase (%)	1.4	-	-			
Pension increase (%)	n/a	3.2	n/a			
Interest credit rate (%)	1.0	n/a	n/a			
Remaining life expectancy (years)						
male aged 63 in 2018	24.4	25.3	22.4			
female aged 63 in 2018	26.5	26.8	24.5			
male aged 63 in 2038	26.3	26.7	24.1			
female aged 63 in 2038	28.4	28.3	26.1			
Weighted average duration of benefit obligation (years)	16	16	14			

	Fair value ($m, except assumptions)					
At December 31, 2017	Switzerland	UK	USA	Other plans	Total	%
Investments quoted in active markets:						
Equities	664	368	137	19	1,188	20
Real estate funds	292	-	-	-	292	5
Bonds	837	615	333	30	1,815	31
Other assets	61	116	-	15	192	3
Unquoted investments:						
Equities	50	390	30	-	470	8
Real estate	37	245	-	-	282	5
Bonds	-	385	-	-	385	6
Other assets	367	503	198	1	1,069	18
Cash and cash equivalents	72	131	34	3	240	4
Fair value of assets	2,380	2,753	732	68	5,933	100
Benefit obligation	(2,531)	(2,978)	(727)	(215)	(6,451)	
of which:						
Active members	(1,373)	(719)	(401)			
Deferred members	n/a	(690)	(89)			
Pensioners and dependants	(1,158)	(1,569)	(237)			
Funded status	(151)	(225)	5	(147)	(518)	
Effect of asset ceiling	-	(20)	(14)	(12)	(46)	
Net pension liability	(151)	(245)	(9)	(159)	(564)	
Net periodic benefit cost	45	34	(17)	9	71	
Significant actuarial assumptions:						
Discount rate (%)	0.7	2.4	3.6	-	1.9	
Inflation (RPI) (%)	n/a	3.2	n/a			
Pensionable pay increase (%)	1.4	-	4.0			
Pension increase (%)	-	3.2	n/a			
Interest credit rate (%)	1.0	n/a	n/a			
Remaining life expectancy (years)						
male aged 63 in 2017	24.3	26.0	22.4			
female aged 63 in 2017	26.4	27.5	24.4			
male aged 63 in 2037	26.2	27.7	24.0			
female aged 63 in 2037	28.3	29.3	26.1			
Weighted average duration of benefit obligation (years)	16	18	15			

Other assets include investments in private equity funds, diversified hedge funds, infrastructure funds, insurance funds and inflation, interest rate and foreign currency derivatives.

The following table provides an analysis of the benefit costs recorded in the consolidated income statement for the defined benefit pension plans for the years ended December 31, 2018 and 2017:

($m)	**2018**	2017
Current service cost	**121**	130
Past service gain	**-**	(75)
Interest on the net defined benefit liability	**6**	16
Net periodic benefit cost	**127**	71

Amounts recognized in OCI were as follows for the years ended December 31, 2018 and 2017:

($m)	**2018**	2017
Actuarial gains	**(63)**	(268)
Effect of asset ceiling	**46**	36

The sensitivity of the benefit obligation to the significant actuarial assumptions is discussed in the "Critical accounting estimates" section of Note 2.

Other post-retirement benefits

Syngenta's most significant other post-retirement benefit plan is the retiree medical plan in the USA. The plan is self-insured and the principal benefit for the majority of eligible participants is a subsidy of their medical insurance premiums after retirement. The subsidy amount varies based on age and service at retirement. Retirees who are eligible for Medicare enroll in individual Medicare plans available in the open market or public exchange, and are responsible for paying the full cost of coverage in excess of the subsidy. The assumed healthcare cost trend rate for this plan at December 31, 2018 was 6.75 percent, decreasing in each successive year from 2018 onwards, to reach an ultimate rate of 5.0 percent in 2026 (December 31, 2017: 7.0 percent decreasing to 5.0 percent in 2026).

In December 2017, Syngenta announced amendments to the plan. Effective January 1, 2018 any increases in dollar amount of the premium cost will be the responsibility of the eligible participant. Syngenta accounted for this change as a plan amendment. Based on an actuarial valuation at the date of the change, Syngenta recognized a past service gain of $14 million in full within General and administrative for 2017.

Syngenta had a net benefit asset for other post-retirement benefits at December 31, 2018 of $54 million (2017: $54 million) reported within Defined benefit post-employment benefit asset in Note 14 and a net benefit liability of $18 million (2017: $21 million) reported within Other post-retirement benefits provision in Note 20. Actuarial gains recognized in OCI for the period were $nil (2017: $24 million). Expense recognized in the consolidated income statement, contributions to the other post-retirement benefit plans and benefit payments by the plans were not material for 2018 and 2017.

23. Employee share participation plans

Following the completion of the ChemChina Tender Offer as disclosed in Note 3, all awards under Syngenta employee share participation plans have been settled and Syngenta no longer has share participation plans. During 2017 until settlement, the following employee share participation plans were in existence.

Syngenta Long-Term Incentive Plans (LTI)

The Syngenta LTI plans provided selected executive and key employees of Syngenta with the opportunity to obtain the right to purchase shares of Syngenta AG, or the equivalent American Depository shares (ADS) that were offered to selected executives and key employees in the USA. The grant of share options for Syngenta shares was at the discretion of the Compensation Committee of Syngenta's Board of Directors ("Compensation Committee"), whose members are appointed by the Board of Directors of Syngenta ("Board").

In 2015, Syngenta created a new LTI plan for members of the Syngenta Executive Committee ("Executive Committee"). The Syngenta LTI plan and the Syngenta LTI plan for members of the Executive Committee had substantially the same terms, except that awards under the Executive Plan were subject to additional performance conditions, as well as a required three year service period. The Compensation Committee set the performance conditions before the grant date of the awards. The performance achieved during the three year performance period was to determine the number of share options that vest, subject to the approval of the Compensation Committee.

Until the 2012 award, the exercise prices were equal to either the weighted average share price on the SIX for the five business days preceding the grant date, or the share price on the SIX at the grant date, with the Compensation Committee having determined which of the two exercise prices were used for each grant year. For subsequent awards, the closing share price on the SIX at the grant date was used to set the equity grant value and exercise price. Options over ADSs were converted to US dollars at the exchange rate at the grant date, which may have varied from the exchange rate at the exercise date. Standard options vested in full and became exercisable after completion of three years service and terminated after 10 years from the grant date, except for early vesting and exercise upon redundancy or retirement, and all outstanding options vested and were exercised on settlement of the ChemChina Offer. Except for the Executive LTI plan, none of the options vested on a pro rata basis during the vesting period.

For share option awards to Executive Committee members, for the purposes of cash settlement on completion of the ChemChina Tender Offer, performance was deemed to have been at target.

No grants of share options were made in 2017. The normal vesting date of share options awarded in 2014, of which 260,051 were outstanding at January 1, 2017, was in February 2017, which was before the ChemChina Tender Offer was completed. These awards therefore vested in the normal way to participants who had met the vesting condition. 1,180,935 share options were exercised, including 1,099,166 options exercised on settlement of the ChemChina offer and 41,150 share options were forfeited or expired.

At January 1, 2017, 1,222,636 share options were outstanding and were accounted for on a cash-settled basis. Share options outstanding at January 1, 2017, of which 480,197 were fully vested and exercisable, had a weighted average exercise price of $352 per share. The amount paid to settle these options on completion of the ChemChina Tender Offer was $143 million.

The Long-Term Incentive Plan also granted selected executives and key employees of Syngenta restricted share units (RSUs) (or equivalent restricted ADSs for relevant Syngenta employees in the USA). RSUs (or equivalent restricted ADSs) were rights to receive the equivalent number of Syngenta AG shares for no payment at the end of a three year vesting period. RSUs did not carry rights to dividends and the grant date fair value was reduced to reflect this. None of the RSUs or equivalent ADSs vested on a pro rata basis during the vesting period.

The Long-Term Incentive Plan 2015 for Executive Committee members granted Syngenta performance share units (PSUs). PSUs were rights to receive the equivalent number of Syngenta AG shares for no payment at the end of a three-year vesting period, depending on achievement of defined targets for four specified long term metrics relating to financial and non-financial performance, each of which carried equal weighting for on target performance. In 2016, a variant of this plan was introduced, under which 50 percent of PSU awards granted in 2016 were subject to the ranking of Syngenta TSR compared to a comparator group of companies and the remaining 50 percent were subject to achievement of Syngenta performance targets for the four financial and non-financial metrics. For the purposes of cash settlement on completion of the ChemChina Tender Offer, performance was deemed to be at target.

The normal vesting date of RSUs awarded in 2014, of which 74,076 were outstanding at January 1, 2016, was in February 2017, before the ChemChina Tender Offer completed. These awards vested as equity in the normal way to participants. In 2017, 204,406 RSUs and PSUs were distributed and no RSUs and PSUs were granted. 223,109 RSUs and PSUs awarded in 2015 and 2016 were outstanding at January 1, 2017, and were accounted for on a cash-settled basis. The amount paid to settle these awards on completion of the ChemChina Tender Offer was $96 million.

Syngenta Deferred Share Plan

The Syngenta Deferred Share Plan provided selected senior executives with an opportunity to obtain shares of Syngenta AG. The plan entitled participants to defer part of their annual short term incentive awards in favor of Syngenta shares and, subject to service throughout the three year deferral period, additionally received one matching share for each deferred share held at the end of that period. Deferred and matching shares did not carry rights to dividends during the deferral period and their grant date fair value was reduced to reflect this. A mandatory part of the short-term incentive was allocated as deferred shares. Additional voluntary deferrals within the limits of the plan were made at the discretion of the participants. None of the shares vested on a pro rata basis during the vesting period.

The normal release date of deferred shares and vesting date of matching shares awarded in 2014, of which 2,054 were outstanding at January 1, 2017, was in February 2017, before the ChemChina Tender Offer completed. The deferred shares awarded were released, and the matching shares awarded vested as equity, in the normal way, to participants who had met the vesting condition. In 2017, 71,462 deferred and matching shares were distributed, no deferred and matching shares were granted and 90 matching shares were forfeited.

41,757 matching shares awarded in 2015 and 2016 were outstanding at January 1, 2017, and were accounted for on a cash-settled basis. The amount paid to settle these awards on completion of the ChemChina Tender Offer was $34 million.

Employee share purchase plans

Syngenta had employee share purchase plans in various countries, which entitled employees to subscribe for shares in Syngenta AG with the benefit of either discounts from market value varying between 33 percent and 50 percent or a matching share. Shares issued under the plans vested immediately and were subject to blocking periods of between two and three years, with the exception of the UK plan, for which completion of three years' service was required before vesting. Maximum annual subscription amounts per employee varied between $500 and $3,000. In 2017, 766 shares were subscribed under these plans.

Other information regarding the plans

	2017
Weighted average share price at exercise date for options exercised during year (CHF per option)	449.3
Weighted average share price at exercise date for options exercised during year ($ equivalent per option[1])	461.8
Cash received from exercise of options and subscription for shares ($m)	24

1 At the exercise date average exchange rate for the month

Compensation expense

Syngenta recognized the fair value of awards under the plans as compensation expense over the period from grant until vesting, or immediately on grant for awards with no vesting period. To reflect vesting conditions unrelated to Syngenta's share price, Syngenta estimated the shares and options expected to vest and adjusted this subsequently in line with actual vesting. Fair value was measured for equity-settled awards at grant date only, but was additionally remeasured at each reporting date for cash-settled awards so that the cumulative expense equaled the amount paid on settlement. Fair value of grants of Syngenta AG ordinary shares was measured at their market value, less amounts payable by the employee and dividends to which the employee was not entitled. Fair value of options over Syngenta AG ordinary shares was measured using the Black-Scholes-Merton formula. Awards subject to a Syngenta total share return condition were measured using the Monte Carlo method.

The compensation expense associated with employee share participation plans, which was measured indirectly by reference to the fair value of the equity instruments granted, was as follows for the year ended December 31, 2017:

($m)	2017
Long-Term Incentive Plan	85
Deferred Share Plan	10
Total	95

of which:

($m)	2017
Accounted for as equity-settled	3
Accounted for as cash-settled	92
Total	95

24. Principal currency translation rates

Year end rates used for the consolidated balance sheets at December 31, to translate the following currencies into $, are:

	2018 per $	2017 per $
Swiss franc	**0.98**	0.98
British pound sterling	**0.78**	0.74
Euro	**0.87**	0.83
Brazilian real	**3.87**	3.31
Argentine peso	**37.60**	18.77
Russian ruble	**69.61**	57.69
Ukrainian hryvnia	**27.69**	28.07

Average rates during the years ended December 31, used for the consolidated income and cash flow statements, to translate the following currencies into $, are:

	2018 per $	2017 per $
Swiss franc	**0.98**	0.99
British pound sterling	**0.75**	0.78
Euro	**0.85**	0.89
Brazilian real	**3.65**	3.19
Argentine peso	**28.03**	16.56
Russian ruble	**62.01**	58.51
Ukrainian hryvnia	**27.32**	26.59

25. Risk management of financial risks

Risk management framework

The nature of Syngenta's business and its global presence exposes it to a range of financial risks. These risks include (i) market risks, which include potential unfavorable changes in foreign exchange rates, interest rates, commodity prices and other market prices (equities, credit spreads etc.), (ii) counterparty risk and (iii) liquidity and refinancing risk.

A financial risk management framework is in place in the form of a Treasury policy approved by the Board of Directors. This policy provides guidance over all Treasury and finance related matters, is underpinned by delegated authority guidelines and is additionally supported by detailed procedures in place across Syngenta. In accordance with its Treasury policy, Syngenta actively monitors and manages financial risk with the objectives of reducing fluctuations in reported earnings and cash flows from these risks and providing economic protection against cost increases. These objectives are achieved through (a) a monthly assessment of the impact of market risks against defined risk limits (see following section), which take into account the risk appetite of Syngenta and (b) the use of a variety of derivative and non-derivative financial instruments.

Financial instruments available for use to mitigate these risks are selected by Syngenta according to the nature of the underlying risk. These instruments are designed to economically hedge underlying risks arising from operational activities and from funding and investment positions. Syngenta does not enter into any speculative financial transactions.

The fair values and the volumes of the derivatives (including the time periods being hedged) used to manage financial market risks are below, classified by accounting treatment: CF and FV indicate derivatives where cash flow hedge and fair value hedge accounting is applied, respectively; and M2M indicates derivatives that are marked to market through profit or loss and hedge accounting is not specifically required. The transactions are managed to minimize the potential adverse movement for the entire portfolio of the net transactional flows, rather than on an individual currency basis. As such, for some derivatives there is no single average strike or price of the derivatives.

2018			Fair value of outstanding derivatives[1]		Maturity profile in $m			
Risk	**Accounting treatment**	**Quantity**	**Assets $m**	**Liabilities $m**	**0-90 days**	**90-days -1 year**	**1-5 years**	**>5 years**
Foreign exchange risk ($m)								
Trading transaction – committed	**M2M**	**10,400**	**75**	**(53)**	**4**	**18**	**-**	**-**
Trading transaction – uncommitted	**CF**	**1,012**	**11**	**(6)**	**2**	**3**	**-**	**-**
Trading transaction – uncommitted	**M2M**	**0**	**-**	**-**	**-**	**-**	**-**	**-**
Issued financial debt and interest	**CF**	**1,890**	**25**	**(126)**	**-**	**(36)**	**(66)**	**1**
Interest rate risk	**FV**	**500**	**6**	**-**	**-**	**-**	**6**	**-**
Commodity price risk								
Gas[2]	**CF**	**10**	**2**	**-**	**-**	**1**	**1**	**-**
Soft commodities[3]	**M2M**	**149**	**-**	**(21)**	**(2)**	**(9)**	**(3)**	**(7)**
Soft commodities[4]	**CF**	**84**	**10**	**-**	**3**	**7**	**-**	**-**
Total		**14,045**	**129**	**(206)**	**7**	**(16)**	**(62)**	**(6)**

2017			Fair value of outstanding derivatives[1]		Maturity profile in $m			
Risk	Accounting treatment	Quantity	Assets $m	Liabilities $m	0-90 days	90-days -1 year	1-5 years	>5 years
Foreign exchange risk ($m)								
Trading transaction – committed	M2M	7,230	44	(45)	6	(7)	-	-
Trading transaction – uncommitted	CF	1,034	5	(22)	(13)	(4)	-	-
Trading transaction – uncommitted	M2M	-	-	-	-	-	-	-
Issued financial debt and interest	CF	1,890	44	(103)	-	-	(81)	22
Interest rate risk	FV	500	11	-	-	-	11	-
Commodity price risk								
Gas[2]	CF	4	-	-	-	-	-	-
Soft commodities[3]	M2M	147	4	-	3	1	-	-
Soft commodities[4]	CF	120	7	(1)	5	1	-	-
Total		10,925	115	(171)	1	(9)	(70)	22

1 The fair values of derivatives are reported in the consolidated Balance Sheet as shown in Note 26
2 3,460,000 million (2017: 2,410,000 million) British thermal units
3 Mainly 112,469,001 lbs (2017: 117,165,485 lbs) of coffee
4 6,105,000 bushels (2017: 8,185,000 bushels) of soybean and 7,160,000 bushels (2017: 11,005,000 bushels) of corn

Of the derivatives listed in the table above, hedge accounting is applied wherever possible. Exceptions to this are derivatives where the fair value movements of the hedges and the retranslation of the underlying exposures are largely offset in profit or loss (hedging foreign exchange risk of committed monetary items); or derivatives placed, which do not fulfil the specific requirements of the accounting standard to achieve hedge accounting (hedging foreign exchange risk of uncommitted forecast transactions; commodity price risk: soft commodities, principally Brazil coffee purchases as part of barter programs).

For those transactions which are not designated for hedge accounting purposes where the transactions do not fulfil the specific requirements of the accounting standard to achieve hedge accounting, the gains and losses on those hedging instruments for the year 2018 were as follows:

– Foreign currency forward contracts that are effective economic hedges of forecast cash flows arising from anticipated sales and purchases between Syngenta affiliates and third parties. The amount recorded in profit or loss in 2018 is a loss of $17 million (2017: gain of $11 million).

– Commodity derivative contracts that are effective economic hedges of the anticipated purchases of raw materials or purchases, principally purchases related to corn and soybean in North America and Latin America, and the resale of various crops in barter arrangements. The amount recorded in profit or loss in respect of these derivatives in 2018 is a gain of $11 million (2017: gain of $6 million). The profit or loss impact from the corresponding forecasted transactions occurs when the related finished product inventories are sold, which is generally in the year following recognition of the gain or loss on the hedge.

Assessment of the impact of market risks

The impact of market risks is assessed using a variety of Value-at-Risk (VaR) and Earnings-at-Risk (EaR) methods. These methods are adjusted to reflect the nature of the exposures and the impact of the exposures on profit or loss of the financial year. The specific methods used to assess the impact of financial risks are described below:

Risk	Method	Exposure (financial statement item)	Time horizon (months)
Foreign exchange risk			
Trading transaction – committed	VaR	Monetary asset and liability carrying amounts	1
Trading transaction – uncommitted	EaR	Operating income	12
Issued financial debt and interest	VaR	Monetary liability carrying amounts	1
Translation	VaR	Cumulative translation adjustment in OCI	1
Interest rate risk	EaR	Interest expense	12
Commodity price risk	EaR	Operating income	12

VaR and EaR calculations are risk management tools designed to statistically estimate with a pre-set probability the maximum amount of potential losses in value (VaR) or earnings (EaR) over a specific (holding) time period given current and forecast positions and possible movements in market prices. The VaR and EaR methods used by Syngenta estimate the gross impact on the consolidated financial statements if the underlying items were not hedged and the net impact of the combined underlying hedged items and the related hedging instruments. VaR and EaR calculations attempt to recognize that holding different assets and liabilities or incurring different future cash flow exposures may reduce portfolio risk through diversification. Such diversification effects are captured within the calculations, which aim to present the risk based on Syngenta's currency exposure as a whole, rather than the sum of the exposures to the individual currency pairs within the portfolio of exposures. Using historical data, the VaR and EaR calculations are designed to predict possible changes in the markets in the future at a 99 percent confidence level, with a 1 percent probability that actual results will be worse than calculated. The time horizon used to calculate the VaR figures for each risk is determined by the time period over which management forecasts and monitors changes in the risk and in Syngenta's exposure to it and takes mitigating actions in response to those changes.

The assessment of the impact of market risks is performed monthly and the results are compared against annually defined risk limits. In cases where the net impact is higher than a risk limit, Syngenta enters into derivative financial instrument transactions in order to stay within the risk limits approved in the risk management policy. Breaches of risk limits, should they occur, are immediately reported to senior management.

Syngenta cannot predict future movements in risk variables precisely, therefore calculations of the impact of market risks neither represent actual losses nor consider the effects of potential favorable movements in underlying risk variables. Accordingly, these calculations may only be an indication of future movements to the extent the historic market patterns repeat in the future.

Foreign exchange risk
Operating worldwide exposes Syngenta to foreign exchange transaction and translation risk at both the Group and subsidiary level. Syngenta's policy is to hedge the effect of foreign exchange translation risk on shareholders' equity only in specific circumstances, for example to protect the value of temporary excess foreign currency denominated cash positions.

Foreign exchange transaction risk – committed
Syngenta's individual subsidiaries predominantly transact their operational activities in their respective functional currencies. However, the globally integrated nature of Syngenta's business results in its subsidiaries bearing some amount of transactional balance sheet risk, because some monetary items (including financial liabilities) are denominated in foreign currencies.

Such committed foreign currency exposures are largely generated by the routing of products from Syngenta's central manufacturing sites to its foreign locations. The risk management strategy is to ensure that these committed exposures are fully hedged, unless otherwise approved by Group Treasury, for example where not deemed cost-effective or where there is no forward market for a specific currency.

The derivative instruments that Syngenta's risk management policy allows to be used to manage the risk are foreign exchange forward contracts and cross currency swaps with the same risk (foreign exchange currency index), where the fair value movements of the hedges and the retranslation of the underlying committed exposures are largely offset in profit or loss.

The derivative instruments are placed with the same maturity as the expected cash flows of the hedged transactions so that the timing of the cash flows of the items within the hedged exposure effectively matches the timing of the cash flows of the derivative instrument.

Net committed transactional currency exposures are identified and reported on a monthly basis by business units. The impact of the hedging program can be illustrated in the VaR calculations for committed exposures, which relate to the revaluation of exposures relative to spot rates over a monthly period. The impact of interest differentials and other factors is not included in these calculations.

($m, except risk reduction %)	December 31, 2018 Value-at-Risk			December 31, 2017 Value-at-Risk		
Underlying currency (1-month holding period)	**Gross impact**	**Net impact**	**Risk reduction**	Gross impact	Net impact	Risk reduction
Swiss franc	**229**	**4**	**98%**	166	8	95%
Brazilian real	**6**	**1**	**83%**	6	1	83%
British pound sterling	**27**	**0**	**100%**	23	-	99%
Russian ruble	**40**	**0**	**100%**	41	-	99%
Argentine peso	**11**	**4**	**64%**	2	1	38%
Rest of world	**101**	**13**	**87%**	95	22	79%
Total undiversified	**414**	**22**	**95%**	333	32	90%
Diversification	**(151)**	**(15)**	**90%**	(179)	(27)	85%
Net VaR	**263**	**7**	**97%**	154	5	97%

At December 31, 2018, the Value-at-Risk for a one month holding period, after hedges, at a 99 percent confidence level was $7 million (December 31, 2017: $5 million).

The largest exposures arise in Swiss franc, Russian ruble and British pound sterling. Switzerland and Great Britain house large research and manufacturing sites.

Foreign exchange transaction risk – uncommitted

Uncommitted transactions are expected, highly probable future transactions for which Syngenta does not yet have a contractual right or obligation (mainly sales and costs).

The US dollar represents the biggest single currency for both sales and costs. However, currency mismatches arise from Syngenta having a centralized cost base, denominated mainly in Swiss francs, British pounds and US dollars, against a local selling base, denominated mainly in US dollars, Euros and various other currencies, including those in emerging markets. In addition, due to the seasonality of Syngenta's business, the majority of sales occur during the first half of the year whereas costs tend to occur more linearly throughout the year.

The risk management objective is to minimize the impact of changes in foreign exchange rates on the operating income forecasted to result from these transactions. Syngenta considers hedging this exposure unless it can reliably expect that operating income could, without significant adverse economic impact, be protected by adjusting the pricing of forecast transactions for changes in foreign exchange rates before those transactions occur. Hedging transactions are managed to minimize the potential adverse movement for the entire portfolio of the net transactional flows, rather than on an individual currency basis. Transactions in a specific calendar year are managed cumulatively in separate portfolios.

The cumulative diversified risk of the whole portfolio can be reduced by entering into derivative transactions for a portion or the full amount of the individual transactions so that the remaining risk of the whole portfolio is at acceptable levels within clearly defined risk limits. The risk management objective is applicable for transactions in the following 24 months. Currently transactions for the next 12 month period are being hedged.

The derivative instruments that Syngenta's risk management policy allows to be used to manage the risk are:

- foreign exchange forward contracts and net purchased currency options with the same risk (foreign exchange currency index) which are eliminating or reducing the uncertainty in the cash flows.
- placed mainly with the same or (to a lesser extent) with shorter maturity than the timing of the cash flows being hedged so that the timing of the cash flows of the hedged transactions effectively matches the timing of the cash flows of the derivative instrument.

The impact of the hedging program on operating income can be illustrated in the Earnings-at-Risk calculation performed for anticipated net transactional currency flows for the following year taking into account related currency hedges.

($m, except risk reduction %)	December 31, 2018 Earnings-at-Risk			December 31, 2017 Earnings-at-Risk		
Underlying currency (12-month holding period)	**Gross impact**	**Net impact**	**Risk reduction**	Gross impact	Net impact	Risk reduction
Swiss franc	**76**	**43**	**43%**	116	67	42%
Argentine peso	**35**	**35**	**-**	48	48	-
Brazilian real	**72**	**72**	**-**	67	67	-
Russian ruble	**16**	**14**	**13%**	13	8	38%
Euro	**27**	**26**	**4%**	37	40	(8)%
British pound sterling	**20**	**15**	**25%**	30	24	20%
Rest of world	**164**	**154**	**6%**	168	154	8%
Total undiversified	**410**	**359**	**12%**	479	408	15%
Diversification	**(257)**	**(234)**	**9%**	(331)	(289)	13%
Net EaR	**153**	**125**	**18%**	148	119	20%

At December 31, 2018, the total potential adverse movement for 2019 net transactional flows after hedges relative to year-end, at a 99 percent confidence level, was $125 million (December 31, 2017: $119 million).

The largest exposures are to the Swiss franc, where Syngenta has a significant cost base in Switzerland with no material offsetting sales, and the Brazilian real, where a significant cost base is only partially offset by sales because sales in Brazil are largely dollarized.

Foreign exchange transaction risk – issued financial debt and interest

Syngenta has a funding strategy which involves securing a diversification of funding sources in different markets and maintaining an optimal currency mix of debt.

This additional foreign currency exposure arises from the debt issuances in Euro and in Swiss franc under the Euro Medium Term Note (EMTN) program. The risk management objective is to minimize the impact of changes in foreign exchange rates on these foreign currency denominated debt interest and principal repayments.

The foreign exchange risk on the foreign currency denominated debt is managed mostly by derivative instruments, and to a lesser extent within a portfolio of other committed transactions, so that no material foreign currency risk remains as a result of the foreign currency denominated debt.

The derivative instruments which Syngenta's risk management policy allows to be used to manage the risk are:

– cross currency swaps designated as hedges of foreign exchange risk of future interest and principal payments on foreign currency financial debt which are eliminating or reducing the uncertainty in the cash flows.

– placed mainly with the same terms as the items being hedged so that the timing of the interest and principal repayments of the hedged transactions effectively matches the timing of the cash flows of the derivative instrument.

Foreign exchange translation risk

Translation exposure arises from the consolidation of foreign currency denominated financial statements of Syngenta's subsidiaries. This is reported as currency translation effects in OCI.

Translation risk can be significant; however, Syngenta regards its equity base to be of sufficient magnitude generally to absorb the short- to medium-term impact of exchange rate movements.

Syngenta can use both foreign currency denominated debt and net investment hedging to manage this exposure. The latter incorporates specific actions to protect the value of temporary excess foreign currency denominated cash positions. No hedging was undertaken for exposures of this type during the years ended December 31, 2018 or 2017. The exposure is deemed to be mitigated by the large net asset base of Syngenta and consequently no additional management of the exposure was undertaken in 2018 or 2017.

The table below presents the 1-month translation Value-at-Risk:

($m)	December 31, 2018 Value-at-Risk	December 31, 2017 Value-at-Risk
Currency of net investment in subsidiary (1-month holding period)	**Gross impact**	Gross impact
Brazilian real	**168**	156
Swiss franc	**113**	213
Euro	**46**	38
British pound sterling	**42**	50
Rest of world	**126**	109
Total undiversified	**495**	566
Diversification	**(293)**	(174)
Net VaR	**202**	392

At December 31, 2018, the Value-at-Risk for a one month holding period at a 99 percent confidence level was $202 million (December 31, 2017: $392 million). In 2018 due to the $4.71 billion dividend payment, the Swiss franc exposure changed, resulting in lower risk.

The two largest single currency exposures arise in the Brazilian real and Swiss franc, driven by the large operations and investments in facilities in Switzerland and Brazil.

Interest rate risk

Syngenta is exposed to fluctuations in interest rates on its borrowings (including forecasted borrowings) and excess cash. While the majority of Syngenta's borrowings have fixed interest rates, portions of Syngenta's net borrowings, including its short-term commercial paper program, drawings under the syndicated credit facility and local borrowings, are subject to changes in short-term interest rates.

Syngenta monitors its interest rate exposures and analyzes the potential impact of interest rate movements on net interest expense. The risk management strategy involves ensuring an efficient fixed/floating mix of total debt within approved interest rate limits.

The risk can be managed by the use of interest rate derivatives relating to future interest payments of financial debt liabilities. The derivative instruments are placed with the same maturity as the expected cash flows of the hedged transactions so that the timing of the cash flows of the hedged transactions effectively matches the timing of the cash flows of the derivative instrument.

At December 31, 2018, the net amount of Earnings-at-Risk on floating rate debt due to potential changes in interest rates (a parallel shift of 100 bps was applied) was $22 million (2017: $7 million). The net amount of Earnings-at-Risk on net debt, as defined under "Capital structure" below, due to potential changes in interest rates was immaterial at December 31, 2018 and 2017.

Commodity price risks

Operating in the agribusiness sector, changes in certain commodity prices affect Syngenta's reported operating results and cash flows. On a limited basis, Syngenta enters into derivative transactions to hedge the exposure of its cost base to commodity prices. This activity comprises oil and natural gas hedging in the UK and USA, as well as soft commodity hedging for corn and soybean purchases by the Seeds business in the USA, Canada, Brazil and Argentina, where Syngenta contracts to purchase various seed crops from growers and hedges the cost of the purchases. In barter arrangements where Syngenta sells products in exchange for receiving a certain amount of a commodity crop, Syngenta hedges the value of the crop. At December 31, 2018 and 2017, there were no material open hedging transactions for Brazil and Argentina corn and soybean price risk.

Syngenta has indirect exposure to oil price fluctuations mainly through the impact of oil prices on the cost of both raw materials, especially chemical intermediates in the Crop Protection business, and distribution activities. At December 31, 2018, there were 3 million barrels of long call options on oil for 2019 outstanding (December 31, 2017: no hedge protection in place for oil). As the exposure to oil is indirect, Syngenta does not calculate the Earnings-at-Risk due to potential changes in oil prices.

Natural gas exposure occurs in Syngenta's primary manufacturing sites and Syngenta is managing the exposure by hedging the main risk component, which is the natural gas market price, contractually linked to the NYMEX natural gas benchmark price. The other risk components within the exposure are immaterial.

The main objective of managing commodity price risk is to reduce the impact of commodity price changes on operating income and to provide economic protection against future cost increases. Syngenta uses fixed price contracts and derivatives (both Over-the-Counter (OTC) and exchange traded instruments, including commodity option and futures contracts) to achieve this objective. The derivative instruments are placed with the same maturity as the expected cash flows of the hedged transactions so that the timing of the cash flows of the hedged transactions effectively matches the timing of the cash flows of the derivative instrument.

At December 31, 2018, the net amount of Earnings-at-Risk due to potential changes in natural gas prices was not material. Earnings-at-Risk due to potential changes in prices of soft commodities, principally corn and soybean, assuming a 12-month holding period are presented below.

($m, except risk reduction %)	December 31, 2018 Earnings-at-Risk			December 31, 2017 Earnings-at-Risk		
Soft commodities	**Gross impact**	**Net impact**	**Risk reduction**	Gross impact	Net impact	Risk reduction
Total undiversified[1]	**31**	**5**	**84%**	31	3	88%

1 As the main soft commodities are largely correlated to each other, the impact of diversification is immaterial

The Earnings-at-Risk of soft commodities is driven by their high price volatility compared to other asset classes. The hedging program reduces overall 12-month Earnings-at-Risk at December 31, 2018 to $5 million (December 31, 2017: $3 million).

Derivatives and hedge accounting

Syngenta seeks to apply, wherever possible, hedge accounting to present its financial statements in accordance with the economic purpose of the hedging activity. Hedges for which hedge accounting is not adopted either (a) do not meet the requirements for hedge accounting treatment under IFRS or (b) when combined with the accounting for the underlying hedged items, impact the financial statements in a manner aligned with the economic purpose of the hedging transaction without the need to adopt hedge accounting treatment, for example hedges of monetary items denominated in foreign currency.

Syngenta determines the economic relationship between the hedged items and the hedging instruments by reviewing the critical terms of the hedged items and the hedging instruments. As a result Syngenta concludes that the risk being hedged for the hedged items and risk inherent in the hedging instruments are sufficiently aligned, there is no inherent mismatch in the hedging relationship and a 100 percent hedge ratio applies both for the actual quantities hedged and for the hedge accounting, except as described below. The impact of the critical terms is also assessed using historical scenario analysis supported by statistical methods (regression analysis).

For the hedging of foreign currency risk of uncommitted forecasted trading transactions, because the exposures are largely generated by the routing of products from Syngenta's central manufacturing sites to its foreign locations, the profit or loss impact from the corresponding transactions occurs when the related finished product inventories are sold to third parties. When entering into derivative hedging contracts, Syngenta selects maturity dates based on the forecast period for which Syngenta holds inventories of its products for each commercial market by hedged currency exposure. Limited variability in the holding period occurs mainly due to timing of the third party sales transactions ("inventory holding period mismatch").

For the hedging of commodity price risk of soy and corn, there is variability between the index being hedged (CBOT) and the drivers of the actual exposures (local soy elevator prices based on CBOT and Syngenta seeds production and selling prices based on CBOT). The variability is, however, limited to individual transactions within the group of transactions in this hedging program – and a hedge ratio of 100 percent is observed for the whole group of transactions.

The following table summarizes the accounting treatment, sources of ineffectiveness and the effectiveness assessment method for the identified financial market risks:

Risk	Accounting treatment	Potential sources of ineffectiveness	Effectiveness assessment: Method	Effectiveness assessment: Frequency
Foreign exchange risk:				
Trading transaction – uncommitted	CF	Lower volume of hedged items; inventory holding period mismatch	Critical terms match	Quarterly
Issued financial debt and interest	CF	Lower volume of hedged items	Critical terms match	Quarterly
Interest rate risk	FV	Lower volume of hedged items	Critical terms match	Quarterly
Commodity price risk:				
Gas	CF	Lower volume of hedged items	Critical terms match	Semi-annually
Soft commodities	CF	Lower volume of hedged items; index mismatch	Regression analysis	Quarterly

Ineffectiveness is recognized in the consolidated income statement in Other general and administrative for hedges of uncommitted foreign currency forecast transactions, in Financial expense, net for hedges of committed foreign currency monetary items, in Financial expense, net for hedges of interest rate risk and in Cost of goods sold for hedges of commodity price risk. For the years ended December 31, 2018 and 2017 none of the above potential sources of ineffectiveness, individually or collectively, resulted in material amounts of actual ineffectiveness being reported for any hedge accounting relationships.

Fair Value Hedge Accounting

The amounts being reported in the statement of financial position for the fair value hedging relationships at December 31, 2018 and 2017 are as follows:

	Carrying amount of hedged item		Accumulated amount of fair value adjustment	
	Liabilities		Liabilities	
Risk ($m)	**2018**	2017	**2018**	2017
Interest rate risk – for continuing hedging relationships	**501**	506	**(2)**	(7)
Interest rate risk – for hedged items that have ceased to be adjusted	**39**	40	**(2)**	(3)
Total	**540**	546	**(4)**	(10)

The carrying amounts of the hedged items, including the fair value adjustments to the hedged items, are reported under Current financial debt and other financial liabilities and Financial debt and other non-current liabilities.

The change in the value of the hedged items during the period for hedge effectiveness purposes was $6 million (2017: $10 million).

Cash flow hedges

The gains/(losses) on derivative instruments recognized in and classified out of the cash flow hedge reserve during the years ended December 31, 2018 and 2017 were as follows. The amounts shown exclude related income tax effects, which are disclosed in Note 7.

	Continuing hedging relationships					Hedge accounting no longer applied	
	Foreign exchange risk		Commodity price risk				
2018 ($m)	Trading transaction – uncommitted	Issued financial debt and interest	Gas	Soft commodities	Subtotal	Foreign exchange risk – translation	Total
Opening balance	(17)	48	-	1	32	(70)	(38)
(Losses)/gains recognized in OCI:							
on hedges as designated	(28)	(77)	-	(5)	(110)	1	(109)
Transferred directly to assets or liabilities	-	-	-	5	5	-	5
Reclassifications to profit or loss:							
Losses/(gains) on hedges as designated:							
Cost of goods sold	-	-	-	1	1	-	1
General and administrative	50	-	-	-	50	-	50
Financial expense, net	-	89	-	-	89	-	89
Closing balance	5	60	-	2	67	(69)	(2)

	Continuing hedging relationships					Hedge accounting no longer applied	
	Foreign exchange risk		Commodity price risk				
2017 ($m)	Trading transaction – uncommitted	Issued financial debt and interest	Gas	Soft commodities	Subtotal	Foreign exchange risk – translation	Total
TotaOpening balance	(23)	69	-	3	49	(68)	(19)
Losses/(gains) recognized in OCI:							
on hedges as designated	(13)	(171)	-	(2)	(186)	(2)	(188)
Transferred directly to assets or liabilities	-	-	_ -	8	8	-	8
Reclassifications to profit or loss:							
(Losses)/gains on hedges as designated:							
Cost of goods sold	-	-	-	(8)	(8)	-	(8)
General and administrative	19	-	-	-	19	-	19
Financial expense, net	-	150	-	-	150	-	150
Closing balance	(17)	48	-	1	32	(70)	(38)

Amounts reclassified from the cash flow hedge reserve into profit or loss are recognized in the consolidated income statement in Other general and administrative for hedges of uncommitted foreign currency forecast transactions, in Financial expense, net for hedges of committed foreign currency monetary items and for hedges of interest rate risk and in Cost of goods sold for hedges of commodity price risk.

Credit risk

Credit risk arises from the possibility that counterparties involved in transactions with Syngenta may default on their obligation, resulting in financial losses to Syngenta. Credit risk relates both to financial assets (including derivatives, marketable securities and money market contracts) as well as to operational assets managed by Syngenta's businesses (such as trade receivables).

Syngenta's maximum exposure to credit risk is the carrying values of its financial assets and receivables, including derivatives with positive market values. These amounts are disclosed in Note 26.

Syngenta has policies and operating guidelines in place to ensure that financial instrument transactions are only entered into with high credit quality banks and financial institutions. These include limits in respect of counterparties to ensure that there are no significant concentrations of credit risk. Syngenta continuously monitors the creditworthiness of its counterparties based on credit ratings and credit default swap data.

At December 31, 2018, Syngenta had no treasury or derivative transactions representing a significant concentration of credit risk. No credit losses have been incurred from investments in derivative financial instruments during the years ended December 31, 2018 and 2017.

To minimize its exposure to derivative positions, Syngenta enters into netting agreements under an International Swaps and Derivatives Association (ISDA) master agreement with its respective counterparties. In addition, for almost all derivative positions, Syngenta has entered into Credit Support Annex contracts (CSAs) under which cash is exchanged as collateral. The CSA contracts cumulatively limit either Syngenta's or the counterparty's aggregate credit risk exposure to no more than $1 million per counterparty on a weekly settlement basis for the positions for which CSA contracts have been agreed. There are no constraints on the cash exchanged and held between counterparties and the collateral can be used as part of operations. At December 31, 2018, an asset amounting to $111 million (2017: $118 million), and a liability amounting to $44 million (2017: $25 million) were recorded representing cash paid and received by Syngenta as collateral under these CSAs.

The impact of credit risk on the fair value of derivatives is considered through market observable credit default swap spreads for Syngenta and its counterparties. The impact on the fair value of Syngenta's derivative positions at December 31, 2018 and 2017 of the risk of default by financial counterparties was not material.

The credit risk to operational assets is managed through the use of credit limits and is partially mitigated through commercial activities, which include barter operations, cash sales incentives and obtaining other security from customers where appropriate.

The following tables show the effect of set off rights that apply to financial assets and liabilities under the above ISDA and CSA agreements at December 31, 2018 and 2017. Syngenta's rights under these arrangements would become enforceable in the event of a future default of the respective counterparty.

	2018		2017	
($m)	**Assets**	**Liabilities**	Assets	Liabilities
Gross recognized derivative financial instrument fair values (Note 26)	**129**	**(206)**	127	(183)
Amounts offset in consolidated balance sheet	**-**	**-**	-	-
Net amounts per consolidated balance sheet	**129**	**(206)**	127	(183)
Amounts subject to conditional set-off rights but not offset in consolidated balance sheet:				
ISDA Master netting agreements for derivative financial instruments	**(46)**	**46**	(65)	65
Collateral (received) / paid by Syngenta under CSA agreements	**(32)**	**105**	(25)	118
Net amounts in the event that all conditional set-off rights are applied	**51**	**(55)**	37	-

Liquidity risk and refinancing risk

Within Syngenta's risk management framework, liquidity risk is defined as the risk of being unable to raise funds to meet payment obligations when they fall due.

Refinancing or funding risk is defined as the risk of being unable, on an ongoing basis, to borrow in the market to fund actual or proposed commitments. Syngenta mitigates its liquidity and refinancing risk by maintaining: a committed unsecured funding facility; ongoing discussions with its core banks to best monitor its funding capacity; simulations; and diversification of its debt portfolio.

Syngenta's liquidity risk policy is to maintain at all times sufficient liquidity reserves both at Group and subsidiary level in order to meet payment obligations as they become due and also to maintain an adequate liquidity margin. The planning and supervision of liquidity is the responsibility of the subsidiaries and Group Treasury. Liquidity requirements are forecasted on a weekly basis. Syngenta operates regional or country cash pools to allow efficient use of its liquidity reserves.

Short-term liquidity

Two of Syngenta's largest markets are Europe, Africa and the Middle East and North America. Both sales and operating profit in these two regions are seasonal and are weighted towards the first half of the calendar year, reflecting the northern hemisphere planting and growing cycle. Latin America is another large market for Syngenta and sales and operating profit there are weighted towards the second half of the calendar year, reflecting the southern hemisphere planting and growing cycle. This seasonal operating activity results in seasonal working capital requirements.

Syngenta's principal source of liquidity consists of cash generated from operations. Working capital fluctuations due to the seasonality of the business are supported by short-term funding available from a $2.5 billion Global Commercial Paper program and a $3 billion committed, revolving, multi-currency syndicated credit facility. In 2018, the credit facility was extended by one year and will now mature in 2023. It provides the possibility to extend in 2019 by one further year, until 2024. In May 2017, the existing syndicated credit facility was increased, extended and amended following the change of control related to the ChemChina take over. The amount drawn under the syndicated credit facility at December 31, 2018 was $150 million (2017: $200 million). The average outstanding balance under the syndicated credit facility for the year 2018 was $564 million (2017: $7 million).The amount drawn under the Global Commercial Paper program at December 31, 2018 was $80 million (2017: $473 million). The average outstanding balance under the Global Commercial Paper program for the year 2018 was $570 million (2017: $1,388 million).

The maturity analyses for Syngenta's current financial liabilities other than short-term derivative liabilities are presented in Notes 16 to 18.

The maturities of short term derivative liabilities are as follows:

($m)	**Total**	**0–90 days**	**90–180 days**	**180 days–1 year**
2018	**116**	**55**	**19**	**42**
2017	79	55	20	4

Long-term financing

Long-term capital employed is currently financed through thirteen unsecured bonds and three unsecured notes issued under the Note Purchase Agreement in the US Private Placement market. During 2017, $147 million of the US Private Placement notes were repaid as a consequence of the change of control.

In April 2018, $4.75 billion of Rule 144/Regulation S under the U.S. Securities Act of 1933 notes were issued. In May 2018, Syngenta AG paid $4.71 billion of the proceeds of those notes to its shareholder as a dividend, allowing CNAC Saturn (NL) BV to pay back its outstanding acquisition debt.

The following table shows Syngenta's contractually agreed (undiscounted) interest and principal repayments on long-term financing-related non-derivative financial liabilities and the related derivatives held at December 31, 2018 and 2017. Non-derivative financial liabilities are recorded at amortized cost (less related issuance costs) unless subject to fair value hedge accounting, in which case the liability is adjusted for the change in fair value of the hedged risk to the extent the hedge relationship is effective. Derivative financial liabilities are recorded at fair value. The table therefore shows the total carrying amount of Syngenta's financial debt adjusted for the effect, if any, of applying fair value hedge accounting.

	Non-derivative financial liabilities (Unsecured bonds and notes)				Derivative financial liabilities (Interest rate and cross-currency swaps)			
2018 ($m)	**Fixed rate interest**	**Variable rate interest**	**Principal repayment**	**Total**	**Fixed rate interest**	**Variable rate interest**	**Repayment[1]**	**Total**
Less than 1 year	**278**	**-**	**356**	**634**	**(52)**	**-**	**(40)**	**(92)**
1-3 years	**522**	**-**	**2,110**	**2,632**	**(36)**	**-**	**(82)**	**(118)**
3-5 years	**396**	**-**	**1,500**	**1,896**	**(22)**	**-**	**-**	**(22)**
5-10 years	**587**	**-**	**2,631**	**3,218**	**(28)**	**-**	**(29)**	**(57)**
More than 10 years	**728**	**-**	**914**	**1,642**	**(4)**	**-**	**(17)**	**(21)**
Total payments	**2,511**	**-**	**7,511**	**10,022**	**(142)**	**-**	**(168)**	**(310)**
Net carrying amount				**7,485**				**126**

	Non-derivative financial liabilities (Unsecured bonds and notes)				Derivative financial liabilities (Interest rate and cross-currency swaps)			
2017 ($m)	Fixed rate interest	Variable rate interest	Principal repayment	Total	Fixed rate interest	Variable rate interest	Repayment[1]	Total
Less than 1 year	61	-	-	61	26	-	-	26
1-3 years	119	-	396	515	44	-	37	81
3-5 years	101	-	1,099	1,200	29	-	63	92
5-10 years	129	-	910	1,039	34	-	26	60
More than 10 years	176	-	415	591	8	-	16	24
Total payments	586	-	2,820	3,406	141	-	142	283
Net carrying amount				2,833				104

1 The repayments above (and the net carrying amount of the derivative financial liabilities) do not include the amounts paid as collateral

Forecast data for liabilities that may be incurred in the future is not included in the table above. Amounts in foreign currency were translated to US dollars at the closing rate at the reporting date. Variable payments at each year end arising from financial instruments were calculated based on the forward interest rate yield curve and the spread that Syngenta pays on its outstanding debt and open derivatives at December 31, 2018 and 2017, respectively. Non-derivative financial liabilities, repayment of which can be demanded by the counterparty at any time, have been assigned to the earliest repayment period.

Capital structure

Absent major acquisitions, Syngenta targets maintaining an investment grade credit rating, as recognized by major third-party rating agencies, which it currently believes provides an optimal balance between financial flexibility and the cost of capital. At December 31, 2018, Syngenta's credit ratings were investment grade as follows: Fitch Ratings Ltd BBB/F-3; Standard & Poor's Rating Services BBB-/A-3; and Moody's Investors' Services Limited Ba2/NP.

Syngenta manages capital by monitoring levels of net debt, as calculated below, and equity against targets. Syngenta defines net debt as excluding financing-related derivatives and related collateral paid and received under CSA agreements as these balances offset each other. Capital is returned to the shareholder primarily through dividend payments.

The net debt to equity ratio was 151% percent at December 31, 2018 (20 percent at December 31, 2017).

The components of net debt at December 31, 2018 and 2017 are as follows:

($m)	**2018**	2017
Current financial debt	**925**	1,022
Non-current financial debt	**7,178**	2,860
Cash and cash equivalents	**(1,563)**	(2,253)
Marketable securities[1]	**(214)**	(8)
Net debt at December 31	**6,326**	1,621

1 Included within 'Derivative and other financial assets' and 'Financial and other non-current assets'

The movements in net debt are as follows:

($m)	**2018**	2017
Opening balance at January 1	**1,621**	2,281
Other non-cash items	**28**	(2)
Cash (received)/paid under CSAs, net	**(26)**	(247)
Cash paid on financing-related derivatives	**-**	49
Foreign exchange effect on net debt	**(148)**	313
Sale of treasury shares, net	**-**	(24)
Dividends paid	**4,707**	470
Free cash flow	**144**	(1,219)
Closing balance at December 31	**6,326**	1,621

Syngenta defines free cash flow as cash flow from operating and investing activities, excluding investments in and proceeds from marketable securities, which are included in investing activities, excluding cash flows from and used for foreign exchange movements and settlement of related hedges on inter-company loans, which are included in operating activities; and including cash flows from acquisitions of non-controlling interests, which are included in financing activities.

26. Financial assets and liabilities

The following tables show the carrying amounts and fair values of financial assets and liabilities by category of financial instrument and reconciliation to where they are presented in the balance sheet at December 31, 2018 and 2017. The fair value hierarchy level is shown for those financial assets and liabilities that are carried at fair value in the balance sheet.

	Carrying amount (based on measurement basis)					
2018 ($m)	Amortized cost	Fair value level 1	Fair value level 2	Fair value level 3[1]	Total	Comparison fair value
Cash and cash equivalents	1,563	-	-	-	1,563	1,563[2]
Trade receivables, net:						
At amortized cost	4,389	-	-	-	4,389	4,389[2]
Mandatorily measured at fair value through profit or loss	-	-	9	-	9	9
Total					**4,398**	**4,398**
Other accounts receivable:						
Financial assets	261	-	-	-	261	261[2]
Non-financial assets	-	-	-	-	275	-[3]
Total					**536**	
Derivative and other financial assets:						
Derivative financial assets[4]	-	10	89	-	99	99
Other current financial assets	115	211	-	-	326	326[2]
Total					**425**	**425**
Financial and other non-current assets:						
Loans, receivables and pooled investments	39	48	5	-	92	92[5]
Equity investments at fair value through OCI	-	-	-	123	123	123[1]
Other, not carried at fair value	-	-	-	-	247	-[3]
Derivative financial assets[4]	-	-	30	-	30	30
Total					**492**	
Trade accounts payable	3,613	-	-	-	3,613	3,613[2]
Current financial debt and other financial liabilities:						
Non-derivative financial liabilities	1,079	-	-	-	1,079	1,079[2]
Derivative financial liabilities[4]	-	-	116	-	116	116
Total					**1,195**	**1,195**
Other current liabilities:						
Financial liabilities	169	-	-	-	169	169[2]
Non-financial liabilities	-	-	-	-	726	-[3]
Total					**895**	
Financial debt and other non-current liabilities:						
Non-derivative financial liabilities	7,185	-	-	-	7,185	6,778[6]
Derivative financial liabilities[4]	-	-	90	-	90	90
Non-financial liabilities	-	-	-	-	140	-[3]
Total					**7,415**	

1 The main valuation input for these investments is the price from their most recent shareholder financing transactions. Where the most recent shareholder financing transactions are not considered representative of fair value, pricing models are used.

2 Carrying amount approximates the estimated fair value due to the short-term nature of the financial instruments

3 Fair value is not required to be disclosed for non-financial assets and non-financial liabilities, including defined benefit pension assets

4 Derivative financial assets and liabilities are measured at fair value through profit or loss except that gains and losses on cash flow hedges of forecast transactions are not recognized in profit or loss until the hedged transaction is recognized in profit or loss

5 Fair values of these receivables are measured by discounting their cash flows at interest rates derived using observable yields on government bonds with maturities and currencies that match those of the respective receivable and the estimated credit risk of each receivable. The total fair value disclosed in respect of loans and receivables at amortized cost is due from counterparties that have not issued traded bonds and represents a level 3 fair value measurement

6 Financial liabilities represent both exchange traded bonds and non-exchange traded private placement notes issued by Syngenta. The fair value disclosed consists of level 2 fair value measurements derived from observable price quotations for these bonds, except for one private placement note with a fair value of $9 million, which is a level 3 measurement because market interest rates and credit rates are not observable for the full period through to its maturity date in 2035

2017 ($m)	Carrying amount (based on measurement basis) Amortized cost	Fair value level 1	Fair value level 2 [1]	Total	Comparison fair value
Cash and cash equivalents	2,253	-	-	2,253	2,253[2]
Trade receivables, net:					
At amortized cost	4,061	-	-	4,061	4,061[2]
Mandatorily measured at fair value through profit or loss	-	-	26	26	26
Total				4,087	4,087
Other accounts receivable:					
Financial assets	325	-	-	325	325[2]
Non-financial assets	-	-	-	511	-[3]
Total				836	
Derivative and other financial assets:					
Derivative financial assets[4]	-	6	65	71	71
Other current financial assets	268	4	-	272	272[2]
Total				343	343
Financial and other non-current assets:					
Loans, receivables and pooled investments	56	50	5	111	111[5]
Equity investments at fair value through OCI	-	-	94	94	94[1]
Other, not carried at fair value	-	-	-	289	-[3]
Derivative financial assets[4]	-	-	56	56	56
Total				550	
Trade accounts payable	3,174	-	-	3,174	3,174[2]
Current financial debt and other financial liabilities:					
Non-derivative financial liabilities	1,062	-	-	1,062	1,062[2]
Derivative financial liabilities[4]	-	-	79	79	79
Total				1,141	1,141
Other current liabilities:					
Financial liabilities	86	-	-	86	86[2]
Non-financial liabilities	-	-	-	687	-[3]
Total				773	
Financial debt and other non-current liabilities:					
Non-derivative financial liabilities	2,860	-	-	2,860	2,727[6]
Derivative financial liabilities[4]	-	-	104	104	104
Non-financial liabilities	-	-	-	100	-[3]
Total				3,064	

1 The totals for equity investments at fair value through OCI include $94 million of level 3 investments, mainly within Syngenta's venture business unit, presented in the level 2 column in the table above. The main valuation input for these investments is the price from their most recent shareholder financing transactions.

2 Carrying amount approximates the estimated fair value due to the short-term nature of the financial instruments

3 Fair value is not required to be disclosed for non-financial assets and non-financial liabilities, including defined benefit pension assets

4 Derivative financial assets and liabilities are measured at fair value through profit or loss except that gains and losses on cash flow hedges of forecast transactions are not recognized in profit or loss until the hedged transaction is recognized in profit or loss

5 Fair values of these receivables are measured by discounting their cash flows at interest rates derived using observable yields on government bonds with maturities and currencies that match those of the respective receivable and the estimated credit risk of each receivable. The total fair value disclosed in respect of loans and receivables at amortized cost is due from counterparties that have not issued traded bonds and represents a level 3 fair value measurement

6 Financial liabilities represent both exchange traded bonds and non-exchange traded private placement notes issued by Syngenta. The fair value disclosed consists of level 2 fair value measurements derived from observable price quotations for these bonds, except for one private placement note with a fair value of $9 million, which is a level 3 measurement because market interest rates and credit rates are not observable for the full period through to its maturity date in 2035

The levels of fair value hierarchy used above are defined as follows:

– Level 1 fair value measurements are those derived from quoted prices (unadjusted) in active markets for identical assets or liabilities;

– Level 2 fair value measurements are those derived from inputs other than quoted prices included within level 1 that are observable for the asset or liability, either directly (i.e. as prices) or indirectly (i.e. derived from prices); and

– Level 3 fair value measurements are those derived from valuation techniques that include inputs for the asset or liability that are not based on observable market data.

The fair values of equity shareholdings subject to a lock-up period where the underlying shares are actively traded on a stock exchange are derived by applying a discount to the market price and are classified as level 2. They are reclassified as level 1 on expiry of the lock-up period. In 2018 and 2017, there were no transfers between level 1 and level 2 or into or out of level 3 of the fair value hierarchy or between the fair value and amortized cost categories.

Movements in level 3 financial assets for the years ended December 31, 2018 and 2017 were as follows:

($m)	**2018**	2017
January 1	**94**	75
Unrealized gains recognized on equity instruments at fair value through OCI	**15**	5
Additions due to issues	**13**	22
Disposals due to sales	**-**	(11)
Currency translation effects and other	**1**	3
December 31	**123**	94

Income, expense, gains and losses relating to financial instruments recognized in profit or loss during the years ended December 31, 2018 and 2017 are as follows:

2018 ($m)	**Amortized cost loans and receivables[1]**	**Derivative assets and liabilities**	**Liabilities carried at amortized cost**	**Total**
Recognized within Financial expense, net[2]:				
Interest income	**147**	**-**	**-**	**147**
Interest expense	**-**	**(33)**	**(346)**	**(379)**
Currency gains/(losses), net	**-**	**(79)**	**-**	**(79)**
Recognized within Operating income:				
Impairment charges	**(28)**	**-**	**-**	**(28)**
Total	**119**	**(112)**	**(346)**	**(339)**

2017 ($m)	**Amortized cost loans and receivables[1]**	**Derivative assets and liabilities**	**Liabilities carried at amortized cost**	**Total**
Recognized within Financial expense, net[2]:				
Interest income	155	-	-	155
Interest expense	-	(30)	(135)	(165)
Currency gains/(losses), net	-	(132)	-	(132)
Recognized within Operating income:				
Impairment charges	(74)	-	-	(74)
Total	81	(162)	(135)	(216)

1 Includes immaterial amounts relating to financial assets classified as at fair value through profit or loss
2 Financial expense, net also includes $42 million of bank charges (2017: $36 million)

Reported gains recognized in OCI on revaluation of equity investments that were designated at fair value through OCI were $15 million and $5 million for the years ended December 31, 2018 and 2017, respectively.

27. New IFRSs and accounting policies

Adoption of IFRS 9 (July 2014)

Syngenta adopted IFRS 9 (July 2014) Financial Instruments, on January 1, 2018, having early adopted IFRS 9 (2013) with effect from January 1, 2014. IFRS 9 (July 2014) is the complete and final version of IFRS 9 and contains certain revisions to the financial asset classification and measurement requirements in IFRS 9 (2013), the most important being the addition of a third business model for asset classification with objectives of both collecting contractual cash flows from the assets and selling the assets. Assets classified in this model are measured at fair value through OCI. Adoption of these revisions had no impact on these consolidated financial statements because Syngenta has not classified any financial instruments within this third business model.

On adopting IFRS 9 (July 2014), Syngenta adopted the requirement to record allowances for expected credit losses on financial assets classified at amortized cost. Previously, allowances were recorded when credit losses were incurred, considering only information about past events and current conditions at the reporting date. Expected credit losses are estimated taking account of all available reasonable and supportable information, including forward-looking information about business, financial and economic conditions. Adoption of the expected credit loss model had no material impact on these consolidated financial statements. Syngenta's largest category of financial assets is its trade receivables, which with few exceptions have credit terms of less than 12 months. Syngenta estimated lifetime expected credit losses on trade receivables outstanding at January 1, 2018 were estimated by applying the following loss matrix to net receivable balances after deducting collateral provided by customers:

- Not yet due 1%
- Past due less than 90 days 20%
- Past due between 90 and 180 days 75%
- Past due more than 180 days 85%

This resulted in no material change to the provision for doubtful trade receivables at that date, and consequently Syngenta recognized no prior period restatements or retained earnings adjustment on transition to IFRS 9 (July 2014). Movements on the provision for expected credit losses on trade receivables for the year ended December 31, 2018 are set out in Note 9. Syngenta's policies for credit risk management and estimating expected credit losses are described below under "Trade and other accounts receivable".

Other New IFRSs

Syngenta has early adopted the "Conceptual Framework for Financial Reporting" (the Framework) and "Amendments to References to the Conceptual Framework in IFRS Standards" (the Amendments), issued in March 2018. The Framework replaces the previous Framework issued in 2010. One of its purposes is to assist preparers of financial statements to develop consistent accounting policies when no IFRS applies to a particular transaction or other event, or when an IFRS allows a choice of accounting policy; and to understand and interpret IFRSs. It does not override the requirements of IFRSs. The Amendments update references to the Framework in certain IFRSs, their accompanying documents and IFRS practice statements. Neither adoption of the Framework, nor early adoption of the Amendments, had any impact on these consolidated financial statements.

Syngenta has also adopted the following revised IFRSs from January 1, 2018. These IFRSs have not been early adopted and their adoption had no material impact on these consolidated financial statements:

- "Classification and Measurement of Share Based Payment Transactions". Syngenta's accounting for its share based payments in these financial statements was consistent with the amendments. Syngenta no longer has any share based payment plans or outstanding share based payment transactions;
- IFRIC 22 "Foreign Currency Transactions and Advance Consideration" requires most foreign currency transactions the consideration for which is received or paid in advance, to be translated into the transacting entity's functional currency using the exchange rate at the date(s) on which this consideration is paid or received;
- "Transfers of Investment Property", Amendments to IAS 40; and
- The Amendments to IAS 28 "Investments in Associates and Joint Ventures" included in "Annual Improvements to IFRS Standards" 2014-2016 Cycle, which clarify financial statement disclosure requirements for investments in subsidiaries, joint ventures and associates that are classified as held for sale.

The relevant new or revised IFRSs that Syngenta has not yet adopted are the following:

- IFRS 16 "Leases", was published in January 2016, and requires a lessee to account for all leases, unless exempt as described below, by recognizing a lease asset (right of use asset) for the right to use the asset underlying the lease (underlying asset) and a corresponding liability for lease payments during the lease term, which is defined as the non-cancellable period of the lease and any additional periods for which the lessee has an option to use the asset that it is reasonably certain to exercise. Syngenta identifies such additional periods by considering both the stated contractual terms of its leases and any lessee renewal rights conferred by applicable law. In assessing whether it is reasonably certain to make use of lease periods which are at its sole option, Syngenta considers the length of the non-cancellable lease period in each lease, contractual terms and conditions relating to the optional period(s) and to exercising the option(s), recent or planned future leasehold improvements, the impact of terminating the lease on its operations and associated termination costs. Payments for optional periods are included in the lease liability only if Syngenta is reasonably certain to continue unchanged all other terms in the current lease, such as the area of land and buildings rented. No payments are included for renewal or additional periods which require either the lessor's consent for Syngenta's continued use of the underlying asset during those periods or for which Syngenta and the lessor have not agreed the lease payments and other terms for those periods. Payment for an option to purchase the underlying asset is included if Syngenta is reasonably certain to exercise that option. Syngenta will apply the permitted expedient to include in the lease liability payments for services associated with leases of cars, but not for leases of other assets. Syngenta will not apply IFRS 16 to leases of intangible assets.

  Syngenta will apply the permitted optional short term lease exemption to all leases with a term of less than one year on inception, and will apply the permitted exemption for leases of low value items to all such items, which consist of personal computers and tablets, telephones, small items of office furniture and similar items, which have a value when new of $5,000 or less, are not sub-leased and are not highly dependent on other Syngenta assets for their use. Syngenta will account for short term and low value item leases in the same way as operating leases under the current IAS 17, expensing costs on a straight-line basis over the lease term.

For leases which do not qualify for the above exemptions, Syngenta will recognize a liability at lease commencement equal to the present value of payments required over the lease term for the use of the asset, excluding contingent payments, discounted at Syngenta's incremental borrowing rate (IBR). Syngenta's IBR is comprised of a reference rate based on cash and swap curves for the currency and maturity of the lease payments and a financing spread adjustment which differentiates between asset classes based on the value of the collateral offered by the nature of the underlying asset, assuming that this value fully covers the debt throughout the lease term. For leases of land and buildings, the IBR is equal to the reference rate of the corresponding currency without additional spreads. In the opinion of Syngenta, the collateral represented by leases of mobile assets such as vehicles does not significantly reduce the interest rate that Syngenta would have to pay a lender compared to the rate on unsecured finance with otherwise similar terms. Consequently, the IBR additionally includes the Syngenta group spread to swap for group funding and a country risk premium. Syngenta will recognize a right of use asset at lease commencement equal to the lease liability, adjusted by any lease payments made or incentives received before commencement, and including where applicable Syngenta's initial direct costs of obtaining the lease and an estimate of costs associated with obligations to decommission or restore the underlying asset or the site where it is located.

After commencement, lease expense will be attributed to accounting periods in a similar way to finance leases under the current IAS 17. Right of use assets will be amortized systematically over the lease term, subject to review for impairment, using the same policies as Syngenta applies for depreciation and impairment of owned property, plant and equipment of the same class as the underlying asset. The lease liability will be accounted for at amortized cost using the IBR at lease commencement, and the resulting interest cost will be presented within Interest expense in the consolidated income statement. Where lease payments are indexed to a specified index or rate, on each occasion that the lease payments change the lease liability is remeasured to include the revised payments, with a corresponding adjustment to the right of use asset. However, if a lease is modified or Syngenta changes its assessment of the lease term or of a purchase option in the lease, the lease liability will be remeasured by discounting the revised lease payments using a revised IBR determined at the date of the change. Lease payments which are contingent on use of the underlying asset are not included in the lease liability, and are expensed as incurred.

Syngenta will adopt IFRS 16 on January 1, 2019 using the modified retrospective application method, together with all applicable permitted practical expedients. Under these transition methods:

- Existing agreements at January 1, 2019 which are or contain a lease in accordance with the IAS 17 lease definition are automatically treated as a lease for IFRS 16;
- For each of approximately 6,000 IAS 17 operating leases with a remaining term of more than one year at January 1, 2019 that do not qualify for the low value asset exemption, a lease liability will be recognized in accordance with IFRS 16, measured by discounting the lease payments remaining at January 1, 2019 using Syngenta's IBR at that date. A leased asset is recognized for the same amount, ignoring Syngenta's initial direct costs to obtain the lease;
- Syngenta's finance lease assets and liabilities in accordance with IAS 17 ($63 million and $61 million as per Notes 12 and 19 respectively) are not restated on transition;
- Any change in net assets would be accounted for by making a one-time catch-up adjustment to retained earnings; however, under the transition methods described above Syngenta expects there will be no adjustment to retained earnings, because on transition to IFRS 16, equal asset and liability amounts will be recognized for leases that are accounted for as operating leases under IAS 17.

Syngenta estimates that:

- at January 1, 2019 it will recognize right of use assets and lease liabilities of approximately $193 million for IAS 17 operating leases. The difference between this amount and the undiscounted amount of Syngenta's minimum commitments under operating leases disclosed in Note 20 is due to the effect of discounting and to the exemption for short term and low value item leases, estimated annual payments for which are $35 million;
- based on lease agreements that commenced on or before January 1, 2019, Syngenta estimates the overall net impact on its consolidated income statement of applying IFRS 16 to those leases will not be materially different from the effect of applying IAS 17.
- Approximately $55 million of lease payments for operating leases that commenced on or before January 1, 2019 will be presented in the consolidated cash flow statement within cash flows used for financing activities. In 2018 and previous years, lease payments on those leases were presented within cash flows from operating activities.

- "Sale or Contribution of Assets between an Investor and its Associate or Joint Venture", Amendments to IFRS 10 and IAS 28, was issued in September 2014 and requires Syngenta to recognize gains and losses on such sales or contributions only to the extent they relate to the interest in the Associate or Joint Venture that is held by investors other than Syngenta. In December 2015, the IASB postponed mandatory application of the amendments indefinitely. Based on the associates and joint ventures in which it has investments at December 31, 2018, Syngenta does not believe that the amendments will have a material impact on its consolidated financial statements.
- IFRS 17 "Insurance Contracts" was issued in May 2017 and establishes principles for accounting and disclosure of insurance contracts issued and reinsurance contracts held. Insurance contracts held as a policyholder are not within the scope of IFRS 17. The effective date of IFRS 17 is January 1, 2021. Syngenta does not believe that IFRS 17 will have a material impact on its financial statements.

– IFRIC 23 "Uncertainty over Income Tax Treatments", was issued in June 2017 and must be applied with effect from January 1, 2019. The interpretation contains options for either full retrospective application, or retrospective application by recognizing the cumulative impact in retained earnings on initial adoption. IFRIC 23 clarifies that when income tax treatments are uncertain, Syngenta shall assume that income tax authorities will exercise rights to examine its tax positions with full knowledge of all related information, and shall reflect the uncertainty by using either the most likely method or the expected value method, whichever Syngenta expects to better predict the resolution of the uncertainty, to determine taxable profit and income tax expense, assets and liabilities related to each uncertain tax treatment. Based on the uncertain tax treatments it has identified at December 31, 2018, which are further discussed in Note 2, Syngenta believes its estimates are consistent in principle with IFRIC 23 requirements and therefore does not believe the effect of IFRIC 23 on its financial statements will be material.

– "Long-term Interests in Associates and Joint Ventures", Amendments to IAS 28, was issued in October 2017 and clarifies that long-term interests in Associates and Joint Ventures, other than equity interests, are accounted for as financial assets in accordance with IFRS 9. Syngenta must adopt the amendments by January 1, 2019 at the latest. Earlier application is permitted. Based on the associates and joint ventures in which it has investments at December 31, 2017, Syngenta does not believe that the amendments will have a material impact on its consolidated financial statements.

– "Prepayment Features with Negative Compensation", Amendments to IFRS 9, was issued in October 2017 and contains guidance for classification of financial assets with prepayment options which could result in the holder receiving, rather than paying, compensation. Syngenta must adopt the amendments on January 1, 2019. Based on the financial assets it has at December 31, 2018, Syngenta does not believe that the amendments will have a material impact on its consolidated financial statements.

– "Annual Improvements to IFRS Standards" 2015-2017 Cycle, was issued in December 2017 and clarifies accounting requirements for: the acquisition of control or of joint control over joint arrangements in which the acquirer already holds an interest; the income tax consequences of dividends payable; and which borrowings are used to determine the borrowing cost capitalization rate for assets under construction. Syngenta must adopt the amendments on January 1, 2019. Syngenta does not believe that the amendments will have a material impact on its consolidated financial statements.

– "Plan Amendment, Curtailment or Settlement", Amendments to IAS 19, was issued in February 2018 and clarifies how the direct remeasurement impact of such an event on the net defined benefit asset and liability for post-employment plans recognized in profit or loss interacts with the consequent indirect impact of the asset ceiling recognized in OCI, and that benefit expense for the period after such an event is based on the actuarial assumptions used to remeasure the plan when the event occurs. Syngenta must adopt the amendments on January 1, 2019. Syngenta's accounting policy is already aligned with the amendments.

– "Definition of a Business", Amendments to IFRS 3, was issued in October 2018 and amends the definition of a business for the purpose of determining whether business combination accounting should be applied to a transaction. It clarifies that a business must contain inputs and a substantive process, and introduces a voluntary concentration test which allows purchases of assets the fair value of which is concentrated in one asset to be identified as a set of assets and not a business, without the need to consider other features of the definition of a business. Syngenta must adopt the amendments prospectively to transactions which occur on or after January 1, 2020. Earlier application is permitted. The effect of the amendments, if any, on Syngenta's consolidated financial statements will depend on the terms of transactions entered into in future periods, which are unknown at present.

– "Definition of Material", Amendments to IAS 1 and IAS 8, was issued in October 2018 and clarifies existing guidance on materiality, adding the concept that information is material if obscuring that information by using unclear language or presentation, including inappropriate combination with dissimilar items or immaterial information or separation from similar items, could reasonably be expected to influence decisions made by the primary users of financial statements. Syngenta must apply the amendments prospectively with effect from January.1, 2020. Earlier application is permitted

New segment reporting

In 2018, Syngenta adopted revisions to its segment reporting to reflect changes in management structure, which followed on from the completion of the takeover by ChemChina and the announcement of Syngenta's new ambitions and priorities during 2017. There are six operating segments consisting of five geographic regions which include the Crop Protection, Seeds and Controls businesses, and the global Flowers business. Syngenta reports the China region and the Asia Pacific excluding China region as a single segment because of similar products, production and distribution and similar economic characteristics. Syngenta combines the Flowers business together with sales and costs which are incidental to Syngenta's commercial strategies or are not directly attributable to an operating segment, such as global marketing and research and development teams, corporate headquarter functions and some centrally provided support services in the finance, information systems, human resources and procurement functions, under the heading 'All other segments' for materiality reasons. Until December 31, 2017, there were four geographic regions which included the Crop Protection and Seeds businesses, and the Controls and Flowers businesses were reported together in the global Lawn & Garden segment. The segment information presented in Note 4 for the year ended December 31, 2017 has been restated in accordance with the new management structure.

Income and expense transactions have been attributed to the geographic regions based on the market destination to which they relate, rather than on the region in which they originated.

Principles of consolidation

Subsidiaries

Subsidiaries are those entities which Syngenta controls. Syngenta controls all its subsidiaries through ownership of a majority of their voting rights. Syngenta fully consolidates the income, expenses, assets, liabilities and cash flows of subsidiaries from the date it acquires control up to the date control ceases. Intercompany transactions and balances are eliminated upon consolidation.

Associates and joint ventures

Syngenta has no interests in entities that it does not consolidate that would meet the definition of joint operations. Syngenta accounts for both associates and joint ventures using the equity method.

Business combinations

Syngenta accounts for business combinations in accordance with IFRS 3 (revised January 2008), using the acquisition method. At the date it acquires control of another business, Syngenta records the fair value of the agreed consideration payable, including the estimated fair value of any contingent consideration and of any pre-existing ownership interest it holds in the acquired entity. Directly attributable acquisition transaction costs are expensed as incurred. The assets and liabilities of acquired businesses are identified and recorded in the consolidated financial statements at their acquisition date fair values, with certain exceptions as set out in IFRS 3. Acquired intangible assets are generally valued based on the income approach: the relief from royalty method is generally used for brand names, the distributor method for customer relationships, and the residual income method for product technology rights. Acquired land and buildings are valued based on the market approach and specialized plant and equipment based on the cost approach. Non-controlling interests which either consist of actively traded financial instruments or which do not represent a proportionate ownership interest in the acquired entity to which they relate are recorded at their fair value. All other non-controlling interests are recorded at their proportionate share of the fair value of the acquired business's net assets.

Other accounting policies

Foreign currencies and hyperinflation

Monetary assets and liabilities denominated in foreign currencies are translated into the functional currency at the rate prevailing at the balance sheet date. Non-monetary assets and liabilities denominated in foreign currencies, stated at historical cost or fair value, are translated into the functional currency at the foreign exchange rate prevailing at the date of the transaction or the date the fair value was determined, respectively. Foreign currency transactions are translated into the relevant functional currency at the exchange rate prevailing at the date of the transaction. With exceptions for certain regional supply centers, holding and finance subsidiaries, each Syngenta subsidiary uses the local currency of its country of operations as its functional currency. Unrealized gains or losses related to equity loans, designated cash flow and net investment hedging arrangements and gains and losses on remeasuring equity investments designated at fair value through OCI are recognized in OCI. All other resulting foreign exchange transaction gains and losses are recognized in profit or loss. Equity loans are intercompany loans to subsidiaries that are not expected to be repaid in the foreseeable future and therefore considered part of Syngenta's net investment in the subsidiary.

Income, expense and cash flows of foreign operations are translated into US dollars using average exchange rates prevailing during the period. Assets and liabilities of foreign operations are translated to US dollars using exchange rates prevailing at the balance sheet date. Foreign exchange differences arising on these translations are recognized directly in OCI. Upon disposal or loss of control of a foreign subsidiary, the cumulative currency translation difference relating to the subsidiary is reclassified from equity to profit or loss as part of the gain or loss on disposal.

The consolidated historical cost of inventories that have been transferred between Syngenta group entities since their initial purchase or manufacture is measured by translating the currencies in which the costs of purchase or manufacture were incurred into US dollars at the exchange rates prevailing at the date when those costs were incurred, and foreign exchange differences arising on retranslating these amounts to US dollars at the rates at the balance sheet date or the date the inventories were sold, as applicable, are recognized in OCI.

Syngenta considers the economy of a country to be hyperinflationary if reliable statistical evidence indicates that its cumulative consumer price inflation rate over the previous three years has exceeded 100% and is likely to continue to exceed 100% throughout the year following the balance sheet date. Syngenta subsidiaries whose functional currency is the currency of a hyperinflationary economy are consolidated as follows: amounts of non-monetary assets and liabilities and income and expense items in the subsidiaries' financial statements are indexed to current price levels at the balance sheet date using a recognized general consumer price index. The resulting financial statements, including income statement and cash flows, are translated into US dollars at the rate prevailing at the balance sheet date.

Revenue

Syngenta early adopted IFRS 15 "Revenue from Contracts with Customers" with effect from January 1, 2017 using the cumulative effect transition method. Under that method, Syngenta uses IFRS 15 to determine when revenue is recognized after January 1, 2017 for contracts with obligations to supply products or provide services that had not been fulfilled by that date. Syngenta uses IAS 18 to account for changes after January 1, 2017 in estimates of the amount of revenue for contracts under which Syngenta had supplied or provided all required products and services before that date.

Syngenta's main source of revenue is product sales. Control of products passes to Syngenta's customers, and revenue for product sales is recognized, at a point in time which is usually upon delivery, subject to reasonable assurance of collectability. Delivery is defined based on the terms of the sale contract. Syngenta also derives revenue from licensing the right to use its intellectual property (IP), principally its seeds germplasm and traits. Each licensing contract Syngenta enters into has unique terms and certain licensing contracts may involve significant upfront or milestone payments in addition to sales-based royalties.

Revenue is measured at the amount of consideration to which Syngenta expects to be entitled in exchange for the products or license rights it transfers to customers. If the consideration is receivable more than 12 months after the transaction date and the effect of discounting is material, the revenue amount recognized is discounted to its present value at the transaction date, using a discount rate which reflects customer risk, and the unwinding of this discount is recognized as financial income over the period until the date the consideration is due. Revenue in contracts with non-cash consideration is measured at the fair value of the consideration at contract inception.

The main forms of variable revenue for Syngenta are as follows and the judgments associated with estimating their amount are discussed in Note 2:

– cash incentive programs that provide rebates and discounts dependent on achievement of targets for purchase of Syngenta products, and cash discounts for punctual or early payment of invoices. Syngenta recognizes sales minus an allowance for rebates, and a refund liability presented within Trade accounts payable in the consolidated balance sheet. The allowance and liability are measured at the amount expected to be refunded or credited to customers, estimated based on the programs' terms, market conditions and historical experience.

– sales returns, which arise both in markets where the customer has a legal or contractual right of return and in markets where customers do not have such rights but Syngenta's commercial practice is to accept returns. In either case, Syngenta recognizes sales minus an allowance for expected returns, an estimated refund liability, and an asset for the right to recover its products corresponding to the expected returns. The refund liability and the asset are presented within Trade accounts payable and Inventories respectively in the consolidated balance sheet. The allowance and liability are measured at the amount expected to be refunded or credited to customers and the asset is measured at the standard purchase or production cost of the underlying Syngenta products, minus allowances for transportation and obsolescence where relevant.

– in certain markets, sales terms allow customers to exchange purchased products at a later date for other Syngenta products of their choice, to the same value. For these sales, Syngenta recognizes revenue upon delivery of the original products, minus a provision for products expected to be exchanged. This provision is released, and the corresponding revenue is recorded, when the substitute products are delivered or the customer's right to exchange the products expires, whichever is earlier.

– In licenses which grant the right to use Syngenta's IP as it exists when the license is granted, and in which Syngenta receives revenue for non-refundable lump sums and minimum guaranteed income amounts which can be reliably estimated and for which there are no related future Syngenta performance obligations or contingencies other than the passage of time, Syngenta recognizes that revenue on signature of or on the effective date of the license, whichever is later. Revenue for lump sum milestone payments which are contingent on product regulatory approvals is recognized only when the competent regulatory authorities have granted the relevant approvals. Sales-based royalty income is recognized in the period that the licensees make sales in respect of which the royalties are payable.

In certain markets, sales terms allow customers the option of a one-time, non-repeatable extension of credit, for a defined additional period, in respect of a defined proportion of purchases made during a defined period, if the customers still have the inventories on hand upon expiration of the initial agreed credit period. Customers have no right to return these inventories, and must pay unconditionally when the additional credit period expires. In accordance with IFRS 15, revenue for these sales is recognized upon product delivery.

Where third parties hold Syngenta inventories on a consignment basis, revenue is recognized in the period that inventories are withdrawn from consignment and delivered to customers.

For product sales which are qualifying purchases in customer loyalty incentive programs, Syngenta allocates revenue between its qualifying product sales and the incentive awards of additional free or discounted products or services ("incentives") based on the value of incentives to which customers are expected to be entitled, the relative stand-alone selling prices of the respective product sales and incentives and, where awards are subject to expiry, the extent to which customers are expected to redeem their rights based on historical experience of similar programs. Syngenta recognizes estimated liabilities for the incentives in the period in which it recognizes the associated product sales, and presents these liabilities as Contract liabilities in the consolidated balance sheet. In programs where the incentive is either a product normally sold by Syngenta, a third party product which Syngenta is primarily responsible for supplying to customers or for which Syngenta bears inventory risk, or a service provided to customers by a third party acting under Syngenta's direction, Syngenta obtains control of the incentives before transferring them to customers, and so supplies the incentives as a principal. For these programs, Syngenta recognizes the revenue allocated to the incentives when customers receive them or redeem their right to an award. Revenue related to these programs is presented as part of Sales, and associated costs are presented within Cost of goods sold or Marketing and distribution expense as appropriate. In other programs, Syngenta acts as agent for a third party who supplies the incentives, and Syngenta recognizes any net income from supply of the incentive when the third party becomes obliged to supply the awards.

Syngenta periodically enters into prepayment contracts with customers whereby it receives advance payments for products to be delivered in a future period. These advance payments are recorded as liabilities and presented as part of Contract liabilities in the consolidated balance sheet. Advance payment liabilities are released and revenues associated with such advance payment transactions are recognized when control of the prepaid products passes to the customer.

Syngenta has not presented a separate line in the consolidated balance sheet for Contract assets because all material relevant assets are presented either as Inventories or Trade receivables. Except for payments made to customers at inception of contracts which are recognized as intangible assets and purchase and production costs recognized as inventories, Syngenta has no material incremental costs of obtaining contracts or direct costs of fulfilling contracts that qualify for recognition as an asset.

For certain customers in certain markets, trade receivables are settled either with proceeds from sales by such customers of agricultural commodities or by delivery of commodities to Syngenta by such customers. For these arrangements, Syngenta recognizes revenue when it has a legally enforceable receivable, the amount of which is reliably measurable based on an agreed price for the Syngenta products. Where Syngenta has a contract with the customer for physical delivery of a commodity at a fixed price which is hedged using derivative financial instruments, an embedded derivative is recognized for the fair value of the contract until physical delivery. When Syngenta subsequently resells the commodity, it classifies additional revenue as sales only to the extent that the original contract for the sale of Syngenta products included revenue that was contingent upon the commodity sales proceeds. Any remaining gains or losses on the commodity sale are recorded in Marketing and distribution expense in the consolidated income statement.

Research and development

Research expenses are charged to the consolidated income statement when incurred. Internal development costs are capitalized as intangible assets only when there is an identifiable asset that can be completed and is expected to generate future economic benefits and when the cost of such an asset can be measured reliably. Costs incurred internally to develop new chemical or biological crop protection products based on active ingredients that have not yet obtained regulatory approval, or to develop new seed varieties which contain new traits that have not yet obtained regulatory approval, are expensed as incurred because of the uncertainty inherent in the outcome of the regulatory approval process. Costs incurred in the design, construction and testing of new or improved production processes that do not themselves require regulatory approval and that can be applied to products which have already obtained approval are capitalized if the processes are technically feasible, Syngenta intends and has sufficient resources to complete the development, the process will generate future economic benefits, and expenditure attributable to developing the process can be measured reliably. Development expenses Syngenta incurs to develop technology on behalf of a third party under a collaboration agreement are capitalized and amortized over the agreement term if Syngenta expects to recover the costs under the terms in that agreement.

Costs of purchasing distribution rights, patent rights and licenses to use or sell products, or technology or registration data are capitalized as intangible assets. Costs of applying for patents for internally developed products, costs of defending existing patents and costs of challenging patents held by third parties where these are considered invalid, are considered part of development expense and expensed as incurred.

Expenses by function

Cost of goods sold includes costs of purchasing and producing inventories that have been sold to third parties, inbound and inter-site distribution expenses, impairment of inventories, environmental remediation costs associated with ongoing Syngenta manufacturing sites, and general overhead expenses of Syngenta's Production and Supply function which are expensed as incurred. Marketing and distribution includes costs of selling products, providing technical support for products sold, marketing and promotional expenses, distribution of finished products to third party customers, and impairment of trade and other receivables. Research and development includes the expenses of Syngenta's research sites and third party research collaboration agreements, expenses incurred during the regulatory process for Syngenta products and the costs of Syngenta's global field trials organization. General and administrative includes expenses of general management, finance, human resources, information systems, legal affairs and taxes, corporate affairs and communications, business planning and corporate development functions. Services provided by these departments to the Production and Supply, Marketing and Distribution and Research and Development functions are allocated to and included within those other functions. Gains and losses arising on routine asset disposals and gains and losses reclassified from OCI when hedged forecast foreign currency trading transactions affect profit or loss are also reported within General and administrative. Restructuring is a separate general and administrative function as it is managed through a project management office which is accountable to the Executive Team. Impairment of property, plant and equipment that results from restructuring plans, rather than ongoing activities of the functions responsible for the assets, is included in Restructuring. Impairment of goodwill and intangible assets is also included in Restructuring unless a specific function is accountable for the impairment loss. Non-current asset depreciation and amortization are charged to the functions responsible for the related assets.

Restructuring

Restructuring represents the effect on reported performance of initiating and enabling business changes that are considered major and that, in the opinion of management, will have a material effect on the nature and focus of Syngenta's operations, and therefore require separate disclosure to provide a more thorough understanding of business performance. Restructuring includes the incremental costs of closing, restructuring or relocating existing operations, and gains or losses from related asset disposals. Restructuring also includes the effects of analyzing and preparing for potential industry consolidation transactions as well as completing and integrating significant business combinations and divestments, including related transaction costs, gains and losses. Recurring costs of normal business operations and routine asset disposal gains and losses are excluded.

Income taxes

Income taxes for the year comprise current and deferred taxes, calculated using rates enacted or substantively enacted at the balance sheet date. Current tax is the expected tax payable on taxable income for the year and any adjustments to tax payable in respect of previous years. Deferred tax is recognized using the liability method and thus is calculated on temporary differences between the tax bases of assets and liabilities and their respective carrying amounts in the consolidated balance sheet.

Deferred tax is provided on temporary differences arising on investments in subsidiaries, associates and joint ventures, except where the timing of the reversal of the temporary difference can be controlled and it is probable that the difference will not reverse in the foreseeable future. Deferred tax liabilities are not recognized on the initial recognition of goodwill if the carrying amount of goodwill exceeds its tax base. Deferred tax assets, including those related to unused tax losses, are recognized to the extent that it is probable that future taxable profit will be available against which the assets can be utilized. Income tax expense, current and deferred, is recognized in profit or loss unless it relates to items recognized in OCI or in equity in which case the tax expense is also recognized in OCI or equity, respectively.

Syngenta's policy is to comply fully with applicable tax regulations in all jurisdictions in which Syngenta's operations are subject to income taxes. Syngenta's estimates of current income tax expense and liabilities are calculated assuming that all tax computations filed by Syngenta's subsidiaries will be subject to review or audit by the relevant tax authorities. Syngenta and the relevant tax authorities may have different interpretations of how regulations should be applied to actual transactions. Syngenta records provisions for taxes it estimates will ultimately be payable when the reviews or audits have been completed, including allowances for any interest and penalties which may become payable. Syngenta releases these provisions when the tax audit of the applicable year is completed or an Advance Pricing Agreement (APA) settlement is reached that impacts previous years' tax payments, or otherwise when the statute of limitations for the applicable year expires, unless there is evident reason for earlier release.

Financial Instruments

Trade and other accounts receivable

Trade and other accounts receivable include invoiced amounts less adjustments for expected credit losses. Syngenta holds trade receivables to collect their contractual cash flows, and classifies and measures them at amortized cost, except for certain foreign currency sales transactions in which Syngenta offers to its customers a written exchange rate option embedded into the sales contract. Trade receivable/option contracts that result from these foreign currency sales transactions are classified as at fair value through profit or loss. The fair value of these trade receivables is measured by:

(a) remeasuring the embedded exchange rate option at fair value;

(b) retranslating the underlying trade receivable into the selling entity's functional currency using closing spot exchange rates at the balance sheet date; and

(c) adjusting the resulting carrying amount of the combined receivable contract to reflect changes in customer credit risk. Syngenta includes this adjustment in the provision for doubtful receivables.

Factoring arrangements transferring substantially all economic risks and rewards associated with accounts receivable to a third party are accounted for by derecognizing the accounts receivable upon receiving the cash proceeds of the factoring arrangement. Factoring arrangements that transfer to a third party some, but not substantially all economic risks and rewards are accounted for by continuing to recognize Syngenta's continuing rights over the receivable and by recognizing any related obligation to the third party factor.

Credit risk management practices

Syngenta's Corporate Financial Risk Group (CFFORG) monitors, proposes and coordinates country risk, credit management policies and processes including credit limit setting for major customers, approval of credit exceeding 360 days and credit insurance and risk transfer objectives. The CFFORG is supported by Regional, Territory and Country Trade Finance Credit Managers (TFCM) and Credit Committees (CC) with defined authority levels. The CC defines risk mitigation programs at country and customer level such as barter, collateral policy, payment terms, early payment rebates, and refinancing. The CC also defines the optimal credit risk level at customer and country level, approves customer credit facilities, credit scoring and payment terms, defines and reviews collection strategies including credit hold and release processes, treatment of critical customer cases and taking legal actions when collection efforts are insufficient to collect overdue balances, and sets yearly targets for accounts receivable performance. The TFCM coordinates the CC and is responsible for risk analysis, executing trade financing programs, collection negotiations and dispute resolution, and, where necessary, currency risk, export financing programs, documentary credits and commercial bank guarantees and credit risk insurance. The TFCM is supported by a Credit Operations team responsible for collection and dispute management.

Syngenta manages credit risk to operational assets through country and customer risk limits. Countries are assigned a risk rating based on external analysis of their economic, business and political risk and internal analysis of agricultural risk. Country exposure limits and minimum security requirements are applied in some defined high risk countries. A standardized credit scoring methodology is applied to all customers generating a creditworthiness score computed using a points-based system which takes into consideration financial and non-financial attributes and credit limits. Based on the total score achieved each customer is classified in a credit risk class which drives policy relating to sales order release, collection process and credit limit. Each customer's credit position is consolidated across all relevant systems to provide a total business view of credit status and history.

Collateral is an important part of the risk mitigation strategy. Collateral is based on a list of locally accepted securities which may include cash, other financial instruments, barter operations or third party credit enhancements such as guarantees or insurance, but normally excludes non-financial assets. Collateral is validated based on its probability of and time to legal enforcement.

Receivable balances are written off only when there is no realistic prospect of their being collected, after completion of related legal actions and permanent cessation of business activity with the defaulting customer. Write-offs are subject to defined authority levels and are not used to solve small payment differences or valid commercial disputes with continuing customers.

Estimation of expected credit losses

To estimate expected credit losses, trade receivables are grouped into portfolios by credit risk class and country and a provision matrix method is used. The principal inputs when determining matrix percentages are historical records of amounts written off in previous years, amounts currently subject to insolvency proceedings and the likelihood of eventual write offs of those amounts, the average credit period, past due information and historical experience. Assumptions are also made about forecast conditions for market credit, commodity price, currency and country risk, competition and regulation over the remaining credit period of the trade receivables outstanding at the balance sheet date. These assumptions are consistent with those used to prepare operational budgets for the following period. Rebate credits and validated collateral valued at its expected value are deducted from outstanding receivable balances when determining the maximum exposure to credit loss to which matrix percentages are applied. Expected recoveries under credit insurance policies which are not part of the agreement with the customer are accounted for separately from the expected credit losses and are recognized as assets when the insurer has agreed the claim.

Expected credit losses on other receivables and amortized cost financial assets are generally estimated by assessing each receivable individually. For balances reported as other receivables and current financial assets, lifetime expected credit losses are estimated. For balances reported as non-current financial assets, 12-month expected credit losses are estimated unless the credit risk has increased significantly since the asset was first recognized. Amounts more than 90 days past due are considered to be in default for this purpose.

Derivative and other financial instruments

Regular way purchases and sales of marketable securities are recognized at settlement date.

Financial assets and liabilities which have remaining contractual maturities of 12 months or less at the balance sheet date are presented within Total current assets and Total current liabilities, respectively. Financial assets and liabilities which have remaining contractual maturities of more than 12 months are presented within Financial and other non-current assets and Financial debt and other non-current liabilities, respectively.

Equity investments in other entities which are not subsidiaries, associates or joint ventures of Syngenta are included in Financial and other non-current assets. They are classified and measured at fair value through OCI and are revalued to fair value at each reporting date, with all changes in fair value recognized within OCI. In Syngenta's opinion, presenting gains and losses on these investments in OCI is more consistent with Syngenta's strategic investment objectives than presenting those gains and losses within profit and loss. The fair value of equity investments traded in active markets is measured at the quoted price at the balance sheet date, multiplied by the number of shares held by Syngenta. The fair value of other equity investments is based on recent observable market transactions for equity shares in the investee company or, where there are no recent transactions, on valuation multiples for equity shares in similar companies, which are traded.

Other non-current receivables represent royalty and license receivables, loans to employees and other third parties, and amounts recoverable from third parties in reimbursement of environmental remediation and other costs. These receivables are stated at amortized cost, less provision for impairment where appropriate.

Financial debt is recognized initially at its fair value less transaction costs, which represents the net proceeds from issuing the debt. Subsequently, financial debt is stated at amortized cost using the effective interest method, except where subject to a fair value hedge relationship, in which case the carrying amount of the debt is adjusted by the change in the fair value of the hedged exposure during the hedge relationship.

Derivative financial instruments are recorded initially at their fair value when Syngenta becomes a party to the instrument. They are revalued to fair value at each reporting date and presented as financial assets when the fair value is positive and as financial liabilities when the fair value is negative.

Fair values of publicly traded derivatives are based on quoted market prices of the specific instruments held at the balance sheet date.

Fair values of non-publicly traded derivatives are valued using accepted economic methodologies for pricing these financial instruments, such as discounted cash flow analysis or option pricing models. The valuation models seek to make maximum use of market inputs existing at the balance sheet date. The methods used to determine the fair value of specific types of non-publicly traded derivatives are as follows:

- Interest rate and cross-currency swaps are calculated as the present value of the estimated future cash flows. The future cash flows are determined using relevant market forward interest rates at the balance sheet date and are discounted using the zero-coupon rates with equivalent maturities for AA rated entities at the balance sheet date, as adjusted for the counterparty's credit risk. These discount rates incorporate the impact of net credit risk present in those derivative instruments. For cross-currency swaps, the discount rates reflect the impact of the currency basis on the future cash flows denominated in different currencies;
- Forward contracts are determined using relevant market exchange rates at the balance sheet date;
- Currency options are valued using the Black-Scholes-Merton option pricing model, which incorporates spot exchange rates, zero coupon rates with equivalent maturities for entities with credit ratings which approximate Syngenta's counterparty credit risk, and implied volatility in the market forward exchange rates at the balance sheet date; and
- Commodity options are valued using the Black-Scholes-Merton option pricing model, which incorporates future commodity price curves with equivalent maturities and implied volatilities in the commodities markets at the balance sheet date, adjusted for counterparty credit risk.

Realized gains and losses on disposal of amortized cost financial assets, revaluation gains and losses on derivatives not designated as accounting hedges, and gains and losses corresponding to the ineffective portion of derivatives designated as accounting hedges are recorded in profit or loss as they arise.

Syngenta applies hedge accounting as follows:

Fair value hedges

The designated hedging instruments are remeasured to fair value and the underlying hedged items are remeasured by the amount of change in the fair value of the hedged risk. The resulting remeasurement gains or losses are recognized in profit or loss as they occur.

Cash flow hedges

For the effective portion of the hedge, gains and losses on remeasuring designated hedging instruments to fair value are recognized in OCI as part of the cash flow hedge reserve. If the hedged transaction results in recognition of a non-financial asset such as inventories, the cumulative hedge gain or loss is reclassified as part of the carrying amount of the related inventories. For other hedged transactions, the cumulative hedge gain or loss is reclassified from OCI into profit or loss in the period (or periods) during which the underlying hedged cash flows affect profit or loss.

When a hedging instrument expires or is sold, or when a hedge no longer meets the criteria for cash flow hedge accounting, any cumulative unrealized gain or loss on the hedging instrument remains in equity until the underlying hedged item affects profit or loss. However, if a hedged forecasted transaction is no longer expected to occur, the cumulative unrealized gain or loss on the hedging instrument is immediately reclassified into profit or loss.

Time value of options

When Syngenta designates a derivative financial instrument that is, or contains, an option as a hedging instrument in a hedge accounting relationship, the time value of the options as measured using the Black-Scholes-Merton option pricing model is excluded from the hedge designation and accounted for as a cost of hedging, as follows. The change in the fair value of the option during its term is recognized in OCI to the extent that the option terms are aligned with the attributes of the hedged exposure. If the hedged item is a transaction, the cumulative change in time value is included in the initial carrying amount of any non-financial asset or liability recognized when the hedged transaction occurs, or otherwise is recognized in profit and loss when the cash flows from the hedged transaction affect profit and loss. If the hedged item is a risk that may affect profit or loss during the option term, the cumulative amount recognized in OCI is amortized into profit and loss on a straight line basis over the option term.

Net working capital
For the purposes of presenting consolidated cash flows, the balance sheet items included in Net working capital are Inventories, Trade receivables, Other accounts receivable, Trade accounts payable, Other current assets, Other current liabilities, and similar items due after more than one year, such as minimum royalties from multi-year license agreements.

Inventories
Purchased products are recorded at acquisition cost while own-manufactured products are recorded at manufacturing cost including a share of production overheads based on normal capacity. Cost of inventories is determined on a first-in-first-out basis. Allowances are made for inventories with a net realizable value less than cost, or which are slow moving. Net realizable value is the estimated selling price in the ordinary course of business, less the estimated costs of completion and costs to sell. Costs to sell include direct marketing, selling and distribution costs. Unsaleable inventories are fully written off.

Biological assets
Biological assets represent growing plants and cuttings in Syngenta's Flowers business and sugar cane seedlings within its Sugar cane business. In Flowers, young plants and cuttings are measured at fair value less costs to sell, with key inputs being current average third party net selling prices, actual average selling costs and, for immature assets, estimated stage of growth relative to mature assets. Sugar cane seedlings are measured at cost less impairment because fair value is not reliably measurable due to the nature of the asset not corresponding to traded assets or products in the market. The carrying amount of current consumable biological assets measured using the cost model is tested for impairment by comparing it with the assets' net realizable value determined in accordance with IAS 2, "Inventories". Syngenta classifies gains and losses from remeasuring biological assets to fair value, and impairment losses for biological assets measured at cost less impairment, within Cost of goods sold.

Property, plant and equipment
Property, plant and equipment are recorded at acquisition or production cost, less accumulated depreciation and any impairment losses. Eligible borrowing costs are capitalized as part of the asset cost if construction is expected to take more than one year to complete. Capitalization ceases when the asset is ready for its intended use. Depreciation is charged on a straight-line basis to the income statement, starting from the date the asset is ready for use, over the following estimated useful lives:

Buildings	20 to 40 years
Machinery and equipment	10 to 25 years
Furniture and vehicles	5 to 20 years
Computer hardware	3 to 7 years

Land is recorded at acquisition cost and is not subject to depreciation. Bearer biological assets are accounted for as Property, plant and equipment using the cost model and depreciated over their productive lives.

Expenditures made for existing property, plant and equipment that will provide future economic benefit are capitalized and depreciated over the revised remaining useful life of the asset.

Leases
Property, plant and equipment financed by leases giving rights to use the leased assets as if they were owned by Syngenta are classified as finance leases and therefore are capitalized at the lower of fair value and the present value of minimum lease payments at the inception of the lease. Such leases are also embedded in contracts for goods or services provided by suppliers to Syngenta when the supplier can fulfil their obligations only by using a specific asset to supply Syngenta and the contract price is neither fixed per unit of output nor represents a market price. Finance lease assets and liabilities are recognized at the commencement of the lease, which is when the leased asset is ready for use and Syngenta has the right to use it. Finance lease assets are depreciated over the shorter of the remaining lease term and the estimated useful life of the leased asset. Leases that are not classified as finance leases are accounted for as operating leases. Operating lease payments are recognized as lease expense on a straight-line basis over the lease term irrespective of the timing of the payments. The lease term is the non-cancelable period according to the lease contract unless Syngenta has a right to extend the lease beyond the end of that period and believes it is reasonably certain to exercise that right.

Intangible assets other than goodwill
Intangible assets, other than goodwill, are recorded at cost less accumulated amortization and any impairment losses. Currently, all such intangible assets are assigned a finite estimated useful life. The cost of acquired intangible assets other than goodwill consists of the purchase price including transaction costs. The cost of internally generated intangible assets consists of direct internal and external design, development, and testing costs incurred to make the asset ready for use in the manner intended by management. Borrowing costs associated with internal software development projects are capitalized if the project is expected to take more than one year to complete. Capitalization ceases when the software is ready for its intended use.

Intangible assets are amortized starting from the date the asset is ready for use. In respect of product rights, this is when regulatory approval has been obtained. Asset lives are reviewed annually. The straight-line method of amortization is used except where another systematic basis better reflects the pattern of consumption of the economic benefits represented by the asset. Amortization is charged within the consolidated income statement to the function responsible for the asset, or to General and administrative.

Useful lives assigned to acquired product rights are based on the period over which Syngenta expects economic benefit from the product rights. Estimated lives assigned to most product rights upon acquisition are between 10 and 20 years and do not exceed 20 years for any asset.

Patents and trademarks are amortized over their estimated economic or legal life, whichever is shorter. Lives assigned are between 5 and 20 years.

Business combinations give Syngenta access to the distribution channels and customer relationships of the acquired business. These relationships normally continue to generate economic benefit to Syngenta following the acquisition. The useful lives of customer relationships are determined from management estimates of customer attrition rates. Estimated lives assigned are between 5 and 30 years.

Acquired in-process research and development (IPR&D), is valued at fair value at acquisition. It is assessed for impairment annually until it has been successfully developed and is available for use at which time it begins being amortized over its estimated useful life. Lives assigned are between 10 and 20 years.

Assets attributable to long-term supply agreements are amortized as part of cost of goods sold over the period of the supply agreements. Premiums paid for land use rights are amortized over the period of the rights, which are between 30 and 50 years.

Purchased software licenses are amortized over their remaining license terms. Internally developed software is amortized from the date it is ready for use until the sooner of its expected replacement date or the date significant costs are expected to be incurred to upgrade it. Lives assigned are between 3 and 10 years.

Goodwill

Goodwill is the excess of the fair value of an acquired business over the fair value of its identifiable net assets at the acquisition date. Goodwill is recognized as an asset and presented within intangible assets. Goodwill is not amortized, but is tested annually for impairment and reduced by any impairment losses.

Impairment

Property, plant and equipment, intangible assets and investments in associates and joint ventures are tested for impairment ("tested") in accordance with IAS 36 unless classified as held-for-sale. Goodwill and intangible assets not yet ready for use are tested annually and are also reviewed at each interim and annual reporting date to determine whether conditions changed since the most recent review or annual test. Individual other non-current assets are reviewed at each reporting date to determine whether events or changes in conditions indicate that the carrying amount of each asset may not be recoverable. If any such indication exists, the asset is tested for impairment. Syngenta estimates an asset's recoverable amount as the higher of the asset's fair value less selling costs and value in use, which is the present value of the cash flows expected from the asset's use and eventual disposal. An impairment loss is recorded in the consolidated income statement to the extent that the carrying amount of the tested asset exceeds its recoverable amount. Impairment losses are not reversed for goodwill, but are reversed for other assets if their recoverable amounts subsequently increase.

Non-current assets held-for-sale

Non-current assets and groups of assets are reclassified as held-for-sale when the assets are available for immediate sale in their present condition and a sale within one year is highly probable. Property, plant and equipment and intangible assets held-for-sale are remeasured at the lower of fair value less costs to sell or carrying amount at the date they meet the held-for-sale criteria at which time depreciation and amortization also ceases. Any resulting impairment loss is recognized in profit or loss. Fair value is measured based on bids received from potential buyers of the assets.

Provisions

A provision is recognized in the balance sheet when Syngenta has a legal or constructive obligation to a third party or parties as a result of a past event, the amount of which can be reliably estimated and it is probable that an outflow of economic benefits will be required to settle the obligation. The amount recognized as a provision is the best estimate of the expenditure required to settle the obligation at the balance sheet date. Syngenta self-insures or uses a combination of insurance and self-insurance for certain risks. Provisions for these risks are estimated in part by considering historical claims experience and other actuarial assumptions and, where necessary, counterparty risk.

Environmental provisions

Provisions for remediation costs are made when there is a present obligation, it is probable that expenditures for remediation work will be required within ten years (or a longer period if specified by a legal obligation) and the cost can be estimated within a reasonable range of possible outcomes. The costs are based on currently available facts: technology expected to be available at the time of the clean up; laws and regulations presently or virtually certain to be enacted; and prior experience in remediation of contaminated sites.

Environmental liabilities are recorded at the estimated amount at which the liability could be settled at the balance sheet date, and are discounted if the impact is material and if cost estimates and timing are considered reasonably certain.

Syngenta's restructuring programs have involved closure of several sites to date. Remediation liabilities recognized when site closures are announced are accounted for as restructuring provisions.

Legal and product liability settlements

For claims for which, according to Syngenta's assessment, it is not probable that a liability exists or that there will be a future cash outflow or other sacrifice of economic benefits, Syngenta provides for the costs of defense only. For claims where an outcome unfavorable to Syngenta is assessed as more likely than not, provision is made for the estimated amount of damages and settlement, including directly attributable legal costs. No provision is made where the legal procedures are at too early a stage to estimate the outcome with any reliability.

Restructuring provisions and costs

Restructuring costs are accrued (charged to provisions) when Syngenta has approved a detailed and formal restructuring plan and the restructuring has either commenced or been announced publicly and they qualify for recognition in accordance with IAS 37. Provisions for severance payments and related employment termination costs that do not depend on future service, are made in full when employees are given details of the restructuring plan and the termination benefits that will apply to individual employees should their contracts be terminated. Retention and other payments that depend on future service are recognized over the required service period. Restructuring costs relating to ongoing activities, such as relocation, training and information systems, do not qualify for provisioning under IAS 37 and are expensed when incurred.

Post-employment benefits

For defined benefit plans, plan assets are measured at fair value. The plans' holdings in publicly quoted investments are valued at closing prices at the balance sheet date. The plans' holdings in pooled investment vehicles (PIVs) that are not publicly quoted are valued at the respective investment managers' current estimate of fair value, on a basis consistent with each PIV's most recent audited financial statements. Derivative contracts entered into directly by the pension plans are included within plan assets. Exchange traded derivatives are valued at quoted balance sheet date bid prices for contracts which are assets, or offer prices for contracts which are liabilities, at the balance sheet date. Fair values of over the counter derivatives are measured using independent third party pricing services. The defined benefit obligations are measured at the present value of future benefit payments attributable to employee service rendered up to the balance sheet date, according to the benefit formula set out in the relevant pension plan rules and employment terms at the balance sheet date. Where a surplus of plan assets over the benefit obligation exists at the balance sheet date or would arise upon payment of the minimum funding commitment applicable to the pension plan, Syngenta evaluates the extent to which the surplus is realizable over time through refund rights and reductions in the present value of its future contributions to the plan. To the extent that the surplus is not realizable, the net defined benefit asset is reduced and, where applicable, an additional liability for minimum funding contributions is recognized. Benefit expense charged to profit or loss comprises current service cost, which is the cost to Syngenta of the increase in benefits earned from employee service in the period, gains and losses arising from amendments to and settlements of benefits that occurred during the period, and interest on the net defined benefit asset or liability, which is the change in the present value of that asset or liability arising from the passage of time during the period, measured using the rate used to discount the defined benefit obligation at the previous period end. The net interest cost is presented within Other general and administrative in the consolidated income statement. The benefit obligation and cost are attributed to periods using the projected unit credit actuarial method and are measured using long-term assumptions about expected future length of employee service, increases in pay and pensions, longevity, and for healthcare plans, medical costs. Assumptions are reviewed annually. Gains and losses arising from variances between assumptions and actual outcomes, and from changes to assumptions, are recognized in OCI in the period in which they arise.

Contributions to defined contribution pension plans are recognized as an expense in profit or loss when they are due.

Employee Incentive plans

Syngenta operates annual and long term cash incentive plans to reward employee performance. Under the long term plans, awards are subject to Syngenta performance over a three year period. Syngenta accounts for annual and long term plans respectively as short-term and long-term employee benefits in accordance with IAS 19. Syngenta no longer has share based payment plans. All awards outstanding under Syngenta's former share based payment plans were settled when ChemChina acquired control of Syngenta in 2017. The accounting for settlement of those awards is described in Note 3 and 23.

Dividends and capital distributions

Dividends payable to shareholders of Syngenta AG are recorded as liabilities and as a reduction in shareholders' equity when they are approved by the shareholders of Syngenta AG and any conditions for payment are satisfied.

Treasury shares

Share capital includes the par value of treasury shares held by Syngenta that have not been canceled. Treasury shares are shown as a separate component of shareholders' equity and stated at the amount paid to acquire them. Differences between this amount and the amount received upon their disposal are recorded as a movement in consolidated shareholders' equity.

28. Subsequent events

On January 3, 2019, Syngenta divested certain crop protection products in India, pursuant to commitments given to the Indian antitrust authority Competition Commission of India (CCI) relating to ChemChina's acquisition of Syngenta. The gain on this disposal was $29 million. With this transaction, Syngenta has completed all remedy divestments it committed to make in connection with ChemChina's acquisition.

On January 3, 2019, Syngenta completed the sale and leaseback transaction for those buildings and land at its Basel site which were not disposed of in 2018. The total gain on this 2019 disposal was $128 million, of which $85 million is recognized as a gain at the disposal date and $43 million, corresponding to the value of the retained leaseback, will be deferred in accordance with IFRS 16 and amortized over the lease term.

On February 10, 2019, in a public vote, the population of the canton of Basel-Stadt has accepted the revision of the cantonal tax law. The enactment of the new law by the government will cause a revaluation of Syngenta's deferred tax positions in Switzerland leading to a favorable one-time tax impact. Syngenta is currently assessing the impact which depends on the dates of enactment as well as interdependencies with the revision of the federal tax laws, which is subject to public vote in May 2019. Syngenta does not expect any material impact on its ongoing Group effective tax rate.

Approval of the Consolidated Financial Statements

These consolidated financial statements were approved by the Board of Directors on February 14, 2019.

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Statutory Auditor’s Report to the General Meeting of

Syngenta AG, Basel

Report on the Audit of the Consolidated Financial Statements

Opinion
We have audited the consolidated financial statements of Syngenta AG and its subsidiaries (the Group), which comprise the consolidated balance sheet as at December 31, 2018 and the consolidated income statement, consolidated statement of comprehensive income, consolidated cash flow statement and consolidated statement of changes in equity for the year then ended, and notes to the consolidated financial statements, including a summary of significant accounting policies.

In our opinion the accompanying consolidated financial statements give a true and fair view of the consolidated financial position of the Group as at December 31, 2018, and its consolidated financial performance and its consolidated cash flows for the year then ended in accordance with International Financial Reporting Standards (IFRS) and comply with Swiss law.

Basis for Opinion
We conducted our audit in accordance with Swiss law, International Standards on Auditing (ISAs) and Swiss Auditing Standards. Our responsibilities under those provisions and standards are further described in the Auditor’s Responsibilities for the Audit of the Consolidated Financial Statements section of our report. We are independent of the Group in accordance with the provisions of Swiss law and the requirements of the Swiss audit profession, as well as the IESBA Code of Ethics for Professional Accountants, and we have fulfilled our other ethical responsibilities in accordance with these requirements. We believe that the audit evidence we have obtained is sufficient and appropriate to provide a basis for our opinion.

Responsibility of the Board of Directors for the Consolidated Financial Statements
The Board of Directors is responsible for the preparation of the consolidated financial statements that give a true and fair view in accordance with IFRS and the provisions of Swiss law, and for such internal control as the Board of Directors determines is necessary to enable the preparation of consolidated financial statements that are free from material misstatement, whether due to fraud or error.

In preparing the consolidated financial statements, the Board of Directors is responsible for assessing the Group’s ability to continue as a going concern, disclosing, as applicable, matters related to going concern and using the going concern basis of accounting unless the Board of Directors either intends to liquidate the Group or to cease operations, or has no realistic alternative but to do so.

Auditor's Responsibilities for the Audit of the Consolidated Financial Statements

Our objectives are to obtain reasonable assurance about whether the consolidated financial statements as a whole are free from material misstatement, whether due to fraud or error, and to issue an auditor's report that includes our opinion. Reasonable assurance is a high level of assurance, but is not a guarantee that an audit conducted in accordance with Swiss law, ISAs and Swiss Auditing Standards will always detect a material misstatement when it exists. Misstatements can arise from fraud or error and are considered material if, individually or in the aggregate, they could reasonably be expected to influence the economic decisions of users taken on the basis of these consolidated financial statements.

As part of an audit in accordance with Swiss law, ISAs and Swiss Auditing Standards, we exercise professional judgment and maintain professional skepticism throughout the audit. We also:

— Identify and assess the risks of material misstatement of the consolidated financial statements, whether due to fraud or error, design and perform audit procedures responsive to those risks, and obtain audit evidence that is sufficient and appropriate to provide a basis for our opinion. The risk of not detecting a material misstatement resulting from fraud is higher than for one resulting from error, as fraud may involve collusion, forgery, intentional omissions, misrepresentations, or the override of internal control.

— Obtain an understanding of internal control relevant to the audit in order to design audit procedures that are appropriate in the circumstances, but not for the purpose of expressing an opinion on the effectiveness of the Group's internal control.

— Evaluate the appropriateness of accounting policies used and the reasonableness of accounting estimates and related disclosures made.

— Conclude on the appropriateness of the Board of Directors' use of the going concern basis of accounting and, based on the audit evidence obtained, whether a material uncertainty exists related to events or conditions that may cast significant doubt on the Group's ability to continue as a going concern. If we conclude that a material uncertainty exists, we are required to draw attention in our auditor's report to the related disclosures in the consolidated financial statements or, if such disclosures are inadequate, to modify our opinion. Our conclusions are based on the audit evidence obtained up to the date of our auditor's report. However, future events or conditions may cause the Group to cease to continue as a going concern.

— Evaluate the overall presentation, structure and content of the consolidated financial statements, including the disclosures, and whether the consolidated financial statements represent the underlying transactions and events in a manner that achieves fair presentation.

— Obtain sufficient appropriate audit evidence regarding the financial information of the entities or business activities within the Group to express an opinion on the consolidated financial statements. We are responsible for the direction, supervision and performance of the Group audit. We remain solely responsible for our audit opinion.

We communicate with the Board of Directors or its relevant committee regarding, among other matters, the planned scope and timing of the audit and significant audit findings, including any significant deficiencies in internal control that we identify during our audit.

Report on Other Legal and Regulatory Requirements

In accordance with article 728a para. 1 item 3 CO and Swiss Auditing Standard 890, we confirm that an internal control system exists, which has been designed for the preparation of consolidated financial statements according to the instructions of the Board of Directors.

We recommend that the consolidated financial statements submitted to you be approved.

KPMG AG

Michael Blume
Licensed Audit Expert
Auditor in Charge

Artem Chumakov
Director

Basel, Switzerland
February 14, 2019

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Bringing plant potential to life