For Immediate Release

28 February 2019

Genus plc

(‘Genus’, the ‘Company’ or the ‘Group’)

UNAUDITED INTERIM RESULTS FOR THE SIX MONTHS ENDED 31 DECEMBER 2018

STRONG STRATEGIC PROGRESS AND SOLID PERFORMANCE

Genus, a leading global animal genetics company, announces its unaudited interim results for the six months ended 31 December 2018.

	Actual currency			**Constant currency ****
Six months ended 31 December	**2018**	**2017**	**Movement**	**Movement**
Adjusted results*	**£m**	**£m**	**%**	**%**
Revenue	**238.8**	238.6	-	-
Operating profit inc JVs exc gene editing	**34.2**	33.6	2	3
Operating profit inc JVs	**31.1**	31.5	(1)	-
Profit before tax	**29.2**	29.0	1	2
Basic earnings per share (pence)	**35.8**	40.9	(12)	(11)
Statutory results				
Revenue	**238.8**	238.6	-	
Operating (loss)/profit	**(6.3)**	14.3	n/m	
(Loss)/profit before tax	**(6.8)**	14.3	n/m	
Basic (loss)/earnings per share (pence)	**(11.7)**	69.0	n/m	
Dividend per share (pence)	**8.9**	8.1	10	

* Adjusted results are before net IAS 41 valuation movement on biological assets, amortisation of acquired intangible assets, share-based payment expense and exceptional items. Adjusted results are the alternative performance measures used by the Board to monitor underlying performance at a Group and operating segment level. They are applied consistently throughout. See note 2 to the accounts for further information.

** Constant currency percentage movements are calculated by restating the results for the six months ended 31 December 2018 at the average exchange rates applied to adjusted operating profit for the year ended 30 June 2018.

n/m means not meaningful

2019 H1 Highlights

- Genus achieved strong strategic progress and performed solidly. Adjusted profit before tax equalled the record of the prior period, despite the challenging environment caused by the rapid spread of African Swine Fever ('ASF') in China. Genus expects to perform in line with the Board's expectations for the full year.

Financial Highlights

- Revenue of £238.8m was unchanged in actual and constant currency. Bovine revenue increased 2% (4% in constant currency) with strong sexed genetics revenue growth of 28%, while porcine revenue declined 1% (2% in constant currency) due to fewer animal shipments in China. Strategically important porcine royalty revenue increased strongly by 12% (11% in constant currency).

- Adjusted operating profit including joint ventures and excluding gene editing increased 2% (3% in constant currency) led by continued good growth in ABS, while increasing investment in R&D as planned. Adjusted profit before tax increased 1% to £29.2m (2% in constant currency).

- Statutory loss before tax of £6.8m (2017: £14.3m profit) primarily due to larger non-cash fair value movements on biological assets and a Guaranteed Minimum Pension ('GMP') equalisation charge in respect of legacy pension schemes (see below for further details).

- Adjusted basic earnings per share were 12% lower at 35.8p (11% in constant currency) due to a one-time deferred tax credit of £3.7m in the prior year relating to the tax reforms in the US. The statutory basic loss per share was 11.7p (2017: 69.0p profit per share), reflecting the GMP equalisation charge in the current year and a prior year US deferred tax credit of £32.0m from the US tax reforms.

- Free cash outflow[1] of £5.3m (2017: £7.5m inflow) following planned capital investments in growing the IntelliGen® global production base and in Genus One, a new global enterprise system.

- Net debt reduced to £85.3m (2017: £113.4m) and net debt to EBITDA[2] ratio of 1.1x (2017: 1.4x), following the payments made under the previously announced strategic collaboration with Møllevang Genetics in July 2018 and successful 5% equity placing in December 2018, which raised £66.5m net of fees.

- Interim dividend increased 10% to 8.9 pence per share payable on 4 April 2019.

Operational and Strategic Highlights[3]

- ABS - Strong first half performance with continued growth in Sexcel®, our high fertility sexed genetics product produced with IntelliGen technology, and rapid growth in our differentiated beef genetics
    - Volume growth of 7%, with sexed genetics up 26% and beef up 24%
    - Operating profit growth of 10% in constant currency
    - IntelliGen production successfully commenced in three new sites around the world, adding to the existing operations in the US, India and Norway

- PIC volumes and operating profit growth of 1% (2% in actual currency) impacted as expected by the outbreak of ASF across China. Operating profit growth of 7% in constant currency excluding China
    - Royalty revenue up 11% with growth in all regions
    - Volume growth excluding China of 5%, with particular strength in Latin America and Spain
    - Encouraging early results from the strategic collaboration with Møllevang Genetics

  - Transport restrictions imposed in China to control ASF caused volumes in China to be 49% lower resulting in profit reducing by approximately £3m compared to same period in the prior year

- Research and development investment increased as planned by 10%, primarily from continued investment in gene editing and the IntelliGen platform
  - Continued good progress with the PRRSv programme[4]
  - Strong results continue in our leading dairy, beef and porcine genomic selection programmes
  - Integration of Møllevang's genetics with PIC's product development programme commenced with encouraging early results

Commenting, Karim Bitar, Chief Executive said:

"Genus performed well in challenging markets and made substantial strategic progress in the first half of the 2019 fiscal year. ABS continued to grow profit in double digits, driven by a combination of the success of Sexcel and NuEra, our proprietary beef genetics. Genus is well placed to benefit from and drive the accelerating market trend of dairy customers using sexed and beef genetics in combination.

"As anticipated, PIC was affected negatively by ASF in China but grew strongly in Europe and Latin America and we successfully commenced our strategic relationship with Møllevang Genetics. Our gene editing programme for PRRSv resistance in pigs made good progress and we have substantially increased the number of animals carrying the edit while continuing to engage constructively with regulatory authorities.

"We anticipate growing in the second half and performing in line with the Board's expectations in constant currency for the full year. The Board has approved an interim dividend of 8.9 pence per share, an increase of 10% on last year's interim dividend."

An analyst meeting will be held at 8:30am today at Buchanan's offices (107 Cheapside, London, EC2V 6DN). A live audio feed will be available to those unable to attend this meeting in person. To connect to the web cast facility, please go to the following link approximately 10 minutes (8:20am) before the start of the meeting: http://webcasting.buchanan.uk.com/broadcast/5c4b2b94a0c50933d2710999

This announcement will be available on the Genus website, www.genusplc.com

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[1] Free cash flow is before debt repayments, acquisitions, investments and dividends.
[2] EBITDA as defined in the debt facility agreement. See note 2.
[3] Based on adjusted results including joint venture income, less non-controlling interest in constant currency.
[4] The PRRSv programme refers to our development-phase gene editing programme designed to confer resistance to pigs to Porcine Reproductive and Respiratory Syndrome virus.

About Genus

Genus creates advances to animal breeding and genetic improvement by applying biotechnology and sells added value products for livestock farming and food producers. Its technology is applicable across livestock species and is currently commercialised by Genus in the dairy, beef and pork food production sectors.

Genus's worldwide sales are made in over seventy-five countries under the trademarks 'ABS' (dairy and beef cattle) and 'PIC' (pigs) and comprise semen, embryos and breeding animals with superior genetics to those animals currently in farms. Genus's customers' animals produce offspring with greater production efficiency, and quality, and use these to supply the global dairy and meat supply chains.

The Group's competitive edge has been created from the ownership and control of proprietary lines of breeding animals, the biotechnology used to improve them and its global supply chain, technical service and sales and distribution network.

With headquarters in Basingstoke, United Kingdom, Genus companies operate in over twenty-five countries on six continents, with research laboratories located in Madison, Wisconsin, USA.

Group Performance

Genus achieved solid financial results in the first half of the year, despite the impact of ASF in China. Revenue was flat in both constant and actual currencies and adjusted profit before tax was up 2% in constant currency (1% in actual currency). Excluding the China porcine business, where ASF had a negative impact of approximately £3m, adjusted profit before tax was up 13% in constant currency with strong business performance across the rest of the Group. Adjusted earnings per share were 12% lower (11% in constant currency) due to a one-off deferred tax credit of £3.7m in the prior period related to the US tax reforms.

On a statutory basis, a loss before tax of £6.8m was primarily due to non-cash items, including a charge of £15.7m in respect of legacy pension schemes due to the recent High Court decision on the Lloyd's Bank case related to GMP equalisation (see below for further details) and a reduction of £9.3m (2017: £3.6m) in the net IAS 41 biological asset fair value. This was a result of lower bovine biological asset fair values, consistent with trends over the last few years. The statutory loss per share of 11.7p compares with 69.0p earnings per share in the prior period, which was boosted by a £32.0m non-cash reduction in Genus's deferred tax liabilities related to its biological assets following the US tax reforms. Genus continues to use adjusted results as our primary measures of financial performance as they better reflect our underlying progress.

The effect of exchange rate movements on the translation of our overseas profits was a modest adverse impact of £0.4m compared with the prior period with the stronger Dollar against Sterling more than offset by weakness in the Brazilian Real. Unless stated otherwise, the results and review of operations quote constant currency adjusted growth rates, to give a better reflection of underlying trading.

Results

Revenue of £238.8m (2017: £238.6m) was flat in actual and constant currencies during the period. In ABS, all regions contributed to revenue growth of 4%, with particularly strong growth of 28% in sexed genetics revenue. As expected, revenue was 2% lower in PIC due to reduced breeding stock sales in China, however strategically important royalty revenue was up 11% with growth in all regions.

Adjusted operating profit including joint ventures was £31.1m (2017: £31.5m), down 1% in actual currency and flat in constant currency. Within this, Genus's share of adjusted joint venture operating profits was lower at £2.7m (2017: £3.6m), primarily due to lower results in the PIC Agroceres JV in Brazil due to challenging markets along with the exchange impact of a weaker Brazilian Real.

ABS performed strongly with sales of Sexcel continuing to exceed expectations and strong growth in differentiated beef genetics. Overall volumes grew 7% and operating profit increased 10%. Revenue and profit grew in all regions, other than Latin America where the phasing of the embryo business was weighted to the first half in the prior year. Growth was strongest in North America following the investment to strengthen key account management and from good embryo business performance.

Very strong performances across Europe and Latin America enabled PIC to offset a profit decline in China of approximately £3m caused by ASF. In addition, the health challenges previously reported in North America held back sales and profit in that region, although as we enter the second half of FY19 these challenges are now largely behind us. Volume growth of 1% (5% excluding China) included royalty volume growth of 8%, with all regions contributing, and operating profit including joint ventures was up 1% (7% excluding China).

R&D investment increased as planned to £24.9m (up 10% in constant currency). Genus continued to expand its investment in gene edited elite pigs and the cost of the PRRSv programme rose to £3.1m (up 43% in constant currency). We also continued to increase our investment in IntelliGen technology and amortised previously capitalised development cost.

Net finance costs reduced to £1.9m (2017: £2.5m) benefiting from interest rate hedging gains during the period. Adjusted profit before tax increased 1% in actual currency to £29.2m (2017: £29.0m) and was 2% higher in constant currency.

The tax rate on adjusted profit was 24.3% (2017: 13.8%) and adjusted earnings per share were 12% lower at 35.8 pence (2017: 40.9 pence), with the prior year benefiting from a £3.7m deferred tax credit following the enactment of US tax reforms. In the absence of this one-off credit, the underlying tax rate on adjusted profit in the prior year would have been 26.6%.

The statutory loss before tax was £6.8m (2017: £14.3m profit), impacted by the GMP equalisation charge (see below) in respect of legacy pension schemes and a further non-cash reduction in the net IAS 41 bovine biological asset fair value, consistent with trends over recent years. Other adjusting items, including amortisation of acquired intangibles, share based payments and non-pension exceptional items were little changed in aggregate year to year. The statutory loss after tax was £7.1m (2017: £42.6m profit) with the prior year reflecting a large non-cash deferred tax credit as a result of the US tax reforms.

Cash Flow and Net Debt

Free cash outflow of £5.3m (2017: £7.5m inflow), was primarily due to planned increased capital expenditure and higher creditor payments. Cash generated by operations of £15.5m (2017: £22.0m), represents conversion of adjusted operating profit of £28.7m (2017: £28.3m) into cash of 54% (2017: 78%). Cash conversion which is typically lower in the first half of the year, was affected by phasing of creditor payments compared with the prior year and higher performance related employee payments. Capital expenditure of £15.0m (2017: £7.1m) included higher IntelliGen capital expenditure for the new global production locations and the investment in the Genus One new enterprise system, which is progressing well.

In December 2018, a 5% equity placement of 3.1m shares raised proceeds of £66.5m net of fees. Over the last five years the company has invested over £180m in capital expenditure and acquisitions funded from cash flow and financing facilities. This included investments in gene editing technology, Møllevang, IVB, Hermitage, Génétiporc and De Novo as well as increasing capital investment in IntelliGen and supply chain facilities to support growth. The equity placement provides flexibility to continue to proactively pursue future growth opportunities.

Net debt decreased over the last 12 months from £113.4m to £85.3m at 31 December 2018, primarily due to the equity placement proceeds in December more than offsetting the investment in Møllevang in the period. The balance sheet is strong with net debt to EBITDA ratio of 1.1x (2017: 1.4x), as defined in the debt facility agreement.

Pensions

In October 2018, the High Court handed down judgment in the Lloyds Bank pensions case, requiring pension schemes to equalise GMPs. Genus's legacy pension schemes are affected by this ruling, resulting in an aggregate past service charge of £15.7m in the period, offset by a settlement gain of £0.2m.

The Dalgety Pension Fund ('DPF') is both in surplus and additionally had a reserve of £20.9m at 30 June 2018 against future unknown liabilities, neither of which has been recognised in the Genus Financial Statements as the Group does not have a unilateral right to them. The cost of GMP equalisation is estimated to be £11.0m for the DPF which will be fully met by the scheme reserve without a cash cost to Genus. However, IAS19 requires us to record a charge in the Income Statement of £11.0m, which is offset by an equal and opposite credit in the Statement of Comprehensive Income.

The cost of GMP equalisation for Genus's share of the Milk Pension Fund ('MPF') is estimated to be £4.7m which is also recorded as a charge to the Income Statement under IAS19. Despite this charge, the MPF is also in surplus on an IAS19 basis, however under IFRIC14 Genus accounts for its committed payments under the deficit recovery plan agreed as part of the 31 March 2015 scheme valuation as a liability. On 27 February 2019, a new valuation as at 31 March 2018 was agreed with the MPF Trustees, taking approximately one year off the deficit recovery plan which now finishes in September 2021. Accordingly, Genus expects the 30 June 2019 pension scheme liability to be approximately £9m lower than the 31 December 2018 liability of £32.2m, assuming consistent actuarial assumptions and including current committed payments.

Dividend

The Board has approved an interim dividend of 8.9 pence per share, an increase of 10% on last year's interim dividend of 8.1 pence per share. The interim dividend is payable on 4 April 2019 to those shareholders on the register at 8 March 2019.

Progress on Strategy

During the period Genus continued to invest in initiatives to strengthen its competitive position and saw clear benefits from the strategic investments made in the past to strengthen our core genetics and technology. Each of our core genomic selection programmes in beef, dairy and pork made strong progress. We successfully commenced our strategic relationship with Møllevang and started to integrate the acquired genetics within our porcine programmes.

Despite the challenges in China, PIC made strong progress in many other markets notably in Europe, South Asia and Latin America and achieved strong increases in royalty revenue with a growing proportion of its volumes coming from royalty. We have seen encouraging early signs from the Møllevang collaboration, continue to see good results from the Hermitage partnership and have also now largely worked through the disease issues experienced last year in PIC North America.

The PRRSv programme made good progress, in line with its plan, in multiplying up the number of gene edited animals and in continuing the collaborative engagement with the US Food and Drug Administration ('FDA').

Sexcel volumes continued to surge ahead, with strong customer acceptance and product performance. We further increased capacity in North America and launched new Sexcel production sites globally as well as at our first external customer site in India. The market trend towards using sexed and beef genetics in combination in the dairy herd is strongly aligned with the investments we have made over several years in having our own proprietary sexing technology with IntelliGen and our own proprietary beef genetics. Combined with our investments in key account management in regions like North America, we see good business momentum. The US litigation related to IntelliGen with Inguran LLC (aka Sexing Technologies

(‘ST’)) continues, with a recent decision from the US Court of Appeals ordering a re-trial of the validity of US patent 8,206,987 and a summary judgment opinion from the US District Court, dismissing ST’s trade secret misappropriation and breach of contract claims, and holding the asserted claims of two of ST’s US patents invalid. We will continue to vigorously defend our position, while continuing to grow the IntelliGen business.

Outlook

Genus performed solidly in the first half of the year, particularly in the light of ASF headwinds in China. While the situation in China remains volatile and challenging, Genus expects to make continued financial and strategic progress in the second half and to perform in line with the Board’s expectations in constant currency.

Review of Operations

Genus PIC – Operating Review

	Actual currency			Constant currency
	2018	2017	Movement	Movement
	£m	£m	%	%
Revenue	**125.6**	126.4	(1)	(2)
Adjusted operating profit exc JV	**45.9**	44.1	4	2
Adjusted operating profit inc JV	**48.6**	47.7	2	1
Adjusted operating margin exc JV	**36.5%**	34.9%	1.6pts	1.4pts

Market

The global porcine industry saw significant volatility over the period due to increasing production, trade policy changes, and the prevalence of animal disease, particularly ASF in China. Production expansion continued in the major pork exporting countries causing global supply growth to outpace demand. Pork production increased 2.8% in the US, 1.1% in the European Union and 2.7% in China. These trends caused pork prices in many major regions to be lower than the corresponding prior period. Trade conflicts contributed further to volatility in the pork sector with, for example, pork exports from the US to China decreasing by 25% and Mexican tariffs on US pork putting downward pressure on US pork prices.

In China, ASF spread to over twenty provinces, comprising the vast majority of the country's pig population, with aggressive culling and transportation restrictions achieving little success in limiting the disease. Rabobank estimates that the sow herd in China is already in the region of 10% lower than a year ago and that pork production in 2019 will be between 10-20% lower, leading to an expectation of substantial price increases and demand for pork imports. The first cases of ASF have recently been reported in Vietnam and pigs were culled on three farms. ASF has also continued to spread in Eastern Europe and Belgium is striving to eradicate a cluster of wild boar infections in the South of the country.

These market dynamics have affected prices and the global meat trade over the past two quarters. Global meat price indices for beef, pork, and poultry all eased, with pork prices declining by nearly 5% since August. The global pork market is expected to remain volatile as trade policies are being adjusted, ASF continues to spread and the resulting expected substantial supply shortage in China increasingly stimulates the global market through the year ahead.

Performance

During the period, PIC operating profit including joint ventures was £48.6m, up 1% in constant currency. Volumes were up 1% and total net revenue was 2% lower, primarily due to lower breeding stock sales, particularly in China, and lower slaughter revenue. Despite a wide range of market conditions, PIC's global royalty revenue grew by 11% in constant currency, with proportion of volumes under royalty reaching 83%

(2017: 77%). Excluding China, volumes rose 5%, and constant currency revenue and operating profit increased by 1% and 7% respectively.

In North America, revenue declined 11% in constant currency due primarily to lower breeding stock sales, however royalty revenue increased 2% and volumes increased 3%. The health challenges during FY18 contributed to lower breeding stock sales and higher costs in owned boar studs. Additionally, PIC continued with investments to expand the North American supply chain and upgrade company-owned facilities. These factors led to a 4% profit decline in the period.

In Latin America, revenue was up 34% and profit improved 23% in constant currency. Volumes were up 9%, royalty revenue increased by 21% and the proportion of volumes under royalty contracts increased by five percentage points to 81%. Profits grew strongly in all key countries except Brazil, which was 8% lower compared with a very strong prior year before Russia implemented an embargo on Brazilian pork related to banned feed additives. This embargo has recently been lifted and market conditions in Brazil are improving.

Europe achieved strong growth in the period with operating profit up by 19%. Strong growth in volumes was achieved in key markets such as Spain and Germany, however, overall volumes were flat due to adverse trading impacts caused by ASF outbreaks in Romania, Poland, and Belgium. In addition, Russia, which Genus now manages in its European region, had lower volumes due to phasing of some large orders. Strong royalty revenue growth of 13% in constant currency was driven by continued focus on key accounts, distribution partnerships and the royalty business model, with the proportion of volumes under royalty contracts increasing two percentage points to 70%. The commencement of PIC's new strategic relationship with Møllevang made good progress with initial market share gains with the new products meeting expectations.

After a strong prior year, profit in China was down £3m, leading to a decline in Asia's results of 40%. China's performance was driven by the outbreak of ASF which first occurred in August 2018 and resulted in drastic transport restrictions and limited movement of breeding animals. The short-term outlook remains volatile but over the medium term the ASF outbreak is expected to accelerate the modernisation of the China pork industry which we anticipate will benefit PIC. The declines in China were partially offset by impressive performances in the Philippines and other Asian markets.

Overall, against a strong prior period, PIC was able to maintain profits despite extremely volatile and challenging market conditions in a number of markets, particularly in China. PIC continued to focus on its long-term strategy with investments to enhance product supply and differentiation. These investments will continue to enable PIC to serve customers better, manage market risks and support future growth.

Genus ABS - Operating Review

	Actual currency			Constant currency
	2018	2017	Movement	Movement
	£m	£m	%	%
Revenue	**107.8**	105.6	2	4
Adjusted operating profit	**12.8**	11.7	9	10
Adjusted operating profit less non-controlling interest	**12.7**	11.6	9	10
Adjusted operating margin	**11.9%**	11.1%	0.8pts	0.7pts

Market

The second half of 2018 saw slower growth in global milk production, with mixed activity across the main exporting regions. Favourable conditions in New Zealand enabled record milk output levels, however feed shortages following the summer drought in Europe, combined with new phosphate legislation in the Netherlands, led to more cows being culled, which reduced European output. The resulting higher feed prices will add to the challenge for dairy producers in the early part of 2019.

In the US, substantial margin pressure led to milk output growth slowing to 1%, the lowest in 5 years. Prices in the US are forecast to remain below break-even in the next 6 months. These margin pressures have led dairy farmers in the US to increasingly use beef semen to generate a more valuable by-product animal from their older animals, while increasing the use of sexed genetics on their best animals for replacement heifers. Demand for dairy products in China continued to see upper single digit levels of growth across the listed dairy processors, although this did not result in healthy prices for Chinese milk producers as imports increased from New Zealand.

Beef production grew in all major beef producing countries from between 1-10%. Cattle prices were mixed with Australia, New Zealand and the US down between 4-10%, but up 6% in both Brazil and China.

With both the impact of ASF on the pork industry in China increasing demand for beef as an alternative, and Russia lifting an embargo on Brazilian beef relating to banned feed additives discovered in imports, many global beef markets should see a benefit in the first half of 2019.

Performance

ABS's performance was strong during the period with operating profit increasing 10% in constant currency, on a 7% volume increase and a 4% increase in revenue. Sexed volumes were up 26%, reflecting the successful customer adoption and performance of Sexcel. In the period, Genus launched new Sexcel production sites globally to further increase product range and availability. Increased usage of sexed genetics also led to increased use of beef genetics in dairy herds, supporting a 24% increase in global beef volumes. IVB's embryo operations are now fully integrated in the geographic regions and reported within their results.

In Europe, profit was up 4% in constant currency, with stable volumes. The continuing trend of dairy customers using sexed genetics, coupled with beef genetics for a portion of the herd, resulted in beef volumes increasing by 7%. Beef selling prices increased by 2%, due to a focus on the value of differentiated beef genetics. Sexed semen volumes grew 17%, with continuing strong customer demand for Sexcel. In July 2018, ABS acquired the business of Progenex S. L., its Spanish distributor, to give ABS a direct presence with large progressive dairies in Spain.

In North America, revenue grew by 5% and profit by 19% in constant currency. Volumes were up by 8%, with sexed volumes up 39% and beef volumes up 111%, supported by proprietary NuEra genetics selected for cross-bred beef on dairy performance. The profit from North American embryo operations increased substantially as operational efficiency improved in key customer sites. The investments in key account management and focus on winning 100% of customers' business is now driving success in North America and will help to further accelerate the performance of this key region.

In Latin America, profit decreased by 19% in constant currency however this was in comparison to a very strong period in the prior year influenced by phasing of delivery of a large embryo services contract with a key account. Semen volumes increased by 10% driven by sexed volumes up 16% and beef volumes up 17%, utilising NuEra genetics, selected for cross-bred performance of North American sires with tropical cows, which proved popular with customers.

In Asia, profit was up 8% and revenue increased by 13%, with a steady performance across most key markets. In India we continued to ramp up sales of Sexcel, winning several large orders to be fulfilled from the Genus India Brahma facility, and successfully commenced production at the Mehsana cooperative bull stud in Gujarat towards the end of the period. Additionally, planning is advanced to build and equip the facility to produce sexed semen for the State of Uttar Pradesh.

Overall, ABS delivered an improving performance and, with the increasing customer adoption of Sexcel combined with a proprietary beef offering and a leading dairy genetic portfolio, we anticipate continued positive progress in 2019.

Research and Development - Operating Review

	Actual currency			Constant currency
	2018	2017	Movement	Movement
	£m	£m	%	%
Porcine product development	**8.5**	8.4	1	(1)
Bovine product development	**9.4**	7.8	21	17
Gene editing	**3.1**	2.1	48	43
Other research and development	**3.9**	3.8	3	-
Net expenditure in R&D less non-controlling interest	**24.9**	22.1	13	10

Performance

Net research and development investment increased as planned by 10% in constant currency, as Genus pursued key strategic initiatives to further strengthen its proprietary differentiated offerings. Genus will continue increasing investment in gene editing, primarily under the PRRSv programme.

Genetic gain in our porcine populations, driven by single step genomic evaluation, continues at the accelerated rates previously reported. Investments increased to expand genetic testing to additional elite genetic production sites and populations following the Møllevang collaboration and early results from incorporation of these genetics into PIC's product development programme is encouraging. We also applied research to develop new genetic traits of commercial relevance such as tenderness and are now selecting for these traits. The costs of these initiatives were offset by lower operating expenses in PIC's nucleus herds.

Gene editing expenditure increased 43% primarily from investment in the PRRSv resistance project. We continued our engagement with the FDA and the relationship is constructive and positive. As planned, we substantially increased the number of elite gene edited pigs, in part through work with RenOVAte to continue producing elite founder gene edited pigs, but also through multiplying up the initial founders by breeding with elite pure line animals to increase animal numbers. There are now many hundreds of animals carrying the desired edit and we continue to grow the population size and take on additional dedicated facilities to house them.

Bovine product development expenditure increased by 17%, primarily from continuing investment in IntelliGen while also amortising historical capitalised development costs. During the period, we expanded Sexcel manufacturing to meet increasing demand and to provide unique genetic offerings globally. We also successfully brought into production our first external customer site in India and added capacity in other sites.

Genus continued to produce an industry leading dairy bull portfolio with over 50% continuing to come from the De Novo joint venture, including a strong pipeline of young bulls, helping to drive positive volume increases within ABS. The beef genetic nucleus programme also produced strong results and the pipeline of proprietary NuEra beef bulls coming into the stud is set to double through next year.

Other research and development expenditure was stable year to year and included work on our bioinformatics platform, genome science and external collaborations in a variety of discovery areas including seeking new gene edit targets and exploring the benefits of full genome sequencing.

PRINCIPAL RISKS AND UNCERTAINTIES

The Genus approach to risk management is to identify, evaluate and prioritise risks and uncertainties and actively manage actions to mitigate them. The Genus plc Annual Report 2018 (a copy of which is available on the Genus plc website at www.genusplc.com) sets out on pages 12-13 a number of risks and uncertainties that might impact upon the performance of the Group. There has been no material change to the principal risks that might affect the performance of the Group in the current financial year. Genus does not currently classify Brexit as a principal risk for the Group.

GENUS PLC
CONDENSED CONSOLIDATED INCOME STATEMENT
For the six months ended 31 December 2018

	Notes	**Six months ended 31 December 2018 £m**	Six months ended 31 December 2017 £m	Year ended 30 June 2018 £m
Revenue	4	**238.8**	238.6	470.3
Adjusted operating profit	4	**28.7**	28.3	57.7
Adjusting items:				
- Net IAS 41 valuation movement on biological assets	10	**(9.3)**	(3.6)	(28.7)
- Amortisation of acquired intangible assets	9	**(4.7)**	(5.0)	(9.5)
- Share-based payment expense		**(2.4)**	(3.0)	(5.4)
		(16.4)	(11.6)	(43.6)
- Exceptional items:	5			
- Litigation		**(3.1)**	(2.2)	(5.0)
- Acquisition and integration		**(0.6)**	(0.6)	(1.2)
- Other (including restructuring)		**0.6**	0.4	0.3
- Pension related		**(15.5)**	-	-
Total exceptional items		**(18.6)**	(2.4)	(5.9)
Total adjusting items		**(35.0)**	(14.0)	(49.5)
Operating (loss)/profit		**(6.3)**	14.3	8.2
Share of post-tax profit of joint ventures and associates retained	11	**1.4**	2.5	4.2
Finance costs	6	**(2.6)**	(2.6)	(4.8)
Finance income	6	**0.7**	0.1	0.2
(Loss)/profit before tax		**(6.8)**	14.3	7.8
Taxation	7	**(0.3)**	28.3	33.8
(Loss)/profit for the period from continuing operations		**(7.1)**	42.6	41.6
Attributable to:				
Owners of the Company		**(7.2)**	42.1	42.7
Non-controlling interest		**0.1**	0.5	(1.1)
		(7.1)	42.6	41.6
Earnings per share from continuing operations	13			
Basic (loss)/earnings per share		**(11.7p)**	69.0p	69.7p
Diluted (loss)/earnings per share		**(11.0p)**	67.8p	68.7p

	Notes	**Six months ended 31 December 2018 £m**	Six months ended 31 December 2017 £m	Year ended 30 June 2018 £m
Alternative measure of performance				
Adjusted operating profit from continuing operations		**28.7**	28.3	57.7
Adjusted operating profit attributable to non-controlling interest		**(0.3)**	(0.4)	(0.8)
Pre-tax share of profits from joint ventures and associates excluding net IAS 41 valuation movement		**2.7**	3.6	6.2
Adjusted operating profit including joint ventures and associates		**31.1**	31.5	63.1
Net finance costs	6	**(1.9)**	(2.5)	(4.6)
Adjusted profit before tax from continuing operations		**29.2**	29.0	58.5
Adjusted earnings per share from continuing operations	13			
Basic adjusted earnings per share		**35.8p**	40.9p	75.9p
Diluted adjusted earnings per share		**33.8p**	40.3p	74.9p

GENUS PLC

CONDENSED CONSOLIDATED STATEMENT OF COMPREHENSIVE INCOME
For the six months ended 31 December 2018

	Six months ended 31 December 2018		Six months ended 31 December 2017		Year ended 30 June 2018	
	£m	**£m**	£m	£m	£m	£m
(Loss)/profit for the period		**(7.1)**		42.6		41.6
Items that may be reclassified subsequently to profit or loss						
Foreign exchange translation differences	**13.7**		(22.3)		(22.4)	
Fair value movement on net investment hedges	**(2.5)**		3.2		1.3	
Fair value movement on cash flow hedges	**(1.1)**		0.5		1.1	
Tax relating to components of other comprehensive income	**(0.8)**		3.5		2.2	
		9.3		(15.1)		(17.8)
Items that may not be reclassified subsequently to profit or loss						
Actuarial (loss)/gain on retirement benefit obligations	**(13.8)**		1.8		43.4	
Movement on pension asset recognition restriction	**11.0**		-		(2.5)	
Release/(recognition) of additional pension liability	**17.4**		(2.0)		(39.4)	
Tax relating to components of other comprehensive income	**(2.6)**		(0.1)		(0.3)	
		12.0		(0.3)		1.2
Other comprehensive income/(expense) for the period		**21.3**		(15.4)		(16.6)
Total comprehensive income for the period		**14.2**		27.2		25.0
Attributable to:						
Owners of the Company		**14.1**		26.7		26.1
Non-controlling interest		**0.1**		0.5		(1.1)
		14.2		27.2		25.0

GENUS PLC
CONDENSED CONSOLIDATED STATEMENT OF CHANGES IN EQUITY
For the six months ended 31 December 2018

	Note	Called up share capital £m	Share premium account £m	Own shares £m	Translation reserve £m	Hedging reserve £m	Retained earnings £m	Total £m	Non-controlling interest £m	Total equity £m
BALANCE AT 30 JUNE 2017		6.1	112.8	(0.1)	39.2	1.1	240.2	399.3	2.8	402.1
Foreign exchange translation differences, net of tax		-	-	-	(19.7)	-	-	(19.7)	-	(19.7)
Fair value movement on net investment hedges, net of tax		-	-	-	1.0	-	-	1.0	-	1.0
Fair value movement on cash flow hedges, net of tax		-	-	-	-	0.9	-	0.9	-	0.9
Actuarial gain on retirement benefit obligations, net of tax		-	-	-	-	-	36.0	36.0	-	36.0
Movement on pension asset recognition restriction, net of tax		-	-	-	-	-	(2.1)	(2.1)	-	(2.1)
Recognition of additional pension liability, net of tax		-	-	-	-	-	(32.7)	(32.7)	-	(32.7)
Other comprehensive income/(expense) for the year		-	-	-	(18.7)	0.9	1.2	(16.6)	-	(16.6)
Profit for the year		-	-	-	-	-	42.7	42.7	(1.1)	41.6
Total comprehensive income/(expense) for the year		-	-	-	(18.7)	0.9	43.9	26.1	(1.1)	25.0
Recognition of share-based payments, net of tax		-	-	-	-	-	6.0	6.0	-	6.0
Adjustment arising from change in non-controlling interest		-	-	-	-	-	-	-	0.8	0.8
Dividends	8	-	-	-	-	-	(14.9)	(14.9)	-	(14.9)
Issue of ordinary shares		0.1	-	-	-	-	-	0.1	-	0.1
BALANCE AT 30 JUNE 2018		**6.2**	**112.8**	**(0.1)**	**20.5**	**2.0**	**275.2**	**416.6**	**2.5**	**419.1**
Foreign exchange translation differences, net of tax		-	-	-	**12.6**	-	-	**12.6**	**0.1**	**12.7**
Fair value movement on net investment hedges, net of tax		-	-	-	**(2.5)**	-	-	**(2.5)**	-	**(2.5)**
Fair value movement on cash flow hedges, net of tax		-	-	-	-	**(0.9)**	-	**(0.9)**	-	**(0.9)**
Actuarial loss on retirement benefit obligations, net of tax		-	-	-	-	-	**(11.7)**	**(11.7)**	-	**(11.7)**
Movement on pension asset recognition restriction, net of tax		-	-	-	-	-	**9.2**	**9.2**	-	**9.2**
Release of additional pension liability, net of tax		-	-	-	-	-	**14.5**	**14.5**	-	**14.5**
Other comprehensive income/(expense) for the period		-	-	-	**10.1**	**(0.9)**	**12.0**	**21.2**	**0.1**	**21.3**
Loss for the period		-	-	-	-	-	**(7.2)**	**(7.2)**	**0.1**	**(7.1)**
Total comprehensive Income/(expense) for the period		-	-	-	**10.1**	**(0.9)**	**4.8**	**14.0**	**0.2**	**14.2**
Recognition of share-based payments, net of tax		-	-	-	-	-	-	-	-	-
Adjustment arising from change in non-controlling interest		-	-	-	-	-	-	-	**(0.4)**	**(0.4)**
Dividends	8	-	-	-	-	-	**(11.0)**	**(11.0)**	-	**(11.0)**
Issue of ordinary shares	8	**0.3**	**66.2**	-	-	-	-	**66.5**	-	**66.5**
BALANCE AT 31 DECEMBER 2018		**6.5**	**179.0**	**(0.1)**	**30.6**	**1.1**	**269.0**	**486.1**	**2.3**	**488.4**

	Note	Called up share capital £m	Share premium account £m	Own shares £m	Trans-lation reserve £m	Hedging reserve £m	Retained earnings £m	Total £m	Non-controlling interest £m	Total equity £m
BALANCE AT 30 JUNE 2017		6.1	112.8	(0.1)	39.2	1.1	240.2	399.3	2.8	402.1
Foreign exchange translation differences, net of tax		-	-	-	(18.1)	-	-	(18.1)	-	(18.1)
Fair value movement on net investment hedges, net of tax		-	-	-	2.6	-	-	2.6	-	2.6
Fair value movement on cash flow hedges, net of tax		-	-	-	-	0.4	-	0.4	-	0.4
Actuarial gain on retirement benefit obligations, net of tax		-	-	-	-	-	1.8	1.8	-	1.8
Movement on pension asset recognition restriction, net of tax		-	-	-	-	-	-	-	-	-
Recognition of additional pension liability, net of tax		-	-	-	-	-	(2.1)	(2.1)	-	(2.1)
Other comprehensive (expense)/income for the period		-	-	-	(15.5)	0.4	(0.3)	(15.4)	-	(15.4)
Profit for the period		-	-	-	-	-	42.1	42.1	0.5	42.6
Total comprehensive income for the period		-	-	-	(15.5)	0.4	41.8	26.7	0.5	27.2
Recognition of share-based payments, net of tax		-	-	-	-	-	3.0	3.0	-	3.0
Adjustment arising from change in non-controlling interest and written put option		-	-	-	-	-	-	-	0.8	0.8
Dividends	8	-	-	-	-	-	(9.9)	(9.9)	-	(9.9)
Issue of ordinary shares		-	-	-	-	-	-	-	-	-
BALANCE AT 31 DECEMBER 2017		6.1	112.8	(0.1)	23.7	1.5	275.1	419.1	4.1	423.2

GENUS PLC
CONDENSED CONSOLIDATED BALANCE SHEET
As at 31 December 2018

	Notes	31 December 2018 £m	31 December 2017 £m	30 June 2018 £m
Assets				
Goodwill	9	**105.7**	101.9	102.0
Other intangible assets	9	**80.2**	81.5	78.7
Biological assets	10	**313.0**	302.9	305.8
Property, plant and equipment		**83.6**	66.4	76.9
Interests in joint ventures and associates	11	**21.2**	23.8	19.9
Other investments		**6.2**	5.5	5.9
Derivative financial assets	16	**0.9**	1.8	0.3
Deferred tax assets		**4.2**	3.9	4.3
Total non-current assets		**615.0**	587.7	593.8
Inventories		**35.0**	32.9	34.2
Biological assets	10	**32.6**	35.1	37.0
Trade and other receivables		**93.2**	89.3	91.0
Cash and cash equivalents		**25.0**	27.7	29.1
Income tax receivable		**1.2**	2.0	1.4
Derivative financial assets	16	**0.6**	-	2.5
Asset held for sale		**0.2**	0.3	0.2
Total current assets		**187.8**	187.3	195.4
Total assets		**802.8**	775.0	789.2
Liabilities				
Trade and other payables		**(74.3)**	(72.9)	(83.7)
Interest-bearing loans and borrowings		**(5.9)**	(13.8)	(13.4)
Provisions		**(2.4)**	(1.9)	(2.8)
Deferred consideration		**(1.2)**	-	(19.3)
Obligations under finance leases		**(1.0)**	(1.6)	(1.4)
Current tax liabilities		**(4.8)**	(4.2)	(4.4)
Derivative financial liabilities	16	**(0.7)**	(0.8)	(0.3)
Total current liabilities		**(90.3)**	(95.2)	(125.3)

	Notes	**31 December 2018 £m**	31 December 2017 £m	30 June 2018 £m
Interest-bearing loans and borrowings		**(101.3)**	(123.6)	(120.7)
Retirement benefit obligations	15	**(32.2)**	(38.1)	(33.9)
Provisions		**(5.0)**	(3.7)	(4.5)
Deferred consideration		**(4.2)**	-	(4.2)
Non-current income tax liability		**-**	-	(0.9)
Deferred tax liabilities		**(76.0)**	(85.2)	(74.8)
Derivative financial liabilities	16	**(3.3)**	(3.9)	(3.7)
Obligations under finance leases		**(2.1)**	(2.1)	(2.1)
Total non-current liabilities		**(224.1)**	(256.6)	(244.8)
Total liabilities		**(314.4)**	(351.8)	(370.1)
Net assets		**488.4**	423.2	419.1
Equity				
Called up share capital		**6.5**	6.1	6.2
Share premium account		**179.0**	112.8	112.8
Own shares		**(0.1)**	(0.1)	(0.1)
Translation reserve		**30.6**	23.7	20.5
Hedging reserve		**1.1**	1.5	2.0
Retained earnings		**269.0**	275.1	275.2
Equity attributable to owners of the Company		**486.1**	419.1	416.6
Non-controlling interest		**5.5**	7.2	5.7
Put option over non-controlling interest		**(3.2)**	(3.1)	(3.2)
Total non-controlling interest		**2.3**	4.1	2.5
Total equity		**488.4**	423.2	419.1

GENUS PLC
GROUP STATEMENT OF CASH FLOWS
For the six months ended 31 December 2018

	Notes	**Six months ended 31 December 2018 £m**	Six months ended 31 December 2017 £m	Year ended 30 June 2018 £m
Net cash flow from operating activities	14	**8.5**	14.3	43.2
Cash flows from investing activities				
Dividends received from joint ventures and associates		**-**	-	2.8
Deferred consideration paid		**(21.1)**	(1.6)	(1.8)
Acquisition of investment		**(2.0)**	-	-
Disposal of investment		**0.4**	-	-
Purchase of property, plant and equipment		**(10.3)**	(5.5)	(17.8)
Purchase of intangible assets		**(4.7)**	(1.6)	(4.7)
Proceeds from sale of property, plant and equipment		**0.8**	0.3	0.4
Proceeds from sale of assets held for sale		**-**	-	0.3
Net cash outflow from investing activities		**(36.9)**	(8.4)	(20.8)
Cash flows from financing activities				
Drawdown of borrowings		**96.3**	28.5	64.4
Repayment of borrowings		**(125.2)**	(18.0)	(66.5)
Payment of finance lease liabilities		**(1.0)**	(1.0)	(2.2)
Equity dividends paid		**(11.0)**	(9.9)	(14.9)
Issue of ordinary shares		**66.5**	-	0.1
Decrease in bank overdrafts		**(1.5)**	(4.0)	-
Net cash inflow/(outflow) from financing activities		**24.1**	(4.4)	(19.1)
Net (decrease)/increase in cash and cash equivalents		**(4.3)**	1.5	3.3
Cash and cash equivalents at beginning of period		**29.1**	26.5	26.5
Net (decrease)/increase in cash and cash equivalents		**(4.3)**	1.5	3.3
Effect of exchange rate fluctuations on cash and cash equivalents		**0.2**	(0.3)	(0.7)
Total cash and cash equivalents at end of period		**25.0**	27.7	29.1

GENUS PLC
ANALYSIS OF NET DEBT
For the six months ended 31 December 2018

	At 1 July 2018 £m	Net cash flows £m	Foreign exchange £m	Non-cash movement £m	**At 31 December 2018 £m**
Cash and cash equivalents	29.1	**(4.3)**	**0.2**	**-**	**25.0**
Interest-bearing loans - current	(13.4)	**7.9**	**(0.2)**	**(0.2)**	**(5.9)**
Obligation under finance leases current	(1.4)	**1.0**	**(0.1)**	**(0.5)**	**(1.0)**
	(14.8)	**8.9**	**(0.3)**	**(0.7)**	**(6.9)**
Interest-bearing loans – non-current	(120.7)	**22.5**	**(3.1)**	**-**	**(101.3)**
Obligation under finance lease – non-current	(2.1)	**-**	**-**	**-**	**(2.1)**
	(122.8)	**22.5**	**(3.1)**	**-**	**(103.4)**
Net debt	(108.5)	**27.1**	**(3.2)**	**(0.7)**	**(85.3)**

	At 1 July 2017 £m	Net cash flows £m	Foreign exchange £m	Non-cash movement £m	At 31 December 2017 £m
Cash and cash equivalents	26.5	1.5	(0.3)	-	27.7
Interest-bearing loans - current	(7.7)	(6.1)	0.2	(0.2)	(13.8)
Obligation under finance leases – current	(1.4)	1.0	-	(1.2)	(1.6)
	(9.1)	(5.1)	0.2	(1.4)	(15.4)
Interest-bearing loans – non-current	(127.2)	(0.4)	4.0	-	(123.6)
Obligation under finance lease – non-current	(1.8)	-	0.1	(0.4)	(2.1)
	(129.0)	(0.4)	4.1	(0.4)	(125.7)
Net debt	(111.6)	(4.0)	4.0	(1.8)	(113.4)

Net debt is defined as the total of cash and cash equivalents, interest-bearing loans, unamortised debt issue costs and obligation under finance leases.

GENUS PLC
NOTES TO THE CONDENSED SET OF FINANCIAL STATEMENTS
For the six months ended 31 December 2018

1. Basis of preparation

The unaudited Condensed Set of Financial Statements for the six months ended 31 December 2018:

- were prepared in accordance with International Accounting Standard 34 '*Interim Financial Reporting*' ('IAS 34') and thereby International Financial Reporting Standards ('IFRSs'), both as issued by the International Accounting Standards Board ('IASB') and as adopted by the European Union ('EU');
- are presented on a condensed basis as permitted by IAS 34 and therefore do not include all disclosures that would otherwise be required in a full set of financial statements; these should be read, therefore, in conjunction with the Genus plc Annual Report 2018;
- includes all adjustments, consisting of normal recurring adjustments, necessary for a fair statement of the results for the periods presented;
- do not constitute statutory accounts within the meaning of section 435 of the Companies Act 2006; and
- were approved by the Board of Directors on 27 February 2019.

The information relating to the year ended 30 June 2018 is an extract from the published financial statements for that year, which have been delivered to the Registrar of Companies. The auditor's report on those financial statements was not qualified and did not contain statements under section 498(2) or (3) of the Companies Act 2006.

The unaudited Condensed Set of Financial Statements for the six months ended 31 December 2018 has not been reviewed by our Auditor.

The Genus plc Annual Report 2018 (a copy of which is available on the Genus plc website at www.genusplc.com) sets out on pages 12-13 a number of risks and uncertainties that might impact upon the performance of the Group. There has been no material change to the principal risks that might affect the performance of the Group in the current financial year. Having considered these risks and uncertainties, and in the current economic environment, including any potential impacts of Brexit, the Directors have a reasonable expectation that the Company has adequate resources to continue in operational existence for the foreseeable future. Therefore they continue to adopt the going concern basis in preparing the half-yearly report and the Condensed Set of Financial Statements.

The preparation of the Condensed Set of Financial Statements requires management to make estimates and assumptions that affect the reported amounts of assets and liabilities and disclosure of contingent assets and liabilities at the balance sheet date, and the reported amounts of revenue and expenses during the period. Actual results could vary from these estimates. The estimates and underlying assumptions are reviewed on an ongoing basis. Revisions to accounting estimates are recognised in the period in which the estimate is revised if the revision affects only that period or in the period of revision and future periods if the revision affects both current and future periods.

In Note 10 we have reclassified the comparative period to reflect a change in the classification in our porcine biological assets between current and non-current assets.

2. Accounting policies and non-GAAP measures

New standards and interpretations

In the current period, the Group has applied a number of amendments to IFRSs issued by the International Accounting Standards Board that are mandatorily effective for an accounting period that begins after 1 January 2018 and has been implemented with effect from 1 July 2018. Their addition has not had any material impact on the disclosures or the amounts reported in the Group Financial Statements.

- IFRS 15 – 'Revenue from Contracts with Customers';
- IFRS 9 – 'Financial Instruments';
- Amendments to IFRS 2 – 'Classification and Measurement of Share-based Payments Transactions';
- IFRIC 22 – 'Foreign Currency Transactions and Advance Consideration'; and
- Annual Improvements to IFRSs 2014 -2016.

IFRS 15 'Revenue from Contracts with Customers' is effective for periods beginning on or after 1 January 2018 and therefore has been implemented with effect from 1 July 2018. The standard establishes a principles-based approach for revenue recognition and is based on the concept of recognising revenue for performance obligations only when they are satisfied, and the control of goods or services is transferred. In doing so, the standard applies a five-step approach to the timing of revenue recognition and applies to all contracts with customers, except those in the scope of other standards. It replaces the separate models for goods, services and construction contracts under the previous accounting standard. Following an assessment of the impact of IFRS 15 and based on the straightforward nature of the Group's revenue streams and the absence of significant judgement required in determining the timing of transfer of control, the adoption of IFRS 15 has not had a material impact on the timing or nature of the Group's revenue recognition.

IFRS 9 'Financial Instruments' replaces IAS 39 'Financial Instruments: Recognition and Measurement'. The standard is effective for periods beginning on or after 1 January 2018 and has been implemented with effect from 1 July 2018.

The standard introduces changes to three key areas:

- new requirements for the classification and measurement of financial instruments;
- a new impairment model based on expected credit losses for recognising provisions; and
- simplified hedge accounting through closer alignment with an entity's risk management methodology.

The adoption of IFRS 9 has not had a material impact on either the Consolidated Income statement or the Consolidated Statement of Financial Position. The Group will require additional disclosures relating to hedge accounting, credit risk management and impairment of financial assets in the Annual Report for the year ending 30 June 2019.

New standards and interpretations not yet adopted

At the date of the interim report, the following standards and interpretations which have not been applied in the report were in issue but not yet effective (and in some cases had not yet been adopted by the EU).

- IFRS 16 – 'Leases';
- Amendments to IFRS 9 – 'Prepayment Features with Negative Compensation';
- Amendments to IAS 28 – 'Long-term Interests in Associates and Joint Ventures';
- IFRIC 23 – 'Uncertainty over Income Tax Treatments';
- Amendments to IAS 19 – 'Plan Amendment, Curtailment or Settlement';
- Amendments to IAS 1 and IAS 8 – 'Definition of Material';
- Amendments to IFRS 3 – 'Definition of a Business';
- Annual Improvements to IFRS 2015-2017 Cycle; and
- Conceptual Framework for Financial Reporting.

IFRS 16 'Leases' is effective for periods beginning on or after 1 January 2019 and therefore will be effective in the Group financial statements for the year ending 30 June 2020.

The Group will transition to IFRS 16 on 1 July 2019. The standard introduces a comprehensive model for identifying lease arrangements and accounting treatments for both lessors and lessees and will replace the current lease accounting requirements including IAS 17 Leases and the related interpretations.

For lessees, IFRS 16 removes distinctions between operating leases and finance leases. These are replaced by a model where a right of use asset and a corresponding liability are recognised for all leases except for short-term leases and low value assets. In contrast to lessee accounting, IFRS 16 substantially carries forward the lessor accounting requirements in IAS 17, and continues to require a lessor to classify a lease either as an operating lease or a finance lease.

At 30 June 2018, the Group reported £20.8m of undiscounted operating lease commitments, so anticipate that implementing the new standard will have a significant impact on the Group's reported assets and liabilities. In addition, the implementation of the standard will affect the Consolidated Income Statement and classification of cash flows. A reliable estimate of the financial impact on the Group's consolidated results depends on a number of unresolved areas, including; choice of transition option, approach to determining discount rates, estimates of lease-term for leases with options to break and renew and conclusion of data collection.

The Group continues to assess the full impact of IFRS 16, however the impact will greatly depend on the facts and circumstances at the time of adoption. It is therefore not yet practicable to provide a reliable estimate of the financial impact on the Group's consolidated results. Further update will be provided in the Annual Report for the year ending 30 June 2019.

Alternative performance measures ('APMs')

In reporting financial information, the Group presents alternative performance measures, ('APMs'), which are not defined or specified under the requirements of IFRS.

The Group believes that these APMs, which are not considered to be a substitute for or superior to IFRS measures, provide stakeholders with additional helpful information on the performance of the business. The APMs are consistent with how the business performance is planned and reported within the internal management reporting to the Board and the executive leadership committee. Some of these measures are also used for the purpose of setting remuneration targets.

The key APMs that the Group uses include: adjusted operating profit, adjusted profit before tax from continuing operations, adjusted earnings per share, net debt and adjusted EBITDA (as calculated under our financing facilities and includes cash received from joint ventures and historical cost depreciation of biological assets).

The Group reports some financial measures, on both a reported and constant currency basis. The constant currency basis, which is an APM, retranslates the current year results at the average actual periodic exchange rates used in the previous financial year. This measure is presented as a means of eliminating the effects of exchange rate fluctuations on the year-on-year reported results.

The Group makes certain adjustments to the statutory profit measures in order to derive many of these APMs. The Group's policy is to exclude items that are considered to be significant in nature and/or quantum and where treatment as an adjusted item provides stakeholders with additional useful information to assess the year-on-year trading performance of the Group. On this basis, the following were included within adjusted items for the 6 months ended 31 December 2018:

- net IAS 41 valuation movements on biological assets - movements can be materially volatile and do not directly correlate to the underlying trading performance in the period. Furthermore, the movement is non-cash related and many assumptions used in the valuation model are based on future projections rather than current trading;
- amortisation of acquired intangible assets – by excluding it helps the comparability between acquired operations and organically grown operations, as the latter are not able to recognise internally generated intangible assets. Adjusting for amortisation provides a more consistent basis for comparison between the two;
- share based payments – this expense is considered to be relatively volatile and is not fully reflective of the current period trading as the performance criteria are based on EPS performance over a three year period and include estimates of future period performance; and
- exceptional items – are items which either due to their size or their nature are excluded to improve the understanding of the Company's underlying performance, see note 5 for further details.

The reconciliation between operating profit from continuing operations and adjusted operating profit from continuing operations is shown on the face of the Group Income Statement. For adjusted earnings per share, the reconciliation between profit before tax and adjusted profit after tax is shown in note 13. For adjusted EBITDA, the reconciliation between profit after tax and adjusted EBITDA is shown in note 14. A reconciliation of net debt is provided after the Group Statement of Cash Flows.

3. Foreign currencies

The principal exchange rates used were as follows:

	Average			Closing		
	Six months ended 31 December 2018	Six months ended 31 December 2017	Year ended 30 June 2018	**31 December 2018**	31 December 2017	30 June 2018
US Dollar/£	**1.29**	1.33	1.35	**1.28**	1.35	1.32
Euro/£	**1.12**	1.12	1.13	**1.11**	1.13	1.13
Brazilian Real/£	**5.02**	4.28	4.51	**4.95**	4.48	5.12
Mexican Peso/£	**25.11**	24.68	25.37	**25.07**	26.58	26.30

The assets and liabilities of foreign operations, including goodwill arising on consolidation, are translated into Sterling at the prevailing exchange rates at the balance sheet date. We translate these operations' revenues and expenses using an average rate for the period.

4. Segmental information

IFRS 8 'Operating Segments' requires operating segments to be identified on the basis of internal reports about components of the Group that are regularly reviewed by the Group Chief Executive and the Board to allocate resources to the segments and to assess their performance.

The Group's operating and reporting structure comprises of three operating segments; Genus PIC, Genus ABS and Research and Development. These segments are the basis on which the Group reports its segmental information. The principal activities of each segment are as follows:

- Genus PIC – our global porcine sales business;
- Genus ABS - our global bovine sales business; and
- Research and Development – our global spend on research and development.

A segment analysis of revenue, operating profit and segment assets and liabilities are detailed below. We do not include our adjusting items in the revenue and operating profit segments as we believe these do not reflect the underlying progress of the segments. The accounting policies of the reportable segments are the same as the Group's accounting policies as described in the financial statements.

Our business is not highly seasonal and our customer base is diversified, with no individual customer generating more than 2% of revenue.

Revenue

	Six months ended 31 December 2018 £m	Six months ended 31 December 2017 £m	Year ended 30 June 2018 £m
Genus PIC	**125.6**	126.4	247.7
Genus ABS	**107.8**	105.6	210.6
Research and Development			
Porcine Product Development	**4.2**	5.6	9.8
Bovine Product Development	**1.2**	1.0	2.2
Gene Editing	**-**	-	-
Other Research and Development	**-**	-	-
	5.4	6.6	12.0
	238.8	238.6	470.3

Operating profit by segment is set out below and reconciled to the Group's adjusted operating profit. A reconciliation of adjusted operating profit to profit for the period is shown on the Condensed Consolidated Income Statement.

Adjusted operating profit

	Six months ended 31 December 2018 £m	Six months ended 31 December 2017 £m	Year ended 30 June 2018 £m
Genus PIC	**45.9**	44.1	88.7
Genus ABS	**12.8**	11.7	26.2
Research and Development			
Porcine Product Development	**(8.5)**	(8.4)	(17.0)
Bovine Product Development	**(9.2)**	(7.5)	(16.6)
Gene Editing	**(3.1)**	(2.1)	(5.0)
Other Research and Development	**(3.9)**	(3.8)	(7.6)
	(24.7)	(21.8)	(46.2)
Adjusted segment operating profit	**34.0**	34.0	68.7
Central	**(5.3)**	(5.7)	(11.0)
Adjusted operating profit	**28.7**	28.3	57.7

	Segment assets			Segment liabilities		
	31 December 2018 £m	31 December 2017 £m	30 June 2018 £m	**31 December 2018 £m**	31 December 2017 £m	30 June 2018 £m
Genus PIC	**252.7**	250.4	235.9	**(53.7)**	(52.0)	(48.3)
Genus ABS	**159.8**	141.2	160.6	**(31.1)**	(36.1)	(41.2)
Research and Development						
Porcine Product Development	**197.3**	170.7	209.5	**(54.9)**	(52.7)	(76.5)
Bovine Product Development	**166.1**	188.2	152.8	**(30.0)**	(39.8)	(31.1)
Gene Editing	**4.8**	5.1	5.5	**-**	-	-
Other Research and Development	**4.3**	0.4	7.0	**(1.2)**	(1.4)	(1.3)
	372.5	364.4	374.8	**(86.1)**	(93.9)	(108.9)
Segment total	**785.0**	756.0	771.3	**(170.9)**	(182.0)	(198.4)
Central	**17.8**	19.0	17.9	**(143.5)**	(169.8)	(171.7)
Total	**802.8**	775.0	789.2	**(314.4)**	(351.8)	(370.1)

Exceptional items of £18.6m expense (2017: £5.9m expense), relate to Genus ABS (£3.2m expense), Genus PIC (£0.6m income) and our central segment (£16.0m expense). Note 5 provides the details of these exceptional items.

We consider share-based payment expenses on a Group-wide basis and do not allocate them to reportable segments.

Revenue by product

	Six months ended 31 December 2018 £m	Six months ended 31 December 2017 £m	Year ended 30 June 2018 £m
Sale of animals, semen, embryos and associated products and services	**167.5**	175.1	341.1
Royalties – animal and semen	**67.5**	60.0	121.8
Consulting services	**3.8**	3.5	7.4
	238.8	238.6	470.3
Interest income (see note 6)	**0.7**	0.1	0.2
	239.5	238.7	470.5

Revenue from contracts with customers

	Six months ended 31 December 2018 £m	Six months ended 31 December 2017 £m	Year ended 30 June 2018 £m
Genus PIC	**124.0**	125.4	245.5
Genus ABS	**97.2**	96.5	190.6
Research and Development	**5.4**	6.6	12.0
Recognised at a point in time	**226.6**	228.5	448.1
Genus PIC	**1.6**	1.0	2.2
Genus ABS	**10.6**	9.1	20.0
Research and Development	**-**	-	-
Recognised over time	**12.2**	10.1	22.2
Total Revenue	**238.8**	238.6	470.3

5. Exceptional items

Operating (expenses)/income:	**Six months ended 31 December 2018 £m**	Six months ended 31 December 2017 £m	Year ended 30 June 2018 £m
Litigation	**(3.1)**	(2.2)	(5.0)
Acquisition and integration	**(0.6)**	(0.6)	(1.2)
Other (including restructuring)	**0.6**	0.4	0.3
Pension related	**(15.5)**	-	-
	(18.6)	(2.4)	(5.9)

Litigation

Litigation includes legal fees of £3.1m (2017: £2.2m) related to the actions between ABS Global, Inc. ('ABS') and Inguran, LLC (aka Sexing Technologies ('ST')).

On 14 July 2014, ABS launched a legal action against ST in the US District Court for the Western District of Wisconsin alleging, among other matters, that ST: (i) has a monopoly in the processing of sexed bovine semen in the US; and (ii) unlawfully maintains this monopoly through anticompetitive conduct. The legal action aimed to remove these barriers and allow free and fair competition in the sexed bovine semen processing market ('ABS Action'). In parallel with the ABS Action, ABS also filed Inter-Partes Review applications ('IPR') before the US Patent Office challenging the validity of several of ST's group patents, which ST later claimed were infringed by ABS.

On 11 January and 15 April 2016, the Patent Trial and Appeal Board ('PTAB') ruled that US Patent No. 7,195,920 (the ''920 patent') and US Patent No. 7,820,425 (the ''425 patent') were unpatentable. ST appealed these decisions, and on 23 May 2018, the federal court of appeals confirmed that the '920 and '425 patents were unpatentable. On 14 July 2015 and 2 October 2017, PTAB declined to revoke US Patent No. 8,206,987 (the ''987 patent') and US Patent No. 8,198,092 (the ''092 patent') respectively. ABS appealed the '092 patent decision, and the court of appeals affirmed the decision on 7 February 2019. The validity of the ‘987 patent was considered as part of the ABS Action appeal, addressed below.

On 31 March 2017, the Court entered a judgment in the ABS Action which confirmed: (i) the Company and ABS had proved that ST had wilfully maintained a monopoly in the market for sexed bovine semen processing in the US since July 2012, and awarded a permanent injunction against ST which, among other matters, relieved ABS of certain research, marketing and other non-compete restrictions contained in the 2012 semen sorting agreement between the parties; (ii) ST's ’987 and ’092 patents were valid and infringed; and (iii) that ABS had materially breached the confidentiality obligations under the 2012 semen sorting agreement. The Court also confirmed that: (i) the Company and ABS should pay ST an up-front amount of $750,000 and an on-going royalty of $1.25 per straw on commercialisation of the Genus Sexed Semen technology for the use of ST's ’987 patent in the US; (ii) the Company and ABS should pay ST an up-front payment of $500,000 and an on-going royalty of $0.50 per straw for the use of ST’s ’092 patent in the US; (iii) ABS should pay XY, LLC damages of $750,000 for the use of certain XY trade secrets; and (iv) ABS had breached the confidentiality obligations under the 2012 semen sorting agreement.

Damages of $1,250,000 were paid by ABS to ST shortly after the Court’s decision in the ABS Action, and ABS has subsequently amended its technology such that it does not infringe the ‘092 patent claims. ABS has informed ST that it does not intend to pay the $0.50 royalty going forward. Claims for legal fees and costs (and post judgement interest) already incurred in connection with the ABS Action were filed by both parties.

On 27 September 2018 the court awarded ABS legal fees of approximately $4.8 million and ST legal costs of approximately $22,000. ST has appealed this decision. No credit has been accounted for this award pending the appeal.

ABS also appealed the ‘987 patent and the breach of contract decisions and the appeal hearing was heard on 20 February 2018. On 29 January 2019, the Court of Appeals accepted, in part, ABS’s appeal and reversed the decision of the district court not to allow a new ‘987 patent trial. A date is yet to be set for the new ‘987 patent trial.

On 7 June 2017, ST, XY LLC and Cytonome/ST, LLC filed proceedings against ABS, the Company and Premium Genetics (UK) Limited (‘PG’) in the United States District Court for the Western District of Wisconsin (“New Litigation”). The New Litigation alleged that ABS and the Company infringe seven further patents and asserts trade secret and breach of contract claims. ABS and the Company have filed an Answer and Counterclaim confirming that they do not infringe any valid patent and alleging among other things that: (i) ST has breached its 2012 semen sorting agreement with ABS by failing to produce sorted semen that complies with the contractual specifications; and (ii) ST has obtained certain patents through inequitable conduct. In addition, ABS has filed six IPRs seeking to revoke the additional patents raised in the New Litigation. PTAB instituted hearings in relation to three IPRs and refused to institute hearings on two other IPRs. In relation to the final IPR, relating to U.S. Patent No. 7,208,265 (‘’265 patent’), ST requested an adverse judgment. ST has subsequently dismissed its ‘265 patent infringement claim from the New Litigation and ABS has also dismissed its anti-trust and unfair competition counter claims. ABS filed Motions for Rehearing in relation to the IPRs that were not instituted, and these Motions were denied on 14 December 2018.

The hearing date for the New Litigation had been set for 1 April 2019, however, on 21 February 2019 the Court noted that it intended to issue multiple opinions on the parties’ summary judgment motions, and while those opinions were not wholly dispositive of the issues in dispute, for the reasons to be explained in the Court's opinions, the 1 April hearing date was struck. On 26 February 2019, the Court issued a summary judgment opinion finding that: (i) ST's trade secret misappropriation and breach of contract claims were barred by the decision in the ABS Action; (ii) the asserted claims of US patent 6,524,860 were invalid; and (iii) the asserted claim of US patent 9,365,822 was invalid. A further Court opinion on the claim construction of the remaining patents is awaited and no date has, as yet, been set for trial. The Company and ABS intend to pursue vigorously their counterclaims and defend the remaining patent infringement claims.

Acquisition and integration

During the period, £0.6m of expenses were incurred in relation to acquisitions and integration.

Other (including restructuring)

Included within 'other' is £0.5m income principally relating to an insurance receipt from a legacy environmental claim.

Pension related

In October 2018, the High Court handed down judgment in the Lloyds Bank pensions case, requiring pension schemes to equalise Guaranteed Minimum Pensions (GMPs). Genus's legacy pension schemes are affected by this ruling, resulting in an aggregate past service charge of £15.7m in the period, offset by a settlement gain of £0.2m (net of fees).

The judgment also confirmed the range of permissible equalisation methods to calculate the costs and that the sponsoring company may direct the trustees to use the lowest cost method. There is some uncertainty on the final calculation of GMP equalisation costs due to treatment of certain past events which are still to be determined. Accordingly, we have not made any allowances for additional costs that could potentially arise once the treatment of backdated claims and transfers have been agreed (see also note 15).

6. Net finance costs

	Six months ended 31 December 2018 £m	Six months ended 31 December 2017 £m	Year ended 30 June 2018 £m
Interest payable on bank loans and overdrafts	**(1.9)**	(1.7)	(3.0)
Amortisation of debt issue costs	**(0.2)**	(0.2)	(0.4)
Other interest payable	**-**	(0.1)	(0.2)
Net interest cost in respect of pension scheme liabilities	**(0.5)**	(0.5)	(1.0)
Net interest cost on derivative financial instruments	**-**	(0.1)	(0.2)
Total interest expense	**(2.6)**	(2.6)	(4.8)
Interest income on bank deposits	**0.1**	0.1	0.2
Net interest income on derivative financial instruments	**0.6**	-	-
Total interest income	**0.7**	0.1	0.2
Net finance costs	**(1.9)**	(2.5)	(4.6)

7. Taxation

	Six months ended 31 December 2018 £m	Six months ended 31 December 2017 £m	Year ended 30 June 2018 £m
Current tax	**5.5**	5.6	12.6
Deferred tax	**(5.2)**	(33.9)	(46.4)
Income tax expense/(credit)	**0.3**	(28.3)	(33.8)

The tax charge for the period of £0.3m on the statutory loss (2017: tax credit of £28.3m) represents an effective tax rate of minus 4.4%. The charge on a loss arises due to the receipt of tax relief on the exceptional UK pension expense relating to GMP equalisation and on the IAS 41 fair value expense at tax rates of 17% and 16% respectively which is 7-8% lower than the Group effective tax rate. The tax credit for the prior period was materially impacted by the passage into law of the Tax Cuts and Jobs Act in the US, resulting in a £32m credit from the revaluation of the Group's net deferred tax liability at the lower Federal tax rate. Absent the revaluation of these deferred tax liabilities the statutory effective tax rate in the prior period would have been a charge of 25.9%.

The tax charge on adjusted profits for the period is £7.1m (2017: £4.0m), which represents a tax rate on adjusted profits of 24.3% (2017: 13.8%). The tax charge on adjusted profits for the prior period was also impacted by tax credits from the restatement of US deferred tax liabilities totalling £3.7m. In the absence of this one-off credit, the underlying tax rate on adjusted profits in the prior period would have been 26.6%.

There is a deferred tax liability at the period end of £76.0m (2017: £85.2m) which mainly relates to the recognition at fair value of biological assets and intangible assets arising on acquisition and a deferred tax asset of £4.2m (2017: £3.9m) which mainly relates to future tax deductions in respect of pension scheme liabilities, share scheme awards and financial instruments.

8. Dividends and share placement

Amounts recognised as distributions to equity holders in the period:	**Six months ended 31 December 2018 £m**	Six months ended 31 December 2017 £m	Year ended 30 June 2018 £m
Final dividend			
Final dividend for the year ended 30 June 2018 of 17.9 pence per share	**11.0**	-	-
Final dividend for the year ended 30 June 2017 of 16.2 pence per share	**-**	9.9	9.9
Interim dividend			
Interim dividend for the year ended 30 June 2018 of 8.1 pence per share	**-**	-	5.0
	11.0	9.9	14.9

The final dividend for the year ended 30 June 2018 was approved at the Company Annual General Meeting on 15 November 2018 and paid on 30 November 2018. On 27 February 2019, the Directors proposed an interim dividend of 8.9 pence per share payable on 4 April 2019.

On 12 December 2018, 3,097,200 new ordinary shares of 10 pence each were issued at a price of 2,200 pence per share. Genus received £66.5m, being gross proceeds of £68.1m less associated fees of £1.6m.

9. Intangible assets

	Technology £m	Brand, multiplier contracts and customer relationships £m	Separately identified acquired intangible assets £m	Software Including Assets under Construction £m	IntelliGen £m	Patents, licence and other £m	Total £m	Goodwill £m
Cost								
Balance at 1 July 2017	53.4	82.3	135.7	8.8	21.3	4.1	169.9	104.7
Additions	-	-	-	3.6	1.1	-	4.7	-
Disposals	-	-	-	-	-	(0.2)	(0.2)	-
Reclassified from tangible fixed assets	-	-	-	1.9	-	-	1.9	-
Transfer between classes	(1.3)	-	(1.3)	1.3	-	-	-	-
Effect of movements in exchange rates	(0.4)	(1.8)	(2.2)	(0.2)	(0.2)	-	(2.6)	(2.7)
Balance at 30 June 2018	51.7	80.5	132.2	15.4	22.2	3.9	173.7	102.0
Additions	**-**	**-**	**-**	**4.3**	**0.4**	**-**	**4.7**	**-**
Acquisitions (note 17)	**-**	**1.8**	**1.8**	**-**	**-**	**-**	**1.8**	**1.1**
Disposals	**-**	**-**	**-**	**(0.1)**	**-**	**-**	**(0.1)**	**-**
Effect of movements in exchange rates	**0.5**	**2.6**	**3.1**	**0.1**	**0.4**	**-**	**3.6**	**2.6**
Balance at 31 December 2018	**52.2**	**84.9**	**137.1**	**19.7**	**23.0**	**3.9**	**183.7**	**105.7**
Amortisation and impairment losses								
Balance at 1 July 2017	24.8	47.9	72.7	7.5	0.4	1.0	81.6	-
Amortisation for the year	3.0	6.5	9.5	1.4	2.1	0.8	13.8	-
Reclassified from tangible fixed assets	-	-	-	0.4	-	-	0.4	-
Effect of movements in exchange rates	(0.1)	(0.7)	(0.8)	-	-	-	(0.8)	-
Balance at 30 June 2018	27.7	53.7	81.4	9.3	2.5	1.8	95.0	-
Amortisation for the period	**1.7**	**3.0**	**4.7**	**0.4**	**1.1**	**0.5**	**6.7**	**-**
Disposals	**-**	**-**	**-**	**(0.1)**	**-**	**-**	**(0.1)**	**-**
Effect of movements in exchange rates	**(0.1)**	**1.7**	**1.6**	**0.1**	**0.2**	**-**	**1.9**	**-**
Balance at 31 December 2018	**29.3**	**58.4**	**87.7**	**9.7**	**3.8**	**2.3**	**103.5**	**-**
Carrying amounts								
At 31 December 2018	**22.9**	**26.5**	**49.4**	**10.0**	**19.2**	**1.6**	**80.2**	**105.7**
At 30 June 2018	24.0	26.8	50.8	6.1	19.7	2.1	78.7	102.0

Included within the Software class of assets is £6.4m (30 June 18: £3.4m) of costs capitalised in relation to software assets that are in the course of construction. Of this, £5.6m (30 June 18: £2.6m) relates to the ongoing development of Genus One, a single global enterprise system.

10. Biological assets

Fair value of biological assets	Bovine	Porcine	Total
	£m	£m	£m
Balance at 1 July 2018	**104.0**	**238.8**	**342.8**
Increases due to purchases	**4.5**	**55.9**	**60.4**
Decreases attributable to sales	**-**	**(83.8)**	**(83.8)**
Decrease due to harvest	**(12.8)**	**(11.3)**	**(24.1)**
Changes in fair value less estimated sale costs	**3.3**	**36.6**	**39.9**
Effect of movements in exchange rates	**3.2**	**7.2**	**10.4**
Balance at 31 December 2018	**102.2**	**243.4**	**345.6**
Non-current biological assets	**102.2**	**210.8**	**313.0**
Current biological assets	**-**	**32.6**	**32.6**
Balance at 31 December 2018	**102.2**	**243.4**	**345.6**
Balance at 1 July 2017	137.5	215.6	353.1
Increases due to purchases	5.9	62.8	68.7
Decreases attributable to sales	-	(89.7)	(89.7)
Decrease due to harvest	(14.4)	(10.3)	(24.7)
Changes in fair value less estimated sale costs	11.5	31.9	43.4
Effect of movements in exchange rates	(4.9)	(7.9)	(12.8)
Balance at 31 December 2017	135.6	202.4	338.0
Non-current biological assets	135.6	167.3	302.9
Current biological assets	-	35.1	35.1
Balance at 31 December 2017	135.6	202.4	338.0
Balance at 1 July 2017	137.5	215.6	353.1
Increases due to purchases	9.1	117.3	126.4
Acquisition	-	25.1	25.1
Decreases attributable to sales	-	(194.7)	(194.7)
Decrease due to harvest	(35.5)	(20.0)	(55.5)
Changes in fair value less estimated sale costs	(4.2)	99.9	95.7
Effect of movements in exchange rates	(2.9)	(4.4)	(7.3)
Balance at 30 June 2018	104.0	238.8	342.8
Non-current biological assets	104.0	201.8	305.8
Current biological assets	-	37.0	37.0
Balance at 30 June 2018	104.0	238.8	342.8

Bovine

Bovine biological assets include £5.2m (2017: £7.4m) representing the fair value of bulls owned by third parties but managed by the Group, net of expected future payments to such third parties and are therefore treated as assets held under finance leases. There are no movements in the carrying value of the bovine biological assets in respect of sales or other changes during the period.

The current market determined post-tax rate used to discount expected future net cash flows from the sale of bull semen has been assessed as 8.8% (2017: 8.6%).

Decreases due to harvest represent the semen extracted from the biological assets. Inventories of such semen are shown as biological asset harvest.

Porcine

Included in increases due to purchases is the aggregate increase arising during the period on initial recognition of biological assets in respect of multiplier purchases, other than parent gilts, of £19.0m (2017: £23.6m).

Decreases attributable to sales during the period of £83.8m (2017: £89.7m) include £27.8m (2017: £27.6m) in respect of the reduction in fair value of the retained interest in the genetics of animals, other than parent gilts, transferred under royalty contracts.

Also included is £42.5m (2017: £46.8m) relating to the fair value of the retained interest in the genetics in respect of animals, other than parent gilts, sold to customers under royalty contracts in the period.

Total revenue in the period, including parent gilts, includes £89.1m (2017: £81.7m) in respect of these contracts, comprising £27.9m (2017: £28.3m) on initial transfer of animals to customers and £61.2m (2017: £53.5m) in respect of royalties received.

For pure line porcine herds, the net cash flows from the expected output of the herds are discounted at the Group's required rate of return, adjusted for the greater risk implicit in including output from future generations. This adjusted rate has been assessed as 11.0% (2017: 11.0%). The number of future generations which have been taken into account is seven (2017: seven) and their estimated useful lifespan is 1.4 years (2017: 1.4 years).

Six months ended 31 December 2018	**Bovine £m**	**Porcine £m**	**Total £m**
Net valuation movement on biological assets*			
Changes in fair value of biological assets	**3.3**	**36.6**	**39.9**
Inventory transferred to cost of sales at fair value	**(9.7)**	**(11.3)**	**(21.0)**
Biological assets transferred to cost of sales at fair value	**-**	**(28.2)**	**(28.2)**
	(6.4)	**(2.9)**	**(9.3)**
Fair value movements in related financial derivative	**-**	**-**	**-**
	(6.4)	**(2.9)**	**(9.3)**

Six months ended 31 December 2017	**Bovine £m**	**Porcine £m**	**Total £m**
Net valuation movement on biological assets*			
Changes in fair value of biological assets	11.5	31.9	43.4
Inventory transferred to cost of sales at fair value	(11.3)	(10.3)	(21.6)
Biological assets transferred to cost of sales at fair value	-	(25.2)	(25.2)
	0.2	(3.6)	(3.4)
Fair value movements in related financial derivative	-	(0.2)	(0.2)
	0.2	(3.8)	(3.6)

Year ended 30 June 2018	**Bovine £m**	**Porcine £m**	**Total £m**
Net valuation movement on biological assets*			
Changes in fair value of biological assets	(4.2)	99.9	95.7
Inventory transferred to cost of sales at fair value	(29.8)	(20.0)	(49.8)
Biological assets transferred to cost of sales at fair value	-	(75.1)	(75.1)
	(34.0)	4.8	(29.2)
Fair value movements in related financial derivative	-	0.5	0.5
	(34.0)	5.3	(28.7)

* This represents the difference between operating profit including fair value movement on biological assets under IAS 41 and related financial derivative and operating profit prepared under historical cost accounting, which forms part of the reconciliation to adjusted operating profit.

11. Equity accounted investees

The Group's share of profit after tax in its equity accounted investees for the six months ended 31 December 2018 was £1.4m (2017: £2.5m).

	31 December 2018 £m	31 December 2017 £m
Balance at 1 July	**19.9**	22.7
Share of post-tax retained profits of joint ventures and associates	**1.4**	2.5
Effect of other movements including exchange rates	**(0.1)**	(1.4)
Balance at 31 December	**21.2**	23.8

Summary financial information for equity accounted investees, adjusted for the percentage ownership held by the Group:

Income statement	Revenue £m	Net IAS 41 valuation movement on biological assets £m	Expenses £m	Taxation £m	Profit after tax £m
Six months ended 31 December 2018	**13.3**	**(0.8)**	**(10.6)**	**(0.5)**	**1.4**
Six months ended 31 December 2017	13.6	(0.1)	(10.0)	(1.0)	2.5
Year ended 30 June 2018	25.5	(0.5)	(19.3)	(1.5)	4.2

12. Related parties

Transactions between the Company and its subsidiaries, which are related parties, have been eliminated on consolidation and are not disclosed in this note. Transactions between the Group and its joint ventures and associates are described below:

Other related party transactions

	Transaction value			**Balance outstanding**		
	Six months ended 31 December 2018 £m	Six months ended 31 December 2017 £m	Year ended 30 June 2018 £m	31 December 2018 £m	31 December 2017 £m	30 June 2018 £m
Purchase of goods and services from joint ventures and associates	**0.6**	1.3	3.5	**(0.3)**	(0.7)	(1.3)

All outstanding balances with joint ventures and associates are priced on an arm's length basis and are to be settled in cash within six months of the reporting date. None of the balances are secured.

13. Earnings per share

	Six months ended 31 December 2018 m	Six months ended 31 December 2017 m	Year ended 30 June 2018 m
Weighted average number of ordinary shares (basic)	**61.6**	61.1	61.2
Dilutive effect of share options and awards	**1.0**	1.0	0.9
Impact of share placement	**2.8**	-	-
Weighted average number of ordinary shares for the purpose of diluted earnings per share	**65.4**	62.1	62.1

	Six months ended 31 December 2018	Six months ended 31 December 2017	Year ended 30 June 2018
(Loss)/earnings per share from continuing operations			
Basic (loss)/earnings per share	**(11.7p)**	69.0p	69.7p
Diluted (loss)/earnings per share	**(11.0p)**	67.8p	68.7p
Adjusted earnings per share from continuing operations			
Adjusted earnings per share	**35.8p**	40.9p	75.9p
Diluted adjusted earnings per share	**33.8p**	40.3p	74.9p

Earnings per share measures are calculated on the weighted average number of ordinary shares in issue during the period. As in previous periods, adjusted earnings per share have been shown, since the Directors consider that this alternative measure gives a more comparable indication of the Group's underlying trading performance.

Continuing operations

Basic (loss)/earnings per share from continuing operations is based on the net loss attributable to owners of the Company for the period of £7.2m (six months ended 31 December 2017: £42.1m profit; year ended 30 June 2018: £42.7m profit) divided by weighted average number of ordinary shares (basic and diluted) as calculated above.

Adjusted earnings per share is calculated on profit for the period before net IAS 41 valuation movement on biological assets, amortisation of acquired intangible assets, share-based payment expense and exceptional items, after charging taxation associated with those profits, of £22.1m (six months ended 31 December 2017: £25.0m; year ended 30 June 2018: £46.5m), which is calculated as follows:

Adjusted earnings from continuing operations	**Six months ended 31 December 2018 £m**	Six months ended 31 December 2017 £m	Year ended 30 June 2018 £m
(Loss)/profit before tax from continuing operations	**(6.8)**	14.3	7.8
Add/(deduct):			
Net IAS 41 valuation movement on biological assets	**9.3**	3.6	28.7
Amortisation of acquired intangible assets	**4.7**	5.0	9.5
Share-based payment expense	**2.4**	3.0	5.4
Exceptional items	**18.6**	2.4	5.9
Net IAS 41 valuation movement on biological assets in joint ventures and associates	**0.8**	0.1	0.5
Tax on joint ventures and associates	**0.5**	1.0	1.5
Attributable to non-controlling interest	**(0.3)**	(0.4)	(0.8)
Adjusted profit before tax	**29.2**	29.0	58.5
Adjusted tax charge	**(7.1)**	(4.0)	(12.0)
Adjusted profit after tax	**22.1**	25.0	46.5
Effective tax rate on adjusted profit	**24.3%**	13.8%	20.5%

14. Cash flow from operating activities

	Six months ended 31 December 2018 £m	Six months ended 31 December 2017 £m	Year ended 30 June 2018 £m
(Loss)/profit for the period	**(7.1)**	42.6	41.6
Adjustment for:			
Net IAS 41 valuation movement on biological assets	**9.3**	3.6	28.7
Amortisation of acquired intangible assets	**4.7**	5.0	9.5
Share-based payment expense	**2.4**	3.0	5.4
Share of profit of joint ventures and associates	**(1.4)**	(2.5)	(4.2)
Finance costs (net)	**1.9**	2.5	4.6
Income tax expense/(credit)	**0.3**	(28.3)	(33.8)
Exceptional items	**18.6**	2.4	5.9
Adjusted operating profit from continuing operations	**28.7**	28.3	57.7
Depreciation of property, plant and equipment	**6.1**	4.9	10.4
Profit on disposal of plant and equipment	**-**	(0.1)	(0.1)
Loss on disposal of intangible assets	**-**	0.2	-
Amortisation of intangible assets	**2.0**	2.2	4.3
Adjusted earnings before interest, tax, depreciation and amortisation	**36.8**	35.5	72.3
Exceptional item cash	**(3.1)**	(3.6)	(4.9)
Other movements in biological assets and harvested produce	**(0.6)**	(0.4)	(1.9)
(Decrease)/increase in provisions	**(0.3)**	(0.4)	1.7
Additional pension contribution in excess of pension charge	**(3.3)**	(3.6)	(6.9)
Other	**(2.3)**	(0.7)	(2.0)
Operating cash flows before movement in working capital	**27.2**	26.8	58.3
Increase in inventories	**(1.9)**	(1.7)	(4.2)
Increase in receivables	**(1.2)**	(2.3)	(5.7)
(Decrease)/increase in payables	**(8.6)**	(0.8)	9.9
Cash generated by operations	**15.5**	22.0	58.3
Interest received	**0.1**	0.1	0.2
Interest and other finance costs paid	**(1.9)**	(1.9)	(3.9)
Cash flow from derivative financial instruments	**0.8**	(0.3)	0.2
Income taxes paid	**(6.0)**	(5.6)	(11.6)
Net cash from operating activities	**8.5**	14.3	43.2

15. Retirement benefit obligations

The Group has a number of defined contribution and defined benefit pension schemes covering many of its employees, further details can be found in the Genus plc Annual Report 2018. The aggregated position of defined benefit schemes are provided below:

	31 December 2018 £m	31 December 2017 £m	30 June 2018 £m
Present value of funded obligations	**391.0**	421.1	388.6
Present value of unfunded obligations	**8.8**	8.7	8.6
Total present value of obligations	**399.8**	429.8	397.2
Fair value of plan assets	**(430.0)**	(420.1)	(431.8)
Restricted recognition of asset	**20.0**	6.5	9.0
Recognition of additional liability (MPF)	**42.4**	21.9	59.5
Recognised liability for defined benefit obligations	**32.2**	38.1	33.9

The Milk Pension Fund ('MPF')

The MPF was previously operated by the Milk Marketing Board, and was also open to staff working for Milk Marque Ltd (the principal employer now known as Community Foods Group Limited), National Milk Records plc, First Milk Ltd, hauliers associated to First Milk Ltd, Dairy Farmers of Britain Ltd (which went into receivership in June 2009) and Milk Link Ltd.

We have accounted for our section of the scheme and our share of any orphan assets and liabilities, which together represent approximately 86% of the MPF. Although the MPF is managed on a sectionalised basis, it is a "last man standing scheme", which means that all participating employers are joint and severally liable for all of the fund's liabilities.

Further details of the Milk Pension Fund can be found in the Genus plc Annual Report 2018.

The principal actuarial assumptions (expressed as weighted averages) are:

	31 December 2018 %	31 December 2017 %	30 June 2018 %
Discount rate	**2.95**	2.60	2.90
Retail Price Index (RPI)	**3.20**	3.20	3.10
Consumer Price Index (CPI)	**2.10**	2.10	2.00

Guaranteed Minimum Pensions (GMPs)

In October 2018, the High Court handed down judgement in the Lloyds Bank pensions case, requiring pension schemes to equalise Guaranteed Minimum Pensions (GMPs). Genus's legacy pension schemes are affected by this ruling, resulting in an aggregate past service charge of £15.7m in the period.

The Dalgety Pension Fund ('DPF') is both in surplus and additionally had a reserve of £20.9m at 30 June 2018 against future unknown liabilities, neither of which has been recognised in the Genus accounts as the Group does not have a unilateral right to them. The cost of GMP equalisation is estimated to be £11.0m for the DPF which will be fully met by the scheme reserve without a cash cost to Genus. However, IAS19 requires us to record a charge in the Income Statement of £11.0m, which is offset by an equal and opposite credit in the Statement of Comprehensive Income.

The cost of GMP equalisation for Genus's share of the Milk Pension Fund ('MPF') is estimated to be £4.7m which is also recorded as a charge to the Income Statement. On an IAS19 basis the MPF is also in surplus, however under IFRIC14 Genus accounts for its committed payments under the deficit recovery plan agreed as part of the 31 March 2015 scheme valuation as a liability.

16. Financial instruments fair value disclosures

The table below sets out the categorisation of the financial instruments held by the Group at 31 December 2018.

We have categorised financial instruments held at valuation into a three-level fair value hierarchy, based on the priority of the inputs to the valuation technique in accordance with IFRS 13. The hierarchy gives the highest priority to quoted prices in active markets for identical assets or liabilities (Level 1) and the lowest priority to unobservable inputs (Level 3). Valuations categorised as Level 2 are obtained from third parties. If the inputs used to measure fair value fall within different levels of the hierarchy, we base the category level on the lowest priority level input that is significant to the fair value measurement of the instrument in its entirety.

	Valuation level	**31 December 2018 £m**	31 December 2017 £m	30 June 2018 £m
Financial assets				
Derivative instruments in non-designated hedge accounting relationships	**2**	**0.2**	-	0.3
Derivative instruments in designated hedge accounting relationships	**2**	**1.3**	1.8	2.5
Other investments	**2**	**6.2**	5.5	5.9
Trade and other receivables excluding prepayments	**2**	**84.7**	78.9	80.7
Cash and cash equivalents	**1**	**25.0**	27.7	29.1
Assets held for sale	**2**	**0.2**	0.3	0.2
Financial liabilities				
Derivative instruments in designated hedge accounting relationships	**2**	**(0.5)**	(0.8)	(0.6)
Derivative instruments in non-designated hedge accounting relationships	**2**	**(0.2)**	(0.8)	(0.3)
Put option over non-controlling interest	**2**	**(3.3)**	(3.1)	(3.2)
Trade and other payables excluding other taxes and social securities	**2**	**(68.3)**	(65.7)	(77.3)
Loans and overdrafts	**2**	**(107.2)**	(137.4)	(134.1)
Leasing obligations	**2**	**(3.1)**	(3.7)	(3.5)

The Directors consider that the carrying value amounts of financial assets and financial liabilities recorded at amortised cost in the financial statements are approximately equal to their fair values.

17. Business Combinations and deferred consideration

Progenex S.L.

On 20 July 2018, the group acquired the trade and assets of Progenex S.L., a distributor of bovine genetics operating in Spain, to further our growth in the Spanish bovine genetics market.

The amounts recognised in respect of the identifiable assets and liabilities acquired are set out as follows:

	£m
Inventory	0.1
Intangible assets identified - customer relationships (note 9)	1.8
Deferred Tax Liability	(0.4)
Total Identifiable assets	1.5
Goodwill (note 9)	1.1
Total Consideration	**2.6**

Satisfied by:	
Cash	2.0
Contingent Consideration arrangement	0.6
Total Consideration	**2.6**

The goodwill of £1.1m arising from the acquisition consists of the future synergies and market opportunities expected from combining the acquired operations with existing Genus operations. None of the goodwill is expected to be deductible for income tax purposes.

The contingent consideration arrangement requires certain sales targets to be achieved. The potential amount for all future payments that the Genus plc could be required to pay under the contingent consideration agreement will not exceed £0.6m.

Acquisition related costs of £0.1m were recognised within exceptional costs (note 5).

The operations acquired contributed revenues of £0.7m and £0.1m to the Group's profit for the period between the date of acquisition and the balance sheet date.

Avlscenter Møllevang A/S ('Møllevang')

On 2 July 2018, Genus PIC and Møllevang, a leading Danish porcine genetics company, signed an exclusive distribution agreement for Denmark, entered into a sireline nucleus agreement and Genus PIC purchased 49% of Møllevang. In accordance with the subscription agreement, Genus PIC paid £19.3m on 2 July 2018. Møllevang will be an elite porcine genetics production partner for Genus PIC in Denmark and will continue to distribute elite genetics to the Danish market and certain other countries.

18. Post Balance sheet events

On 27 February 2019, a new valuation as at 31 March 2018 was agreed with the MPF Trustees, taking approximately one year off the deficit recovery plan, which now finishes in September 2021. Accordingly, Genus expects the 30 June 2019 pension scheme liability to be approximately £9m lower than the 31 December 2018 liability of £32.2m, assuming consistent actuarial assumptions and including current committed payments.

GENUS PLC
RESPONSIBILITY STATEMENT
For the six months ended 31 December 2018

We confirm that to the best of our knowledge;

a) the Condensed Set of Financial Statements has been prepared in accordance with IAS 34;

b) the interim management report includes a fair review of the information required by DTR 4.2.7R (indication of important events during the first six months and description of the principal risks and uncertainties for the remaining six months of the year); and

c) the interim management report includes a fair review of the information required by DTR 4.2.8R (disclosure of related party transactions and charges therein).

Neither the Company nor the Directors accept any liability to any person in relation to the half-yearly financial report except to the extent that such liability could arise under English Law. Accordingly, any liability to a person who has demonstrated reliance on any untrue or misleading statement or omission shall be determined in accordance with section 90A of the Financial Services and Markets Act 2000.

By order of the Board

Chief Executive
Karim Bitar

Group Finance Director
Stephen Wilson

27 February 2019