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Genus PLC
23 February 2023

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Genus plc
Interim results for the six months ended 31 December 2022
GOOD FINANCIAL AND STRATEGIC PROGRESS ACHIEVED

Six months ended 31 December	Adjusted results[1]				Statutory results		
	Actual currency			Constant currency change[2]	Actual currency		
	2022	2021	Change		2022	2021	Change
	£m	£m	%	%	£m	£m	%
Revenue	**350.2**	281.2	25	13	**350.2**	281.2	25
Operating profit	**41.2**	35.0	18	6	**14.7**	23.9	(38)
Operating profit inc JVs	**48.3**	39.7	22	9	**n/a**	n/a	n/a
Operating profit inc JVs exc gene editing	**56.0**	43.3	29	15	**n/a**	n/a	n/a
Profit before tax	**42.2**	37.0	14	1	**15.0**	24.4	(39)
Free cash flow	**(3.3)**	(16.1)	n/m[3]	n/m[3]			
Basic earnings per share (pence)	**48.8**	42.4	15	2	**20.4**	30.4	(33)
Dividend per share (pence)					**10.3**	10.3	-

Good Group performance

- Group revenue increased by 13% in constant currency (25% in actual currency)
- Operating profit including joint ventures up 9% in constant currency (22% in actual currency)
- R&D investment increased by 18%[2] as planned, including gene editing spend which was up 86%[2] reflecting the PRRSv programme and continued investment in other discovery projects
- Adjusted profit before tax (PBT) up 1% in constant currency (14% in actual currency); net finance costs up 115%[2]
- Statutory PBT reduced by 39% to £15.0m with a reduction in the IAS41 valuation of the Group's biological assets, reflecting higher global interest rates which impacted the valuation discount rates applied

Record half-year PIC performance, gradual recovery in China

- Strong demand for PIC's differentiated genetics, with both new and existing customers, drove growth in volumes up 5%, revenue up 9%[2] and strategically important royalty revenue growth across all regions, up 14%[2]
- Adjusted operating profit including joint ventures increased by 19%[2], to a new record half-year high
- Strong profit growth continued in North America, solid performances in Latin America and Asia. Europe's performance impacted by challenging market conditions in certain countries
- In China, PIC's volumes increased by 23%, with revenue up 11%[2], royalty revenue up significantly by 102%[2] and much improved adjusted operating profit of £8.8m (2021: £1.0m)
- The China pig price peaked at 28 RMB/kg in October before falling to 15 RMB/kg currently, due to African Swine Fever (ASF) and COVID-19 related supply and demand volatility.

ABS volumes up 4%, revenue up 13%[2], despite particularly challenging markets in Latin America

- Expansion of long-term partnerships with strategic accounts underpinned by Sexcel and NuEra genetics drove strong profit growth in North America and solid performances in Europe and Asia. Latin America's performance impacted by very challenging market conditions, particularly in Brazil where macroeconomics affected supply and demand
- Continued growth in sexed genetics, volumes up 14%, through Sexcel and third party sales of IntelliGen sexed semen production in North America and Europe
- Overall, ABS's adjusted operating profit declined by 7%[2] due to Latin America's profit decrease, adverse production cost variances and planned digital investment costs, partially offset by lower patent royalty payments

Improved cash flows, dividend maintained

- Free cash outflow[1] of £3.3m (2021: £16.1m outflow), reflecting higher adjusted profit performance and lower capital expenditure. Cash conversion of 62%[1] (2021: 63%) in line with seasonal half-year expectations
- Net debt[1] increased to £214.5m as expected, with a net debt to EBITDA ratio of 1.8x[1], within 1.0x-2.0x

targeted range

- Adjusted earnings per share 15% higher, interim dividend of 10.3p per share, with 2.8x[1] adjusted earnings cover within 2.5x-3.0x targeted range

Good strategic progress achieved and continued investment for growth

- Good progress on three new world-class elite PIC farms; Atlas (Canada) now fully operational; Ankang (China) has commenced stocking; Granja Genesis (Brazil) is ready for stocking; positioning Genus well to capture future growth opportunities
- GenusOne deployed throughout the UK in the period, implementation underway in the rest of Europe
- Settlement of the 987 appeal, the fee award appeal and the Indian patent litigation with STgenetics (ST), delivering lower patent royalty payments for ABS
- Genus's PRRSv-resistant pigs programme continues to make progress towards completing the US Food and Drug Administration (FDA) submissions by December 2023, with an aim to secure approval in 2024, and we are engaging with other international regulatory agencies

Commenting on the performance and outlook, Stephen Wilson, Chief Executive, said:

"The Group achieved a good performance during the first half of the year, despite challenging market conditions for producers in several markets. PIC delivered a new record half year performance, with strong momentum in North America in particular, and China's performance improved as the porcine market began a gradual recovery from the cyclical downturn, as we had expected.

"The China porcine market has been on a path to recovery since June 2022, but continues to be volatile. Since December the changes in China's COVID-19 polices and outbreaks of ASF have caused imbalances in supply and demand. The pig price peaked at 28 RMB/kg in October, but has since unexpectedly reduced to the current price of 15 RMB/kg. Industry projections suggest prices will recover in Spring/Summer of 2023, with consumer demand expected to improve following the reduction of COVID-19 restrictions and supply expected to reduce. However, there is still uncertainty as to the shape and strength of this recovery.

"Across the regions ABS has continued to expand business with strategic accounts by building long-term partnerships and offering the leading combination of Sexcel and NuEra beef genetics. This, along with robust price increases to counter inflation, meant ABS achieved strong performances outside Latin America, in particular in North America. Latin American beef and dairy producers faced very challenging conditions during the period, as a result of the inflationary effects on input costs and weak consumer demand. As a result, ABS's volume in Latin America declined, despite growing market share in Brazil. The political and economic uncertainties in the region are expected to continue to weigh on beef and dairy producers across Latin America for the remainder of the fiscal year.

"We also made good strategic progress with further investments in R&D, with an increase of spend on gene editing as we move towards FDA and international regulatory approval of our PRRSv-resistant pigs.

"The Board remains confident in the Group's strategy and the many opportunities for Genus. Expectations for the 2023 fiscal year remain unchanged.

"In a separate statement also made today, I have announced my intention to retire on 30 September following ten years with Genus, the last four of which I have served as the CEO. It has been a great privilege and pleasure to lead such a talented group of people and help to develop Genus into the leading global animal genetics business it is today.

"Genus has many strong growth opportunities, and I will remain fully focused on the continued successful execution of our strategy while the Board progresses the search for my successor, in order to achieve a smooth transition."

Results presentation today

A pre-recorded analysts and bankers briefing to discuss the preliminary results for the six months ended 31 December 2022 will be held via a video webcast facility and will be accessible via the following link from 7:01am today:

https://stream.buchanan.uk.com/broadcast/63cab28d777efd4a8b5137d0

This will be followed by a live Q&A session to be held by invitation via Zoom at 10:30am. Please contact Verity Parker at Buchanan for details; verityp@buchanan.uk.com

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About Genus

Genus advances 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 75 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 our customers use them to supply the global dairy and meat supply chains.

Genus's competitive edge comes 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.

Headquartered in Basingstoke, United Kingdom, Genus companies operate in over 24 countries on six continents, with research laboratories located in Madison, Wisconsin, USA.

[1] Adjusted results are the Alternative Performance Measures ('APMs') used by the Board to monitor underlying performance at a Group and operating segment level, which are applied consistently throughout. These APMs should be considered in addition to, and not as a substitute for or as superior to statutory measures. For more information on APMs, see APM Glossary.

[2] Constant currency percentage movements are calculated by restating the results for the six months ended 31 December 2022 at the average exchange rates applied to adjusted operating profit for the year ended 30 June 2022.

[3] n/m = not meaningful

Group Performance

Genus achieved good progress in the first half of the year with volumes, revenue and adjusted profits all increasing. PIC delivered a strong performance, with North America continuing to gain share, and the expected improving performance in China as the porcine market began to recover from last year's cyclical downturn. ABS performance was mixed with strength in North America offset by tough markets in Latin America, particularly in Brazil. Finance costs rose, as expected, due to higher debt and rising interest rates. Genus continued to make significant strategic progress and increased investment in R&D, including an 86% increase in spend on gene editing as we progress towards the regulatory approval of our PRRSv-resistant pigs.

Revenue increased by 13% in constant currency (25% in actual currency) to £350.2m (2021: £281.2m). PIC revenue increased by 12%, royalty revenue was up 14%, while volumes grew by 5%. ABS increased revenue by 13% and grew volumes by 4%, with strategically important sexed genetics up 14% and beef volumes stable compared with the same period last year. ABS implemented robust price increases to offset the effects of cost inflation, particularly in Europe.

Adjusted operating profit, including joint ventures and excluding gene editing, was £56.0m (2021: £43.3m), up 15% in constant currency. Within this, Genus's share of adjusted joint venture operating profits was £6.9m (2021: £4.9m), supported by growth in profit of PIC Agroceres in Brazil and in our joint ventures in China. Net finance costs were higher at £6.1m (2021: £2.7m), due to increased interest rates as well as higher debt levels following the capital investments made during FY22.

Statutory profit before tax was £15.0m (2021: £24.4m), and reflected a £17.2m non-cash decrease (2021: £6.8m decrease) in the net IAS 41 biological assets fair value, reflecting an increase in discount rates applied in the valuation calculation as well as offsetting movements in other key inputs. Net exceptional items in the period were an expense of £2.2m which was primarily legal fees related to the litigation disputes with ST, part of which has now been settled. In the prior period there was an exceptional credit of £1.7m that included a £3.6m non-refundable cash receipt for the assignment of rights to a legacy legal claim in Brazil.

The tax charge on adjusted profits for the period was £10.2m (2021: £9.3m), which represented a tax rate on adjusted profits of 24.2% (2021: 25.1%). The statutory profit after tax was £12.0m (2021: £18.9m).

The effect of exchange rate movements on the translation of Genus's overseas profits was a favourable impact of £4.8m compared with the prior period, primarily from weaker Sterling against Latin American currencies.

Free cash outflow of £3.3m (2021: £16.1m outflow) reflected the higher profit performance in the period along with a reduction in capital expenditure following the prior year investment to expand our world class facilities. Cash generated by operations, which is seasonally weaker in H1, of £25.7m (2021: £22.2m) represented 62% conversion (2021: 63%) of adjusted operating profit of £41.2m (2021: £35.0m) into cash. Our medium-term objective is to achieve annual conversion of at least 90%, and we are on track to achieve it this fiscal year.

Net debt increased to £214.5m (June 2022: £185.0m), reflecting the payment of the final dividend, free cash outflow and foreign exchange movements. The net debt to EBITDA ratio of 1.8x (June 2022: 1.7x) as defined in the debt facility agreement reflects an increase in EBITDA compared with higher net debt levels. This level of leverage is within our medium-term objective of having a ratio of net debt to EBITDA of between 1.0 - 2.0 x.

The Board has declared an unchanged interim dividend of 10.3 pence per share, which is payable on 30 March 2023 to shareholders on the register at 3 March 2023.

Strategic Progress

To maintain our leading industry position, Genus continued to invest in our growth drivers: world-class genetics, global supply chains, long-term customer relationships, pioneering technology and top talent around the world.

In porcine, we have strengthened our supply chains in North America, Brazil and China. We are now fully operational in Atlas (Canada), have commenced stocking in Ankang (China) and have animals ready for stocking at Granja Genesis (Brazil), enhancing our ability to meet customer demand as this grows. Our long-term genetics collaboration with Olymel is exceeding our expectations, with PIC genetics gaining a larger share of the Canadian market.

Our PRRSv-resistant pigs programme has made continued progress towards completing the US FDA submissions by December 2023, with an aim to secure approval in 2024. We are engaging with the FDA on the design of the final animal studies, and are also engaging with international regulatory agencies. As we move closer to the commercialisation of our gene-edited animals we have intensified our engagement with key porcine industry participants and commentators and have expanded our production capacity for PRRSv-resistant pigs.

In bovine, NuEra beef genetics are achieving positive results through initiatives with beef supply chains. In North America and in the UK, we have established arrangements to connect farmer networks with large meat processors and retailers who offer premium prices for carcasses delivered, enabling ABS and farmers, to share in the value created. In the period we expanded IntelliGen third party production and signed an agreement with a leading bovine co-operative to supply sexed semen processing as well as commenced production of sexed semen for the Government of India as part of its ambition to expand milk production and productivity significantly.

We continue to make steady progress on digitalisation. GENEadvance, our complete solutions approach for dairy producers, gives customers access to a unique application and complementary web portal that provide insight into genetic progress within their herd. This has been successfully rolled out and adopted by customers in our main bovine markets in North America, Europe and Latin America. The rollout of our new enterprise system, GenusOne, continues with the UK going live in the period with plans to complete implementation across the rest of Europe this year.

Sustainability

Sustainability lies at the heart of what Genus does. We believe that animal genetics play an important role in helping producers meet the increased demands for affordable, nutritious food for all, using fewer resources of water, energy and land.

Within the company, we also continue to reduce the environmental impact of our operations, guided by our Climate Change Policy. During the period, we continued to invest in advanced manure management solutions and to introduce solar arrays at some of our largest sites, which are designed to meet around half of the energy demand on those sites. We also continued to switch to lower carbon fuel sources. Our longer-term aims are to reduce our primary intensity ratio (against our 2019 baseline) by 25% by 2030 and to become a 'net zero' greenhouse gas emissions business by 2050. We are making good progress and are on track to achieve these objectives.

People

As a people-focused business, Genus encourages and enables employees at all levels of the company to develop and broaden their skill base and build fulfilling and successful careers. During the period, we continued to enhance and expand the range of learning opportunities and development programmes we offer, and won recognition for the intern program we have in the US, one of several programs we have around the world where we are attracting the next generation of talent. We continued to strengthen diversity and inclusion across the company, with steps including the introduction of a global minimum provision of family leave. We also introduced a new employee share scheme, TakeStock, to give our people an opportunity to share in the success they create. This is currently open to employees in the US and UK, with an intention to expand over time to other countries.

Outlook

As stated above, conditions remain challenging for our customers in several parts of the world. The most volatile conditions are currently being experienced by Chinese pig producers and Brazilian beef producers, and whilst there is some uncertainty as to when a sustained improvement will occur in those markets, we are confident that Genus remains well-placed to take advantage of a recovery. However, the performances of our business elsewhere, in particular in North America, are a testament to the benefits of Genus's geographic diversification and the strength of our strategy. More broadly, our strong product portfolio and depth of talent in our company give us confidence that we will continue to make strategic and financial progress. Taking these factors into account, the Board's expectations for the 2023 fiscal year remain unchanged.

Genus PIC - Operating Review

Six months ended 31 December	Actual currency			Constant currency change
	2022	2021	Change	
	£m	£m	%	%
Revenue	**179.0**	143.5	25	12
Adjusted operating profit exc JV	**70.1**	52.2	34	19
Adjusted operating profit inc JV	**76.8**	57.0	35	19
Adjusted operating margin exc JV	**39.2%**	36.4%	2.8pts	2.5pts

PIC increased adjusted profit by 19% in constant currency, compared with the same period last year. This was

driven by growth in North America, Latin America (in particular Mexico) and Asia (in particular China). Volumes rose by 5%, revenue by 12% and royalty revenue by 14%.

The performance in China improved, particularly the growth from royalty contracts as customers began recovering from the previous year's downturn. Adjusted profit increased to £8.8m (2021: £1.0m), with the prospect of further growth as producers replace and rebuild sow herds over time using PIC's genetics, although current volatility in the market is creating challenges for producers.

Although the business experienced more difficult conditions in Europe, its focus on product differentiation, predictable customer experience and world-class support services ensured further progress during this period. This is reflected in the 14% growth in royalty revenue in the region.

North America

The size of the US breeding herd remained stable during the period, ending the decline seen in the previous two years which saw an overall reduction of around 5%. Domestic demand was stable while exports strengthened, due particularly to demand from China, South Korea, Dominican Republic and Mexico. Pig prices remained high for much of the period, and producers continued to achieve positive margins despite higher input costs, but pig prices declined at the end of the period due to backlogs at processors caused by worse-than-normal winter weather, putting pressure on producer's current margins.

Performance: A strong performance, with further increases in market share through volume growth across both sireline and damline products (volumes up 10% and 12% respectively) was achieved. This was driven by growth of business with strategic accounts, aided by the popularity of the PIC800 sire, as well as from Olymel following the acquisition of its genetics programme in February 2022

- volumes +11%
- revenue +17% and royalty revenue +10%
- adjusted operating profit +14%

Latin America

In Brazil, lower feed prices helped to boost producer margins. Production increased during the period and exports rose, due in particular to renewed demand from China. Both production and exports are expected to grow again during 2023, although at a slower pace than 2022. In Mexico, the region's other major market, pork prices remained near record highs. This helped to offset higher feed costs, which dipped during the period but remained around 50% above pre-pandemic levels. Production continued to rise gradually and is expected to grow by a further 3% in 2023.

Performance: Lower sales of breeding stock meant a decline in volumes and revenue, compared with strong sales the previous year, however all markets achieved adjusted profit growth due to double-digit increases in royalty revenue following the prior year's expansion of business with strategic accounts.

- volumes -3%
- revenue -10% and royalty revenue +14%
- adjusted operating profit +12%

Europe

Pork production continued to contract during the period, particularly in UK, Germany, Poland and Denmark. Prices rose as a result of tighter supply and exports declined, despite a small increase in demand from China. These factors, combined with the impact of ASF outbreaks, create an uncertain outlook for producers and processors in 2023. Production is expected to decline by a further 3-4% during the year.

Performance: Increases in volumes and revenue, primarily driven by strong breeding stock sales through royalty contracts in Spain, supporting ongoing expansion projects with key customers, and royalty growth in Russia. However, adjusted profits declined as a result of lower volumes in Germany, following herd health issues in the market, and in the UK due to the market factors highlighted.

- volumes +4%
- revenue +13% and royalty revenue +5%
- adjusted operating profit -5%

Asia

China experienced significant volatility, as pig prices rose to 28 RMB/kg in October before declining sharply to 17 RMB/kg through the end of the period, and 15 RMB/kg currently. There was culling of animals amid seasonal ASF outbreaks and reduced demand as COVID-19 infections rose following the removal of restrictions in December. However, as this situation stabilises, prices are expected to improve in the Spring/Summer of 2023. Elsewhere in the region, the Philippines continued to be impacted by ASF, while economic growth stimulated consumer demand in Vietnam.

Performance: Adjusted profit increased by over 150%, driven by profit growth in China, from £1.0m to £8.8m, arising from higher royalty revenue and improved by-product margins. In the prior period, China had also incurred a one-time customer refund of £3.7 million. Outside China, performance was affected by market conditions: in Japan and the Philippines market volatility, driven by lower pig prices as production increases, impacted profitability, whereas Vietnam grew profits slightly as economic conditions improved.

- volumes +10% (China +23%)
- revenue +4% and royalty revenue +58% (China +11% and +102% respectively)
- adjusted operating profit +154% (China +642%)

Genus ABS - Operating Review

Six months ended 31 December	Actual currency			Constant currency change
	2022	2021	Change	
	£m	£m	%	%
Revenue	**160.8**	130.9	23	13
Adjusted operating profit	**22.5**	22.1	2	(7)
Adjusted operating margin	**14.0%**	16.9%	(2.9)pts	(2.9)pts

Overall, ABS volumes rose by 4% compared with the same period last year. Dairy customers continued to transition to Sexcel and NuEra beef genetics in their herds, with sexed volumes rising by 14%, while beef volumes remained stable against strong growth in the same period last year. Revenue rose by 13%, due to the growing use of sexed genetics and robust price increases. Profits grew strongly in North America, Europe and Asia. However, despite ABS increasing its share of business across both beef and dairy in Latin America, volumes and profit from the region declined by 3% and 18% respectively, due to challenging market conditions. In addition, ABS invested to support its digital strategy and experienced adverse production cost variances due to lower units produced primarily related to the IT incident in June 2022. These impacts were partially offset by lower patent royalty payments to ST following the settlement of the 987 appeal, the fee award appeal, and the Indian patent litigation. Other elements of the litigation remain ongoing (refer to note 3 of the financial statements).

North America

Dairy demand was resilient, with milk production and cow numbers both increasing, and producers remained profitable. Production is expected to increase in 2023, although higher feed costs may reduce margins. U.S. beef production and exports reached record highs by the end of the period, following the acceleration of cattle culling due to drought conditions, but both are expected to be lower in 2023.

Performance: Double-digit growth in revenue and adjusted profit, driven from growth with strategic accounts. Sales of Sexcel sexed genetics, provision of udder care products and robust price increases were all contributory factors and more than offset a small decline in beef volumes from the record first-half performance in the prior period.

- total volumes +5%, sexed volumes +24%, beef volumes -4%
- revenue +18%
- adjusted operating profit +26%

Latin America

Producers in Latin America faced very challenging conditions during the period, as a result of the effect of inflation on both input costs and consumer demand, as well as drought in a large part of the region. Beef cattle prices in Brazil declined, as supply exceeded weak domestic demand, despite rising exports driven particularly by demand from China. Mexican beef production continued to grow, reaching a record high in December. Following a record fall in the first half of 2022, milk production in Brazil began to recover. In 2023, it is expected that confidence in both the dairy and beef industries will be affected by ongoing inflationary pressures and political uncertainty across the region.

Performance: The increase in revenue and market share was aided by further rises in digital sales (now representing 20% of volumes) and growth in long-term partnerships with strategic accounts. However, the challenging market conditions for producers led to a decline in demand for genetics, particularly in the embryo business, while high business cost inflation also had an adverse impact.

- total volumes -3%, sexed volumes +1%, beef volumes stable
- revenue +3%
- adjusted operating profit -18%

Europe

High beef and dairy prices generally offset rising costs faced by producers during the period. However, the impact of inflation dampened consumer demand and added to high levels of economic uncertainty across the region, undermining producer confidence. For both dairy and beef, this situation is expected to persist and increase pressure on margins further in 2023.

Performance: Increases in beef and sexed volumes, particularly across France, Spain, Northern Ireland and Russia, were offset by the decline in conventional semen volumes which led to the overall volume decrease. Rises in both revenue and adjusted profit were aided by robust price increases and growth in long-term partnerships with strategic accounts.

- total volumes -2%, sexed volumes +13%, beef volumes +6%
- revenue +10%
- adjusted operating profit +8%

Asia

In Australia, favourable climatic conditions continued to support strong beef cattle prices, but excessive rainfall impacted milk production. In China, beef prices remained stable while dairy producers continued to increase milk production and build the domestic inventory, despite COVID-19 impacting the demand for dairy products.

Elsewhere in the region, outbreaks of disease had a small impact on milk production in India, while rising inflation in Japan dampened consumer demand.

Performance: Double digit growth in both volumes and adjusted profits, driven by strong increases in dairy conventional and sexed volumes in China. There was higher demand for sexed and beef genetics in Australia and growth in business in India through the contract with the Indian Government secured in the prior period, partially offset by declines in Japan.

- total volumes +15%, sexed volumes +12%, beef volumes -9%
- revenue +21%
- adjusted operating profit +11%

Research and Development - Operating Review

Six months ended 31 December	Actual currency			Constant currency change
	2022	2021	Change	
	£m	£m	%	%
Porcine product development	**13.0**	10.3	26	12
Bovine product development	**12.4**	10.5	18	3
Gene editing	**7.7**	3.6	114	86
Other research and development	**9.4**	7.0	34	17
Net expenditure in R&D	**42.5**	31.4	35	18

Net investment in R&D expenditure rose by 18% during the period, as planned, as we made further progress on the range of research programmes, technologies and product development initiatives we are pursuing to deliver additional value for customers in the coming years.

Porcine product development

Porcine product development delivered further improvements in genetic gain by combining leading-edge scientific techniques, expanded genetic production and the use of robust data. During the period, we continued to refine genomic selection and explore digital tools for capturing new or novel traits. We also continued to increase production of animals across our network of elite farms, including our Atlas facility in Canada which is now fully operational and reaching full capacity.

Bovine product development

We continued to strengthen our pipeline of proprietary dairy genetics through De Novo Genetics, our joint venture with De-Su Holsteins. De Novo animals represent more than half of our dairy line-up. In parallel, we continued to invest in improving our proprietary technology for producing sexed semen.

We also continued to develop our proprietary offer for beef, NuEra Genetics, which accounts for one third of our total beef volumes, and accelerated product differentiation through robust testing. We increased the number of product validation trials, which continued to demonstrate the superior performance of NuEra Genetics compared with competitors.

Gene editing

We continued to make progress on our PRRSv resistance project, while maintaining engagement with the US FDA as we seek regulatory approval for our gene-edited animals. This engagement is enabling us to continue refining the pathway for regulatory approval. More widely, beyond the US, we continued to engage with regulatory bodies and agencies in other target markets around the world. In parallel, we increased investment in preparations for the potential commercialisation of PRRSv-resistant pigs, expanding our population of gene-edited animals by over 50% during the period. We also continued to advance projects evaluating the potential for responsible use of gene editing to combat other porcine diseases.

Other research and development

Other research and development expenditure increased by 17%, supporting further investment in areas such as genome science, bioinformatics and data science. This investment also helped us further progress our research into the field of reproductive biology, and to continue working with external partners on other discovery projects.

Principal Risks and Uncertainties

Genus's approach to risk management is to identify, evaluate and prioritise risks and uncertainties so we can take action to mitigate them. The Genus plc Annual Report 2022 (a copy of which is available on the Genus plc website at www.genusplc.com) sets out on pages 43-46 the principal risks and uncertainties that might impact the performance of the Group.

Some of these risks relate to current business operations in global agricultural markets, while others relate to future commercialisation of our leading-edge R&D programmes. We are also exposed to global economic and political risks such as trade restrictions and the ongoing war in Ukraine, along with global pandemics in animal and human healthcare that can have a material impact on our business performance and markets. Additionally, we monitor emerging risks such as changing consumption patterns, environmental sustainability expectations and the evolution of alternative proteins such as lab-based meat.

On 7 November 2022, Genus was granted a General Licence from UK Treasury in relation to the UK sanctions regime (INT/2022/2349952). The licence permits Genus to continue to trade in "agricultural commodities" including reproductive materials, with Russian entities, consistent with terms of the licence.

There has been no other material change to the principal risks in the current financial year that might affect the performance of the Group.

GENUS PLC
CONDENSED CONSOLIDATED INCOME STATEMENT
For the six months ended 31 December 2022

	Note	**Six months ended 31 December 2022 £m**	Six months ended 31 December 2021 £m	Year ended 30 June 2022 £m
REVENUE	2	**350.2**	281.2	593.4
Adjusted operating profit	2	**41.2**	35.0	68.8
Adjusting items:				
- Net IAS 41 valuation movement on biological assets	8	**(17.2)**	(6.8)	(5.4)
- Amortisation of acquired intangible assets	7	**(4.8)**	(3.8)	(8.3)
- Share-based payment expense		**(2.3)**	(2.2)	(3.7)
		(24.3)	(12.8)	(17.4)
Exceptional items (net)	3	**(2.2)**	1.7	(2.0)
Total adjusting items		**(26.5)**	(11.1)	(19.4)
OPERATING PROFIT		**14.7**	23.9	49.4
Share of post-tax profit of joint ventures and associates retained	10	**6.4**	3.2	5.2
Finance costs	4	**(6.1)**	(2.8)	(6.6)
Finance income	4	**-**	0.1	0.4
PROFIT BEFORE TAX		**15.0**	24.4	48.4
Taxation	5	**(3.0)**	(5.5)	(11.7)
PROFIT FOR THE PERIOD		**12.0**	18.9	36.7
ATTRIBUTABLE TO:				
Owners of the Company		**13.4**	19.9	40.9
Non-controlling interest		**(1.4)**	(1.0)	(4.2)
		12.0	18.9	36.7
EARNINGS PER SHARE				
Basic earnings per share	14	**20.4p**	30.4p	62.5p
Diluted earnings per share	14	**20.3p**	30.2p	62.2p
Alternative Performance Measures				
Adjusted operating profit		**41.2**	35.0	68.8
Adjusted operating profit attributable to non-controlling interest		**0.2**	(0.2)	(0.3)
Pre-tax share of profits from joint ventures and associates excluding net IAS 41 valuation movement		**6.9**	4.9	9.2
Gene editing costs		**7.7**	3.6	7.9
Adjusted operating profit including joint ventures and associates, excluding gene editing costs		**56.0**	43.3	85.6
Gene editing costs		**(7.7)**	(3.6)	(7.9)
Adjusted operating profit including joint ventures and associates		**48.3**	39.7	77.7
Net finance costs	4	**(6.1)**	(2.7)	(6.2)
Adjusted profit before tax		**42.2**	37.0	71.5
Adjusted earnings per share				
Basic adjusted earnings per share	14	**48.8p**	42.4p	82.7p
Diluted adjusted earnings per share	14	**48.5p**	42.1p	82.3p

Adjusted results are the Alternative Performance Measures ('APMs') used by the Board to monitor underlying performance at a Group and operating segment level, which are applied consistently throughout. These APMs should be considered in addition to statutory measures, and not as a substitute for or as superior to them. For more information on APMs, see APM Glossary.

GENUS PLC
CONDENSED CONSOLIDATED STATEMENT OF COMPREHENSIVE INCOME
For the six months ended 31 December 2022

	Six months ended 31 December 2022		Six months ended 31 December 2021		Year ended 30 June 2022	
	£m	**£m**	£m	£m	£m	£m
PROFIT FOR THE PERIOD		**12.0**		18.9		36.7
Items that may be reclassified subsequently to profit or loss						
Foreign exchange translation differences	**(4.5)**		4.6		66.6	

Fair value movement on net investment hedges	**(0.9)**	0.2	(0.7)	
Fair value movement on cash flow hedges	**0.6**	-	1.9	
Tax relating to components of other comprehensive expense	**0.7**	(1.3)	(8.2)	
	(4.1)	3.5		59.6
Items that may not be reclassified subsequently to profit or loss				
Actuarial (losses)/gains on retirement benefit obligations	**(36.4)**	24.1	27.3	
Movement on pension asset recognition restriction	**36.9**	(24.0)	(69.8)	
Release of additional pension liability	**-**	-	43.7	
Gain/(loss) on equity instruments measured at fair value	**1.1**	-	(6.1)	
Tax relating to components of other comprehensive (expense)/income	**(0.3)**	-	1.1	
	1.3	0.1		(3.8)
OTHER COMPREHENSIVE (EXPENSE)/INCOME FOR THE PERIOD	**(2.8)**	3.6		55.8
TOTAL COMPREHENSIVE INCOME FOR THE PERIOD	**9.2**	22.5		92.5
ATTRIBUTABLE TO:				
Owners of the Company	**10.9**	23.7	97.3	
Non-controlling interest	**(1.7)**	(1.2)	(4.8)	
	9.2	22.5		92.5

GENUS PLC
CONDENSED CONSOLIDATED STATEMENT OF CHANGES IN EQUITY
For the six months ended 31 December 2022

	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 2021		6.6	179.1	(0.1)	(7.9)	-	320.4	498.1	(1.5)	496.6
Foreign exchange translation differences, net of tax		-	-	-	59.4	-	-	59.4	(0.6)	58.8
Fair value movement on net investment hedges, net of tax		-	-	-	(0.6)	-	-	(0.6)	-	(0.6)
Fair value movement on cash flow hedges, net of tax		-	-	-	-	1.4	-	1.4	-	1.4
Loss on equity instruments measured at fair value, net of tax		-	-	-	-	-	(4.6)	(4.6)	-	(4.6)
Actuarial gains on retirement benefit obligations, net of tax		-	-	-	-	-	19.5	19.5	-	19.5
Movement on pension asset recognition restriction, net of tax		-	-	-	-	-	(49.7)	(49.7)	-	(49.7)
Recognition of additional pension liability, net of tax		-	-	-	-	-	31.0	31.0	-	31.0
Other comprehensive income for the year		-	-	-	58.8	1.4	(3.8)	56.4	(0.6)	55.8
Profit/(loss) for the year		-	-	-	-	-	40.9	40.9	(4.2)	36.7
Total comprehensive income for the year		-	-	-	58.8	1.4	37.1	97.3	(4.8)	92.5
Recognition of share-based payments, net of tax		-	-	-	-	-	4.0	4.0	-	4.0
Dividends	6	-	-	-	-	-	(20.9)	(20.9)	-	(20.9)
Adjustment arising from change in non-controlling interest and written put option		-	-	-	-	-	-	-	(0.1)	(0.1)
BALANCE AT 30 JUNE 2022		6.6	179.1	(0.1)	50.9	1.4	340.6	578.5	(6.4)	572.1
Foreign exchange translation differences, net of tax		**-**	**-**	**-**	**(3.7)**	**-**	**-**	**(3.7)**	**(0.3)**	**(4.0)**
Fair value movement on net investment hedges, net of tax		**-**	**-**	**-**	**(0.7)**	**-**	**-**	**(0.7)**	**-**	**(0.7)**
Fair value movement on cash flow hedges, net of tax		**-**	**-**	**-**	**-**	**0.6**	**-**	**0.6**	**-**	**0.6**
Gain on equity instruments measured at fair value, net of tax		**-**	**-**	**-**	**-**	**-**	**0.8**	**0.8**	**-**	**0.8**
Actuarial losses on retirement benefit obligations, net of tax		**-**	**-**	**-**	**-**	**-**	**(29.4)**	**(29.4)**	**-**	**(29.4)**
Movement on pension asset recognition restriction, net of tax		**-**	**-**	**-**	**-**	**-**	**29.9**	**29.9**	**-**	**29.9**
Other comprehensive expense for the period		**-**	**-**	**-**	**(4.4)**	**0.6**	**1.3**	**(2.5)**	**(0.3)**	**(2.8)**
Profit/(loss) for the period		**-**	**-**	**-**	**-**	**-**	**13.4**	**13.4**	**(1.4)**	**12.0**
Total comprehensive income for the period		**-**	**-**	**-**	**(4.4)**	**0.6**	**14.7**	**10.9**	**(1.7)**	**9.2**
Recognition of share-based		**-**	**-**	**-**	**-**	**-**	**2.9**	**2.9**	**-**	**2.9**

payments, net of tax										
Dividends	6	**-**	**-**	**-**	**-**	**-**	**(14.2)**	**(14.2)**	**-**	**(14.2)**
Adjustment arising from change in non-controlling interest and written put option		**-**	**-**	**-**	**-**	**-**	**-**	**-**	**(0.1)**	**(0.1)**
BALANCE AT 31 DECEMBER 2022		**6.6**	**179.1**	**(0.1)**	**46.5**	**2.0**	**344.0**	**578.1**	**(8.2)**	**569.9**

	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 2021		6.6	179.1	(0.1)	(7.9)	-	320.4	498.1	(1.5)	496.6
Foreign exchange translation differences, net of tax		-	-	-	3.5	-	-	3.5	(0.2)	3.3
Fair value movement on net investment hedges, net of tax		-	-	-	0.2	-	-	0.2	-	0.2
Actuarial gains on retirement benefit obligations, net of tax		-	-	-	-	-	18.8	18.8	-	18.8
Movement on pension asset recognition restriction, net of tax		-	-	-	-	-	(18.7)	(18.7)	-	(18.7)
Other comprehensive income for the period		-	-	-	3.7	**-**	0.1	3.8	(0.2)	3.6
Profit/(loss) for the period		-	-	-	-	-	19.9	19.9	(1.0)	18.9
Total comprehensive income/(expense) for the period		-	-	-	3.7	-	20.0	23.7	(1.2)	22.5
Recognition of share-based payments, net of tax		-	-	-	-	-	1.5	1.5	-	1.5
Dividends	6	-	-	-	-	-	(14.2)	(14.2)	-	(14.2)
BALANCE AT 31 DECEMBER 2021		6.6	179.1	(0.1)	(4.2)	-	327.7	509.1	(2.7)	506.4

GENUS PLC
CONDENSED CONSOLIDATED BALANCE SHEET
As at 31 December 2022

	Note	**31 December 2022 £m**	31 December 2021 £m	30 June 2022 £m
ASSETS				
Goodwill		**111.7**	102.2	111.0
Other intangible assets	7	**68.4**	55.4	72.0
Biological assets	8	**322.7**	288.2	333.7
Property, plant and equipment	9	**168.3**	142.2	171.4
Interests in joint ventures and associates	10	**49.1**	36.1	41.2
Other investments		**11.7**	15.9	10.2
Derivative financial assets	17	**2.6**	**-**	2.2
Other receivables	12	**8.1**	1.8	8.6
Deferred tax assets		**10.1**	5.1	10.1
TOTAL NON-CURRENT ASSETS		**752.7**	646.9	760.4
Inventories	11	**59.2**	44.3	50.9
Biological assets	8	**30.9**	36.6	33.1
Trade and other receivables	12	**135.9**	118.1	129.5
Cash and cash equivalents		**42.3**	45.9	38.8
Income tax receivable		**2.0**	3.6	4.0
Derivative financial assets	17	**0.9**	0.6	1.0
Asset held for sale		**0.2**	0.2	0.2
TOTAL CURRENT ASSETS		**271.4**	249.3	257.5
TOTAL ASSETS		**1,024.1**	896.2	1017.9
LIABILITIES				
Trade and other payables	13	**(110.8)**	(113.1)	(124.7)
Interest-bearing loans and borrowings		**(7.3)**	(10.6)	(7.1)
Provisions		**(2.1)**	(1.6)	(1.9)
Deferred consideration		**-**	(1.3)	(0.8)
Obligations under leases		**(9.9)**	(8.6)	(10.1)
Tax liabilities		**(1.8)**	(4.3)	(4.9)
Derivative financial liabilities	17	**(1.7)**	(1.2)	(1.8)
TOTAL CURRENT LIABILITIES		**(133.6)**	(140.7)	(151.3)
Trade and other payables	13	**-**	(1.3)	(0.2)
Interest-bearing loans and borrowings		**(214.9)**	(151.0)	(182.1)
Retirement benefit obligations	16	**(7.3)**	(8.8)	(8.3)

	Note	31 December 2022 £m	31 December 2021 £m	30 June 2022 £m
Provisions		**(11.8)**	(10.9)	(12.0)
Deferred consideration		**(0.6)**	(0.6)	(0.7)
Deferred tax liabilities		**(50.8)**	(50.9)	(60.3)
Derivative financial liabilities	17	**(6.3)**	(6.6)	(6.4)
Obligations under leases		**(24.7)**	(19.0)	(24.5)
TOTAL NON-CURRENT LIABILITIES		**(320.6)**	(249.1)	(294.5)
TOTAL LIABILITIES		**(454.2)**	(389.8)	(445.8)
NET ASSETS		**569.9**	506.4	572.1
EQUITY				
Called up share capital		**6.6**	6.6	6.6
Share premium account		**179.1**	179.1	179.1
Own shares		**(0.1)**	(0.1)	(0.1)
Translation reserve		**46.5**	(4.2)	50.9
Hedging reserve		**2.0**	**-**	1.4
Retained earnings		**344.0**	327.7	340.6
EQUITY ATTRIBUTABLE TO OWNERS OF THE COMPANY		**578.1**	509.1	578.5
Non-controlling interest		**(2.5)**	2.5	(0.7)
Put option over non-controlling interest		**(5.7)**	(5.2)	(5.7)
TOTAL NON-CONTROLLING INTEREST		**(8.2)**	(2.7)	(6.4)
TOTAL EQUITY		**569.9**	506.4	572.1

GENUS PLC
CONDENSED CONSOLIDATED GROUP STATEMENT OF CASH FLOWS
For the six months ended 31 December 2022

	Note	Six months ended 31 December 2022 £m	Six months ended 31 December 2021 £m	Year ended 30 June 2022 £m
NET CASH FLOW FROM OPERATING ACTIVITIES	15	**11.8**	11.6	34.3
CASH FLOWS FROM INVESTING ACTIVITIES				
Dividends received from joint ventures and associates		**-**	-	3.2
Acquisition of joint venture and associate		**(2.0)**	(1.1)	(2.2)
Disposal of joint venture and associate		**-**	0.1	-
Acquisition of trade and assets		**-**	(0.2)	(0.8)
Acquisition of Olymel AlphaGene assets		**-**	-	(14.5)
Acquisition of investments		**(0.4)**	(0.1)	(1.0)
Payment of deferred consideration		**(0.8)**	(0.5)	(1.0)
Purchase of property, plant and equipment		**(10.7)**	(24.1)	(42.1)
Purchase of intangible assets		**(4.3)**	(3.7)	(8.8)
Proceeds from sale of property, plant and equipment		**-**	0.1	-
NET CASH OUTFLOW FROM INVESTING ACTIVITIES		**(18.2)**	(29.5)	(67.2)
CASH FLOWS FROM FINANCING ACTIVITIES				
Drawdown of borrowings		**80.1**	62.8	138.7
Repayment of borrowings		**(47.2)**	(25.4)	(83.9)
Payment of lease liabilities		**(5.9)**	(5.2)	(11.3)
Equity dividends paid		**(14.2)**	(14.2)	(20.9)
Dividend to non-controlling interest		**(0.1)**	-	(0.1)
Debt issue costs		**(1.1)**	(0.6)	(0.6)
NET CASH INFLOW FROM FINANCING ACTIVITIES		**11.6**	17.4	21.9
NET INCREASE/(DECREASE) IN CASH AND CASH EQUIVALENTS		**5.2**	(0.5)	(11.0)
Cash and cash equivalents at start of period		**38.8**	46.0	46.0
Net increase/(decrease) in cash and cash equivalents		**5.2**	(0.5)	(11.0)
Effect of exchange rate fluctuations on cash and cash equivalents		**(1.7)**	0.4	3.8
TOTAL CASH AND CASH EQUIVALENTS AT END OF PERIOD		**42.3**	45.9	38.8

GENUS PLC
ANALYSIS OF NET DEBT
For the six months ended 31 December 2022

	At 1 July 2022 £m	Net cash flows £m	Foreign exchange £m	Non-cash movement £m	At 31 December 2022 £m
Cash and cash equivalents	**38.8**	**5.2**	**(1.7)**	**-**	**42.3**

Interest-bearing loans - current	**(7.1)**	**0.4**	**(0.1)**	**(0.5)**	**(7.3)**
Lease liabilities - current	**(10.1)**	**5.9**	**0.1**	**(5.8)**	**(9.9)**
	(17.2)	**6.3**	**-**	**(6.3)**	**(17.2)**
Interest-bearing loans - non-current	**(182.1)**	**(32.2)**	**(0.6)**	**-**	**(214.9)**
Lease liabilities - non-current	**(24.5)**	**-**	**0.3**	**(0.5)**	**(24.7)**
	(206.6)	**(32.2)**	**(0.3)**	**(0.5)**	**(239.6)**
Total debt financing	**(223.8)**	**(25.9)**	**(0.3)**	**(6.8)**	**(256.8)**
Net debt	**(185.0)**	**(20.7)**	**(2.0)**	**(6.8)**	**(214.5)**

	At 1 July 2021 £m	Net cash flows £m	Foreign exchange £m	Non-cash movement £m	At 31 December 2021 £m
Cash and cash equivalents	46.0	(0.5)	0.4	-	45.9
Interest-bearing loans - current	(13.9)	3.8	(0.1)	(0.4)	(10.6)
Lease liabilities - current	(9.0)	5.2	(0.1)	(4.7)	(8.6)
	(22.9)	9.0	(0.2)	(5.1)	(19.2)
Interest-bearing loans - non-current	(109.4)	(40.6)	(1.0)	-	(151.0)
Lease liabilities - non-current	(19.3)	-	(0.2)	0.5	(19.0)
	(128.7)	(40.6)	(1.2)	0.5	(170.0)
Total debt financing	(151.6)	(31.6)	(1.4)	(4.6)	(189.2)
Net debt	(105.6)	(32.1)	(1.0)	(4.6)	(143.3)

Net debt is gross debt, made up of unsecured bank loans and overdrafts and obligations under finance leases, with a deduction for cash and cash equivalents.

GENUS PLC
NOTES TO THE CONDENSED SET OF FINANCIAL STATEMENTS
For the six months ended 31 December 2022

1. BASIS OF PREPARATION

The unaudited Condensed Set of Financial Statements for the six months ended 31 December 2022:

- were prepared in accordance with International Accounting Standard 34 '*Interim Financial Reporting*' ('IAS 34') and thereby have been prepared in conformity with the requirements of the Companies Act 2006 and the International Financial Reporting Standards ('IFRSs') adopted in the United Kingdom;
- 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 2022;
- 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 22 February 2023.

The information relating to the year ended 30 June 2022, with the exception of one disclosure detailed in note 12 and note 17, 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 2022 has not been reviewed by our Auditor.

The unaudited condensed set of financial statements have been prepared on the basis of the accounting policies set out in the Annual Report 2022. The Genus plc Annual Report 2022 (a copy of which is available on the Genus plc website at www.genusplc.com) sets out on pages 43-46 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 period.

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.

Functional and presentational currency
The principal exchange rates were as follows:

	Average			Closing		
	Six months ended 31 December 2022	Six months ended 31 December 2021	Year ended 30 June 2022	**31 December 2022**	31 December 2021	30 June 2022
US Dollar/£	**1.18**	1.36	1.32	**1.21**	1.35	1.22
Euro/£	**1.16**	1.17	1.18	**1.13**	1.19	1.16
Brazilian Real/£	**6.16**	7.40	6.94	**6.39**	7.54	6.39
Mexican Peso/£	**23.38**	27.90	26.97	**23.57**	27.76	24.45
Chinese Yuan/£	**8.24**	8.73	8.55	**8.35**	8.60	8.15
Russian Rouble/£	**74.46**	99.50	98.75	**89.22**	101.20	66.73

Impact of Russian Sanctions
The Group has two group operating companies that are incorporated in Russia - Limited Liability Co. Genus ABS Russia and PIC Genetics LLC ('Russian subsidiaries'). Following the sanctions that have been put in place by the UK and other governments the Group implemented a comprehensive screening process with external counsel to ensure that its Russian entities do not trade with sanctioned individuals or entities controlled by them. The main impact of the sanctions regime has been to categorise the banks in Russia into sanctioned and non-sanctioned banks. When the Russian subsidiaries received money from sanctioned banks they were unable to use the cash without a licence from His Majesty's Treasury ('HMT'). Cash receipts from non-sanctioned banks into the Russian subsidiaries' non-sanctioned banks are available for use in Russia for day-to-day operations.

The Group applied for a licence to HMT on 25 April 2022 to allow the Russian subsidiaries' use of cash receipts from sanctioned banks of non-sanctioned Russian customers for the delivery of porcine and bovine genetics; use money in a non-sanctioned Russian bank account in the name of the Russian subsidiaries to pay Russian suppliers who continue to use sanctioned Russian bank accounts, and to remit any excess money in the Russian subsidiaries non-sanctioned Russian bank account (regardless of whether it was received from a sanctioned or non-sanctioned Russian bank account) to other Genus Group company UK bank accounts.

The HMT Office of Financial Sanctions Implementation (OFSI) issued a general licence for trading in Agricultural Commodities in Russia effective on the 4 November 2022 and provides exemptions to the sanctions regime in connection with the export, production and transport of Agricultural Commodities. This definition includes Reproductive Materials such as are supplied by Genus. Under this General Licence, receipts from non-sanctioned customers received from and before 4 November 2022 from sanctioned banks no longer need to be frozen and can be freely used. Also receipts from a sanctioned customer if made through a non-sanctioned bank no longer need to be frozen and can be freely used. If any customer is or becomes sanctioned and pays through a sanctioned bank these funds would still need to be frozen even after 4 November 2022.

Under the requirements of IAS 7, disclosure is required of cash that is not available to be used by the rest of the Group. As at 31 December 2022, the Group had a cash balance of £4.9m in the Russian subsidiaries of which £0.2m is not currently available to be used by the Group due to being received from sanctioned customers and held in a sanctioned bank.

Management have reviewed the operations and cash flow over a period of 18 months from 31 December 2022 to 30 June 2024 based upon the 2023 and 2024 plans to determine whether the Russian subsidiaries have sufficient non-sanctioned cash flow to enable them to continue day-to-day operations and to meet liabilities as they fall due. The analysis indicates they do have sufficient non-sanctioned cash flow to enable them to meet day-to-day operational needs.

Critical accounting judgement - exercise of control
Management has assessed whether the actions of the UK and Russian Governments have caused the Group to lose control of the Russian subsidiaries, and concluded that the Group does have control for the half year ended 31 December 2022, as defined under IFRS 10 'Consolidated financial statements' over the Russian subsidiaries and are still able to consolidate. Each of the asset balances have been assessed for impairment. The material areas that could give rise to impairment are:
> PIC Russia farm (£3.0m) - the value of the farm is predicated on the future economic benefit of the animals that are being reared there. It is necessary to assess if the open market price (less cost to sell) the property would support the carrying value.
> Trade receivables (£3.0m) - the ongoing financial sanctions may affect the ability of customers to pay the Russian subsidiaries for their products and services. If it is determined that their customers are unlikely to repay these amounts then for a provision is required.
> IAS 41 valuation (£3.0m) - the ongoing impacts of both the local economic outlook and the Russian subsidiaries customers' ability to pay debts as they fall due could result in a reversal of the fair value of the Russian biological assets in the December valuation.

Management will continue to monitor the situation closely to see if any further changes require additional analysis that may result in a different conclusion.

In the event of changes in legislation, such as more restrictive sanctions imposed by the UK Government or actions taken by the Russian Government, management may determine that the Group does not exercise control, as defined under IFRS 10 'Consolidated financial statements', over the assets and operations of the Russian subsidiaries and therefore would not be able to consolidate these companies into the financial statements of the Group. The deconsolidation would mean that the Russian entities would be reclassified as investments and would need to be assessed for impairment. A charge of up to £13.7m may need to be recognised in the Income Statement representing the total net assets of the two Russian subsidiaries. Dependent on the nature of the events leading to the decision to deconsolidate the Russian subsidiaries there may be additional expenses incurred which cannot be estimated at this time. In addition, revenues would not be consolidated into the financial statements of the Genus Group from the date of any deconsolidation. Revenues from the Russian entities were £11.9m in the six months ended 31 December 2022.

New standards and interpretations
In the current period, the Group has applied a number of amendments to IFRS issued by the International Accounting Standards Board that are mandatorily effective for an accounting period that begins after 1 January 2022 and have been implemented with effect from 1 July 2022. These are:
> Amendments to IAS 16 - ' Property, Plant and Equipment - Proceeds before Intended Use';
> Annual Improvements 2018-2020 Cycle;
> Amendments to IAS 37 - ' Onerous Contracts - Cost of Fulfilling a Contract';

Their addition has not had any material impact on the disclosures, or amounts reported in the Group Financial Statements.

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 UK). The Group will continue to assess the impact of these amendments prior to their adoption. These are:

> Amendments to IAS 1 - ' Classification of Liabilities as Current or Non-Current';
> Amendments to IAS 1 and IFRS Practice Statement 2 - ' Disclosure of Accounting Policies';
> Amendments to IAS 12 - ' Deferred Tax related to Assets and Liabilities arising from a Single Transaction';
> Amendments to IAS 8- ' Definition of Accounting Estimates'; and
> Amendments to IFRS 16- ' Lease Liability in a Sale and Leaseback'.

Going Concern

The Genus plc Annual Report 2022 (a copy of which is available on the Genus plc website at www.genusplc.com) sets out on pages 44-46 several 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 fiscal year.
In assessing the appropriateness of adopting the going concern basis of preparing the financial statements, the Board have considered: -
> Genus's Budget, Forecasts and Strategic Plan which forms management's best estimate of the future performance and position of the Group
> Genus's Strategic Plan which forms management's best estimate of the future performance and position of the Group.
> Genus's credit facility agreement which consists of a £190m multi-currency RCF, a 150m US dollar RCF and a US 20m USD bond guarantee. The term of the facility is for four years to August 2025 having already exercised both extension options. Additionally, there is an uncommitted £40m accordion option which can be requested a further two occasions over the remaining lifetime of the facility; and
> The availability of mitigating actions that could be utilised if needed; including reduction in dividends and postponing certain capital spend and investments.

As part of the directors' consideration of the appropriateness of adopting the going concern basis in preparing the financial statements, the Board considered several key factors, including our business model and our strategic framework. In addition, all principal risks identified by the Group were considered in a downside scenario within the viability assessment with specific focus paid to those that could reasonably have a material impact within our outlook period including;
> Growing in emerging markets, which we have modelled through reductions to short term growth expectations, particularly in China;
> Developing products with competitive advantage, modelled through reductions to short term growth expectations because of failing to produce best genetics for our customers or to secure elite genetics;
> Ensuring biosecurity or continuity of supply, which is modelled through one off impacts of disease outbreaks and border closures;
> Impact of the war in Ukraine, modelled through reduction in profit expectations and cash restrictions;
> Financial and operational impact of cyber security incidents; and
> Impact of increased pressures from changes global commodity prices.

The Directors have considered the position if each of the identified principal risks materialised individually and where multiple risks occur in parallel. In addition, we have overlaid this downside scenario, net of mitigating actions.

Based on this assessment our headroom under these sensitivities, including our mitigating actions, remain adequate and the Directors have a reasonable expectation that the Group has adequate resources to continue its operational existence for the foreseeable future and for a period of at least 12 months from the date of this report. Accordingly, the Directors continue to adopt and consider appropriate the going concern basis in preparing the half-yearly report and the Condensed Set of Financial Statements.

Alternative Performance Measures ('APMs')
In reporting financial information, the Group presents APMs, which are not defined or specified under the requirements of IFRS and which are not considered to be a substitute for, or superior to, IFRS measures.

The Group believes that these APMs provide stakeholders with additional helpful information on the performance of the business. The APMs are consistent with how we plan our business performance and report on it in our internal management reporting to the Board and GELT. Some of these measures are also used for the purpose of setting remuneration targets.

For a full list of all APMs please see the Alternative Performance Measures Glossary section at the end of this release.

2. 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 Chief Executive and the Board, to allocate resources to the segments and to assess their performance. The Group's operating and reporting structure comprises three operating segments: Genus PIC, Genus ABS and Genus 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
> Genus Research and Development - our global spend on research and development.

A segmental analysis of revenue, operating profit, segment assets and liabilities and is provided below. We do not include our adjusting items in the income statement segments, as we believe these do not reflect the underlying performance 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.

Revenue

	Six months ended 31 December 2022 £m	Six months ended 31 December 2021 £m	Year ended 30 June 2022 £m
Genus PIC	**179.0**	143.5	306.6
Genus ABS	**160.8**	130.9	272.0
Genus Research and Development			
Porcine product development	**9.0**	6.0	12.4
Bovine product development	**1.4**	0.8	1.7
Gene editing	**-**	-	0.7
Other research and development	**-**	-	-
	10.4	6.8	14.8
	350.2	281.2	593.4

Adjusted 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 face of the Condensed Consolidated Income Statement.

Adjusted operating profit

	Six months ended 31 December 2022 £m	Six months ended 31 December 2021 £m	Year ended 30 June 2022 £m
Genus PIC	**70.1**	52.2	112.3
Genus ABS	**22.4**	22.1	40.5
Genus Research and Development			
Porcine product development	**(13.0)**	(10.3)	(22.4)
Bovine product development	**(12.7)**	(10.4)	(22.8)
Gene editing	**(7.7)**	(3.6)	(7.9)
Other research and development	**(9.4)**	(7.0)	(14.0)
	(42.8)	(31.3)	(67.1)
Adjusted segment operating profit	**49.7**	43.0	85.7
Central	**(8.5)**	(8.0)	(16.9)
Adjusted operating profit	**41.2**	35.0	68.8

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

Exceptional items of £2.2m net expense (2021: £1.7m credit) relate to Genus ABS (£2.0m net expense) and our central segment (£0.2m expense). Note 3 provides details of these exceptional items.

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

Other segment information

	Segment assets			**Segment liabilities**		
	31 December 2022 £m	31 December 2021 £m	30 June 2022 £m	**31 December 2022 £m**	31 December 2021 £m	30 June 2022 £m
Genus PIC	**294.8**	253.8	305.4	**(65.4)**	(63.3)	(73.4)
Genus ABS	**278.4**	232.9	261.4	**(72.1)**	(77.7)	(78.9)
Genus Research and Development						
Research	**15.8**	18.3	14.7	**(4.0)**	(5.0)	(4.4)
Porcine product development	**276.5**	236.0	275.0	**(53.5)**	(57.8)	(57.7)
Bovine product development	**112.2**	119.0	119.6	**(13.2)**	(21.5)	(16.7)
	404.5	373.3	409.3	**(70.7)**	(84.3)	(78.8)
Segment total	**977.7**	860.0	976.1	**(208.2)**	(225.3)	(231.1)
Central	**46.4**	36.2	41.8	**(246.0)**	(164.5)	(214.7)
Total	**1,024.1**	896.2	1,017.9	**(454.2)**	(389.8)	(445.8)

Revenue by type

	Six months ended 31 December 2022 £m	Six months ended 31 December 2021 £m	Year ended 30 June 2022 £m
Genus PIC	**90.1**	77.4	158.4
Genus ABS	**155.9**	126.5	262.5
Genus Research and Development	**10.4**	6.8	14.8
Sale of animals, semen, embryos and ancillary products and services	**256.4**	210.7	435.7
Genus PIC	**88.9**	66.1	148.2

Genus ABS	**0.5**	0.5	1.1
Genus Research and Development	**-**	-	-
Royalties	**89.4**	66.6	149.3
Genus PIC	**-**	-	-
Genus ABS	**4.4**	3.9	8.4
Genus Research and Development	**-**	-	-
Consulting services	**4.4**	3.9	8.4
Total revenue	**350.2**	281.2	593.4

Revenue from contracts with customers

The Group's revenue is analysed below by the timing at which it is recognised.

	Six months ended 31 December 2022 £m	Six months ended 31 December 2021 £m	Year ended 30 June 2022 £m
Genus PIC	**176.5**	142.0	303.2
Genus ABS	**148.6**	119.3	247.2
Genus Research and Development	**10.4**	6.8	14.1
Recognised at a point in time	**335.5**	268.1	564.5
Genus PIC	**2.5**	1.5	3.4
Genus ABS	**12.2**	11.6	24.8
Genus Research and Development	**-**	-	0.7
Recognised over time	**14.7**	13.1	28.9
Total revenue	**350.2**	281.2	593.4

3. EXCEPTIONAL ITEMS

Operating (expense)/credit

	Six months ended 31 December 2022 £m	Six months ended 31 December 2021 £m	Year ended 30 June 2022 £m
Litigation, settlement and damages (net)	**(1.8)**	(1.8)	(1.4)
Acquisition and integration	**-**	(0.1)	(0.3)
Pension related	**-**	-	(0.4)
Legacy legal claim	**-**	3.6	3.3
ABS production restructuring	**(0.2)**	-	(2.8)
Other	**(0.2)**	-	(0.4)
	(2.2)	1.7	(2.0)

Litigation and damages

Litigation includes legal fees, settlement and related costs of £1.8m (2021: £1.8m) related to the actions between ABS Global, Inc. and certain affiliates ('ABS') and Inguran, LLC and certain affiliates (aka STgenetics ('ST')). The net expense comprises £2.7m of legal costs and a £0.9m settlement credit (see below for further details).

Material litigation activities during the period ended 31 December 2022

In July 2014, ABS launched a legal action against ST in the US District Court for the Western District of Wisconsin and initiated anti-trust proceedings which ultimately enabled the launch of ABS's IntelliGen sexing technology in the US market ('ABS I'). In June 2017, ST filed proceedings against ABS in the same District Court, where ST alleged that ABS infringed seven patents and asserted trade secret and breach of contract claims ('ABS II'). The ABS I and ABS II proceedings in the periods before the year ended 30 June 2021 are more fully described in the Notes to the Financial Statements in previous Annual Reports. ABS sought judgments as a matter of law ('JMOL') in relation to the invalidity of all three of the patents considered in ABS II, JMOLs in relation to the non-infringement of two of those patents, and a reduction in damages awarded by the jury.

On 29 January 2020, ST filed a new US complaint against ABS ('ABS III'). ABS has prepared and filed a response to the ABS III complaint, including a motion to dismiss, on the basis that all these issues were fully resolved in either the ABS I or ABS II litigations.

On 10 March 2020, the USPTO issued patent 10,583,439 (the ''439 patent'), and subsequently ST asked the court for permission to file a supplemental complaint in ABS III asserting infringement of the '439 patent. On 15 April 2020, ST filed a new complaint ('ABS IV'), asserting the same claim of infringement of the '439 patent alleged in its supplemental complaint and then moved to consolidate the ABS IV and ABS III litigation. ABS opposed this action and has filed a motion for summary dismissal. On 23 June 2020, the USPTO issued patent 10,689,210 (the ''210 patent'), and on 6 July 2020, ST sought a second supplement of ABS III by adding a claim of '210 patent infringement. ABS opposed this action.
On September 20, 2022 the USPTO issued patent 11,446,665 (the '665 patent) and ST subsequently sought a third supplement of ABS III by adding a claim of infringement of the '665 patent. ABS has opposed this action as well, and sought dismissal of all infringement claims.

On 26 October 2020 and 10 December 2020, ABS filed Inter Partes Reviews ('IPR') against the '439 and '210 patents with the USPTO. On 4 May 2021, the Patent Trial and Appeal Board ('PTAB') instituted the '439 patent IPR, and the hearing was completed on 2 February 2022. On 7 June 2021, PTAB declined to institute the '210 patent IPR and on 28 April 2022, PTAB issued its decision and declined to invalidate the claims of the '439 patent. ABS has appealed the '439 patent decision (the "439 Appeal").

On 20 December 2021, the Wisconsin Federal Court reached a decision on the ABS III and IV motions, granting ABS's motion to dismiss all claims relating to US patent 8,206,987 (the ''987 patent'), and denying ST's motion to amend ABS III to add the '439 and '210 patents. The court dismissed ABS III in its entirety and entered judgment in favour of ABS. ST has appealed this decision (the "ABS III Appeal").

On 1 July 2022, the court reached a decision on the ABS II post-judgment motions as well as the pending motions in ABS IV. The court deferred to the jury's verdict in ABS II confirming the validity and infringement of US patents 7,311,476, and 7,611,309 (the ''476 and '309 patents' respectively) and the '987 patent, and further confirmed the award of costs to ABS of ~$5.3m in connection with ABS I. In relation to ABS IV, the Court denied ABS' motion to dismiss the '439 and '210 patent claims on the basis that the challenges were too fact-based to be resolved at this stage. ABS filed counterclaims alleging, among other things, anti-competitive conduct and infringement of four ABS patents. A court scheduling conference confirmed a hearing date of 15 July 2024 for ABS IV hearing. Appeals have been filed by ABS on the validity and infringement of the '987 patent (the "987 Appeal"), the '476 and the '309 patents (the "ABS II Appeal") and ST has appealed the award of the $5.3m costs (the "Fee Award Appeal").

Indian Litigation: In September 2019, ST also filed parallel patent infringement proceedings against ABS in India, alleging infringement of the Indian patent 240790 (''790 patent'). The '790 patent is the equivalent of the US 476 and 309 patents US patent 7, 311,476 asserted in ABS II. ABS had already sought the revocation of the '790 patent in April 2017 before the Indian Patent Office and has now consolidated the revocation petition as a counterclaim in the Indian court proceedings (the "Indian Patent Proceedings"). In June 2021, ST appealed the decision of Competition Commission of India ("CCI") which had confirmed that ABS India had not breached the Indian Competition Act in relation to its participation in a sexed semen tender offered by the Utter Pradesh Livestock Development Board (the "CCI Appeal").

On 27 December 2022, ABS and ST settled the 987 Appeal, the Fee Award Appeal and the Indian Patent Proceedings (along with related patent oppositions in India), delivering lower patent royalty payments for ABS and a settlement exceptional credit of £0.9m. The ABS II Appeal, the ABS III Appeal, the ABS IV litigation, the 439 Appeal, and the CCI Appeal remain ongoing.

4. NET FINANCE COSTS

	Six months ended 31 December 2022 £m	Six months ended 31 December 2021 £m	Year ended 30 June 2022 £m
Interest payable on bank loans and overdrafts	**(4.7)**	(1.6)	(4.1)
Amortisation of debt issue costs	**(0.5)**	(0.4)	(0.9)
Other interest payable	**-**	**-**	(0.1)
Unwinding of discount put options	**(0.2)**	(0.3)	(0.2)
Net interest cost in respect of pension scheme liabilities	**(0.1)**	(0.1)	(0.2)
Interest on lease liabilities	**(0.6)**	(0.4)	(1.1)
Total interest expense	**(6.1)**	(2.8)	(6.6)
Interest income on bank deposits	**-**	0.1	0.4
Total interest income	**-**	0.1	0.4
Net finance costs	**(6.1)**	(2.7)	(6.2)

5. TAXATION AND DEFERRED TAXATION

Income tax expense

	Six months ended 31 December 2022 £m	Six months ended 31 December 2021 £m	Year ended 30 June 2022 £m
Current tax	**7.3**	6.6	15.4
Deferred tax	**(4.3)**	(1.1)	(3.7)
Total income tax expense	**3.0**	5.5	11.7

The tax charge for the period of £3.0m (2021: £5.5m) on the statutory profit represents an effective tax rate of 20.0% (2021: 22.5%). The reduction in the statutory ETR of 2.5% results from the reduced deferred tax charge on previously unrecognised losses as explained further below.

The tax charge on adjusted profits for the period is £10.2m (2021: £9.3m), which represents a tax rate on adjusted profits of 24.2% (2021: 25.1%). The Group tax rate has decreased by approximately 90 basis points due to a reduction in the deferred tax charge on previously unrecognised losses in 2022 being a credit of £0.3m (2021: charge of £0.1m).

There is a deferred tax liability at the period end of £55.8m (2021: £50.9m) which mainly relates to the recognition at fair value of biological assets and intangible assets arising on acquisition and a deferred tax asset of £10.1m (2021: £5.1m) which mainly relates to future tax deductions in respect of pension scheme liabilities, losses and share scheme awards.

6. DIVIDENDS

Amounts recognised as distributions to equity holders in the period

	Six months ended 31 December 2022 £m	Six months ended 31 December 2021 £m	Year ended 30 June 2022 £m
Final dividend			
Final dividend for the year ended 30 June 2022 of 21.7 pence per share	**14.2**	-	-
Final dividend for the year ended 30 June 2021 of 21.7 pence per share	**-**	14.2	14.2
Interim dividend			
Interim dividend for the year ended 30 June 2022 of 10.3 pence per share	**-**	-	6.7
	14.2	14.2	20.9

The final dividend for the year ended 30 June 2022 was approved at the Company Annual General Meeting on 23 November 2022 and paid on 08 December 2022.

On 22 February 2023, the Directors proposed an interim dividend of 10.3 pence per share payable on 31 March 2023.

7. OTHER INTANGIBLE ASSETS

	Porcine and bovine genetics technology £m	**Brands, multiplier contracts and customer relationships £m**	**Separately identified acquired intangible assets £m**	**Software £m**	**Assets under construction £m**	**IntelliGen £m**	**Patents, licences and other £m**	**Total £m**
Cost								
Balance at 1 July 2021	51.7	81.6	133.3	20.0	2.7	23.6	4.3	183.9
Additions	4.2	10.3	14.5	0.2	8.6	-	-	23.3
Acquisition	-	0.4	0.4	-	-	-	-	0.4
Transfers	-	-	-	7.7	(7.7)	-	-	-
Effect of movements in exchange rates	0.6	10.6	11.2	1.0	0.1	3.2	0.1	15.6

Balance at 30 June 2022	56.5	102.9	159.4	28.9	3.7	26.8	4.4	223.2
Additions	**-**	**-**	**-**	-	**4.3**	**-**	**-**	**4.3**
Acquisition	**-**	-	-	**-**	**-**	**-**	**-**	-
Transfers	**-**	**-**	**-**	**2.3**	**(2.3)**	**-**	**-**	**-**
Effect of movements in exchange rates	**(0.1)**	**0.1**	-	-	**-**	**0.2**	**-**	**0.2**
Balance at 31 December 2022	**56.4**	**103.0**	**159.4**	**31.2**	**5.7**	**27.0**	**4.4**	**227.7**
Amortisation and impairment losses								
Balance at 1 July 2021	36.0	66.2	102.2	13.0	-	8.4	4.0	127.6
Amortisation for the year	3.0	5.3	8.3	1.7	-	2.5	0.1	12.6
Effect of movements in exchange rates	0.1	8.6	8.7	0.8	-	1.4	0.1	11.0
Balance at 30 June 2022	39.1	80.1	119.2	15.5	-	12.3	4.2	151.2
Disposals	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
Amortisation for the period	**1.6**	**3.2**	**4.8**	**1.4**	**-**	**1.4**	**0.1**	**7.7**
Effect of movements in exchange rates	**0.1**	**0.3**	**0.4**	-	**-**	-	**-**	**0.4**
Balance at 31 December 2022	**40.8**	**83.6**	**124.4**	**16.9**	**-**	**13.7**	**4.3**	**159.3**
Carrying amounts								
At 31 December 2022	**15.6**	**19.4**	**35.0**	**14.3**	**5.7**	**13.3**	**0.1**	**68.4**
At 30 June 2022	17.4	22.8	40.2	13.4	3.7	14.5	0.2	72.0

Included within brands, multiplier contracts and customer relationships are carrying amounts for brands of £0.6m (30 June 2022: £0.5m), multiplier contracts of £10.0m (30 June 2022: £11.1m) and customer relationships of £8.8m (30 June 2022: £11.2m).

Included within the software class of assets is £8.6m (30 June 2022: £6.9m) and included in assets in the course of construction is £2.0m (30 June 2022: £2.7m) that relate to the ongoing development costs of GenusOne, our single global enterprise system.

8. BIOLOGICAL ASSETS

Fair value of biological assets	**Bovine £m**	**Porcine £m**	**Total £m**
Balance at 1 July 2022	**88.0**	**278.8**	**366.8**
Increases due to purchases	**10.7**	**75.7**	**86.4**
Decreases attributable to sales	**-**	**(160.8)**	**(160.8)**
Decrease due to harvest	**(6.9)**	**(15.7)**	**(22.6)**
Changes in fair value less estimated sale costs	**(11.9)**	**97.4**	**85.5**
Effect of movements in exchange rates	**0.6**	**(2.3)**	**(1.7)**
Balance at 31 December 2022	**80.5**	**273.1**	**353.6**
Non-current biological assets	**80.5**	**242.2**	**322.7**
Current biological assets	**-**	**30.9**	**30.9**
Balance at 31 December 2022	**80.5**	**273.1**	**353.6**
Balance at 1 July 2021	92.0	227.5	319.5
Increases due to purchases	10.1	76.5	86.6
Decreases attributable to sales	-	(137.3)	(137.3)
Decrease due to harvest	(9.4)	(12.7)	(22.1)
Changes in fair value less estimated sale costs	(5.0)	76.8	71.8
Effect of movements in exchange rates	1.6	4.7	6.3
Balance at 31 December 2021	89.3	235.5	324.8
Non-current biological assets	89.3	198.9	288.2
Current biological assets	-	36.6	36.6
Balance at 31 December 2021	89.3	235.5	324.8
Balance at 1 July 2021	92.0	227.5	319.5
Increases due to purchases	23.3	225.8	249.1
Decreases attributable to sales	-	(234.8)	(234.8)
Decrease due to harvest	(17.7)	(26.3)	(44.0)
Changes in fair value less estimated sale costs	(19.6)	61.2	41.6
Effect of movements in exchange rates	10.0	25.4	35.4
Balance at 30 June 2022	88.0	278.8	366.8
Non-current biological assets	88.0	245.7	333.7
Current biological assets	-	33.1	33.1
Balance at 30 June 2022	88.0	278.8	366.8

Bovine
Bovine biological assets include £6.3m (2021: £7.1m) representing the fair value of bulls owned by third parties but managed by the Group, net of expected future payments to such third parties, which are therefore treated as assets held under finance leases.

There were no movements in the carrying value of the bovine biological assets in respect of sales or other changes during the period.

A risk-adjusted rate of 16.0% (June 2022: 12.5%) has been used to discount future net cash flows from the sale of bull semen.

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 £28.6m (2021: £39.5m).

Decreases attributable to sales during the period of £160.8m (2021: £137.3m) include £38.7m (2021: £38.0m) 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 £49.1m (2021: £58.2m) 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 £127.6m (2021: £104.1m) in respect of these contracts, comprising £38.7m (2021: £38.0m) on initial transfer of animals and semen to customers and £88.9m (2021: £66.1m) in respect of royalties received.

A risk-adjusted rate of 12.5% (June 2022: 10.3%) has been used to discount future net cash flows from the expected output of the pure line porcine herds. The number of future generations which have been taken into account is seven (2021: seven) and their estimated useful lifespan is 1.4 years (2021: 1.4 years).

Six months ended 31 December 2022

	Bovine £m	**Porcine £m**	**Total £m**
Changes in fair value of biological assets	**(11.9)**	**97.4**	**85.5**
Inventory transferred to cost of sales at fair value	**(0.1)**	**(15.7)**	**(15.8)**
Biological assets transferred to cost of sales at fair value	**-**	**(87.0)**	**(87.0)**
	(12.0)	**(5.3)**	**(17.3)**
Fair value movement in related financial derivative	**-**	**0.1**	**0.1**
Net IAS 41 valuation movement on biological assets[1]	**(12.0)**	**(5.2)**	**(17.2)**

Six months ended 31 December 2021

	Bovine £m	Porcine £m	Total £m
Changes in fair value of biological assets	(5.0)	76.8	71.8
Inventory transferred to cost of sales at fair value	(4.2)	(12.7)	(16.9)
Biological assets transferred to cost of sales at fair value	-	(61.7)	(61.7)
	(9.2)	2.4	(6.8)
Fair value movement in related financial derivative	-	-	-
Net IAS 41 valuation movement on biological assets[1]	(9.2)	2.4	(6.8)

Year ended 30 June 2022

	Bovine £m	Porcine £m	Total £m
Changes in fair value of biological assets	(19.6)	61.2	41.6
Inventory transferred to cost of sales at fair value	(10.3)	(26.3)	(36.6)
Biological assets transferred to cost of sales at fair value	-	(10.3)	(10.3)
	(29.9)	24.6	(5.3)
Fair value movement in related financial derivative	-	(0.1)	(0.1)
Net IAS 41 valuation movement on biological assets[1]	(29.9)	24.5	(5.4)

1 This represents the difference between operating profit prepared under IAS 41 and operating profit prepared under historical cost accounting, which forms part of the reconciliation to adjusted operating profit (see APMs).

9. PROPERTY, PLANT AND EQUIPMENT

	Land and buildings £m	**Plant, motor vehicles and equipment £m**	**Assets under construction £m**	**Total owned assets £m**	**Land and buildings £m**	**Plant, motor vehicles and equipment £m**	**Total right-of-use assets £m**	**Total £m**
Cost or deemed cost								
Balance at 1 July 2021	66.6	88.0	22.1	176.7	20.7	26.0	46.7	223.4
Additions	0.2	3.9	40.3	44.4	9.2	6.1	15.3	59.7
Transfers	23.5	12.8	(36.3)	-	-	-	-	-
Disposals	(1.4)	(2.0)	-	(3.4)	(0.5)	(6.0)	(6.5)	(9.9)
Effect of movements in exchange rates	11.3	10.9	3.5	25.7	2.1	2.3	4.4	30.1
Balance at 30 June 2022	100.2	113.6	29.6	243.4	31.5	28.4	59.9	303.3
Additions	**-**	**1.5**	**6.3**	**7.8**	**1.0**	**5.3**	**6.3**	**14.1**
Transfers	**16.3**	**3.3**	**(19.6)**	**-**	-	-	-	-
Disposals	**-**	**(1.1)**	**-**	**(1.1)**	-	**(4.5)**	**(4.5)**	**(5.6)**
Effect of movements in exchange rates	**(1.7)**	**(0.8)**	**(0.8)**	**(3.3)**	**(0.2)**	**1.0**	**0.8**	**(2.5)**
Balance at 31 December 2022	**114.8**	**116.5**	**15.5**	**246.8**	**32.3**	**30.2**	**62.5**	**309.3**
Depreciation and impairment losses								
Balance at 1 July 2021	24.5	56.9	-	81.4	6.5	12.5	19.0	100.4
Depreciation for the year	3.8	11.0	-	14.8	4.8	6.8	11.6	26.4
Disposals	(1.3)	(1.8)	-	(3.1)	(0.5)	(5.9)	(6.4)	(9.5)
Impairment	0.8	0.1	-	0.9	-	-	-	0.9
Effect of movements in exchange rates	4.4	7.1	-	11.5	0.6	1.6	2.2	13.7
Balance at 30 June 2022	32.2	73.3	-	105.5	11.4	15.0	26.4	131.9
Depreciation for the period	**2.7**	**6.3**	**-**	**9.0**	**2.4**	**3.5**	**5.9**	**14.9**
Disposals	**-**	**(0.7)**	**-**	**(0.7)**	-	**(4.3)**	**(4.3)**	**(5.0)**
Effect of movements in exchange rates	**(0.5)**	**(0.5)**	**-**	**(1.0)**	**(0.4)**	**0.6**	**0.2**	**(0.8)**
Balance at 31 December 2022	**34.4**	**78.4**	**-**	**112.8**	**13.4**	**14.8**	**28.2**	**141.0**
Carrying amounts								
At 31 December 2022	**80.4**	**38.1**	**15.5**	**134.0**	**18.9**	**15.4**	**34.3**	**168.3**
At 30 June 2022	68.0	40.3	29.6	137.9	20.1	13.4	33.5	171.4

10. INTERESTS IN JOINT VENTURES AND ASSOCIATES

The Group's share of profit after tax in its equity accounted investees for the six months ended 31 December 2022 was £6.4m (2021: £3.2m).

The carrying value of the investment is reconciled as follows:

	31 December 2022 £m	31 December 2021 £m
Balance at 1 July	**41.2**	34.1
Share of post-tax retained profits of joint ventures and associates	**6.4**	3.2
Additions	**2.0**	1.1
Disposal	-	(0.1)
Effect of other movements including exchange rates	**(0.5)**	(2.2)
Balance at 31 December	**49.1**	36.1

Summary unaudited financial information for equity accounted investees, adjusted for the Group's percentage ownership, is shown below:

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 2022	**24.4**	**0.9**	**(17.5)**	**(1.4)**	**6.4**
Six months ended 31 December 2021	19.6	(0.4)	(14.7)	(1.3)	3.2
Year ended 30 June 2022	39.9	(1.4)	(30.7)	(2.6)	5.2

11. INVENTORIES

	31 December 2022 £m	31 December 2021 £m	30 June 2022 £m
Biological assets' harvest classed as inventories	**21.8**	19.8	20.9
Raw materials and consumables	**5.1**	3.3	3.6
Goods held for resale	**32.3**	21.2	26.4
	59.2	44.3	50.9

Goods held for resale have increased since June 2022 as a result of increased acquisition of components used to produce the 2nd Generation IntelliGen technology platforms (Gen2.0). These platforms are used to process sexed bovine semen for ABS and third-party customers.

12. TRADE AND OTHER RECEIVABLES

	31 December 2022 £m	(restated*) 31 December 2021 £m	(restated*) 30 June 2022 £m
Trade receivables (restated*)	**94.4**	82.4	95.7
Less expected credit loss allowance	**(3.8)**	(3.6)	(4.3)
Trade receivables net of impairment	**90.6**	78.8	91.4
Other debtors	**8.9**	7.8	10.7
Prepayments	**11.4**	9.3	8.5
Contract assets (restated*)	**21.3**	18.3	17.3
Other taxes and social security	**3.7**	3.9	1.6
Current trade and other receivables	**135.9**	118.1	129.5
Other debtors	**2.2**	1.8	3.7
Contract assets	**5.9**	-	4.9
Non-current other receivables	**8.1**	1.8	8.6
	144.0	119.9	138.1

*During the period it was identified that certain contract assets in a particular component were incorrectly classified as current trade receivables. The prior periods have been restated reducing current trade receivables by £8.5m in December 2021 and £9.6m in June 2022, with a corresponding increase in current contract assets.

Trade receivables
The average credit period our customers take on the sales of goods is 50 days (30 June 2022 (restated*): 56 days). We do not charge interest on receivables for the first 30 days from the date of the invoice.

The Group measures the loss allowance for trade receivables at an amount equal to lifetime expected credit losses ('ECLs'). The ECLs on trade receivables are estimated using a provision matrix by reference to past default experience of the debtor and an analysis of the debtor's current financial position, adjusted for factors that are specific to the general economic conditions of the industry and country in which the debtor operates and an assessment of both the current and the forecast direction of conditions at the reporting date. The Group writes off a trade receivable when there is information indicating that the debtor is in severe financial difficulty and there is no realistic prospect of recovery, such as when the debtor has been placed under liquidation or has entered into bankruptcy proceedings.

No customer represents more than 5% of the total balance of trade receivables (30 June 2022: no more than 5%).

13. TRADE AND OTHER PAYABLES

	31 December 2022 £m	31 December 2021 £m	30 June 2022 £m
Trade payables	**31.5**	29.5	36.0
Other payables	**12.8**	9.7	8.2
Accrued Expenses	**51.0**	54.3	61.4
Contract liabilities	**7.1**	12.1	10.1
Other taxes and social security	**8.4**	7.5	9.0
Current trade and other payables	**110.8**	113.1	124.7
Contract labilities	**-**	1.3	0.2
Non-current trade and other payables	**-**	1.3	0.2
	110.8	114.4	124.9

The average credit period taken for trade purchases is 30 days (30 June 2022: 39 days).

14. EARNINGS PER SHARE

Weighted average number of ordinary shares (diluted)

	Six months ended 31 December 2022 000s	Six months ended 31 December 2021 000s	Year ended 30 June 2022 000s
Weighted average number of ordinary shares (basic)	**65,540**	65,390	65,395
Dilutive effect of share awards and options	**441**	430	319
Weighted average number of ordinary shares for the purpose of diluted earnings per share	**65,981**	65,820	65,714

	Six months ended 31 December 2022 (pence)	Six months ended 31 December 2021 (pence)	Year ended 30 June 2022 (pence)
Earnings per share			
Basic earnings per share	**20.4**	30.4	62.5
Diluted earnings per share	**20.3**	30.2	62.2
Adjusted earnings per share			
Adjusted earnings per share	**48.8**	42.4	82.7
Diluted adjusted earnings per share	**48.5**	42.1	82.3

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 trading performance.

Basic earnings per share is based on the net profit attributable to owners of the Company for the period of £13.4m (six months ended 31 December 2021: £19.9m; year ended 30 June 2022: £40.9m) 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 £32.0m (six months ended 31 December 2021: £27.7m; year ended 30 June 2022: £54.1m), which is calculated as follows:

Adjusted earnings

	Six months ended 31 December 2022 £m	Six months ended 31 December 2021 £m	Year ended 30 June 2022 £m
Profit before tax	**15.0**	24.4	48.4
Add/(deduct):			
Net IAS 41 valuation movement on biological assets (note 8)	**17.2**	6.8	5.4
Amortisation of acquired intangible assets (note 7)	**4.8**	3.8	8.3
Share-based payment expense	**2.3**	2.2	3.7
Exceptional items (see note 3)	**2.2**	(1.7)	2.0
Net IAS 41 valuation movement on biological assets in joint ventures (note 10)	**(0.9)**	0.4	1.4
Tax on joint ventures and associates (note 10)	**1.4**	1.3	2.6
Attributable to non-controlling interest	**0.2**	(0.2)	(0.3)
Adjusted profit before tax	**42.2**	37.0	71.5
Adjusted tax charge	**(10.2)**	(9.3)	(17.4)
Adjusted profit after tax	**32.0**	27.7	54.1
Effective tax rate on adjusted profit	**24.2%**	25.1%	24.3%

15. CASH FLOW FROM OPERATING ACTIVITIES

	Six months ended 31 December 2022 £m	Six months ended 31 December 2021 £m	Year ended 30 June 2022 £m
Profit for the period	**12.0**	18.9	36.7
Adjustment for:			
Net IAS 41 valuation movement on biological assets	**17.2**	6.8	5.4
Amortisation of acquired intangible assets	**4.8**	3.8	8.3
Share-based payment expense	**2.3**	2.2	3.7

Share of profit of joint ventures and associates	**(6.4)**	(3.2)	(5.2)
Finance costs (net)	**6.1**	2.7	6.2
Income tax expense	**3.0**	5.5	11.7
Exceptional items	**2.2**	(1.7)	2.0
Adjusted operating profit from continuing operations	**41.2**	35.0	68.8
Depreciation of property, plant and equipment	**14.9**	12.2	26.4
Loss/(profit) on disposal of plant and equipment	**0.6**	(0.1)	0.4
Amortisation and impairment of intangible assets	**2.9**	2.0	4.3
Adjusted earnings before interest, tax, depreciation and amortisation	**59.6**	49.1	99.9
Cash impact of exceptional items	**(3.0)**	2.7	1.1
Other movements in biological assets and harvested produce	**(6.7)**	(5.8)	(19.1)
Decrease in provisions and release in deferred consideration	**(0.8)**	(0.1)	-
Additional pension contributions in excess of pension charge	**(0.6)**	(2.3)	(3.1)
Other	**0.6**	(0.6)	0.2
Operating cash flows before movement in working capital	**49.1**	43.0	79.0
Increase in inventories	**(7.4)**	(8.2)	(6.1)
Increase in receivables	**(7.1)**	(11.9)	(18.5)
(Decrease)/Increase in payables	**(8.9)**	(0.7)	2.2
Cash generated by operations	**25.7**	22.2	56.6
Interest received	**-**	0.1	0.4
Interest and other finance costs paid	**(4.4)**	(1.7)	(4.0)
Interest on leased assets	**(0.6)**	(0.4)	(1.1)
Cash flow from derivative financial instruments	**(0.2)**	(0.3)	(0.1)
Income taxes paid	**(8.7)**	(8.3)	(17.5)
Net cash from operating activities	**11.8**	11.6	34.3

16. 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 2022. The aggregated position of defined benefit schemes are provided below:

	31 December 2022 £m	31 December 2021 £m	30 June 2022 £m
Present value of funded obligations	**778.1**	1,100.2	857.6
Present value of unfunded obligations	**7.7**	9.0	8.4
Total present value of obligations	**785.8**	1,109.2	866.0
Fair value of plan assets	**(820.2)**	(1,176.1)	(936.3)
Restricted recognition of asset (MPF and DPF)	**41.7**	75.7	78.6
Recognised liability for defined benefit obligations	**7.3**	8.8	8.3

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

	31 December 2022	31 December 2021	30 June 2022
Discount rate	**4.85%**	1.95%	3.90%
Consumer Price Index	**2.55%**	2.30%	2.40%
Retail Price Index	**2.95%**	3.05%	2.90%

The Milk Pension Fund
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 2022.

17. FINANCIAL INSTRUMENTS FAIR VALUE DISCLOSURES

The table below sets out the categorisation of the financial instruments held by the Group at 31 December 2022.

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.

	31 December 2022				(restated*) 31 December 2021					(restated*) 30 June 2022		
	Level 1 £m	**Level 2 £m**	**Level 3 £m**	**Total £m**	Level 1 £m	Level 2 £m	Level 3 £m	Total £m	Level 1 £m	Level 2 £m	Level 3 £m	Total £m
Financial assets												
Other investments	**7.6**	**-**	**4.1**	**11.7**	12.4	-	3.5	15.9	6.5	-	3.7	10.2
Trade receivables and other debtors, excluding prepayments and contract assets (see note 12) (restated*)	**-**	**105.4**	**-**	**105.4**	-	92.3	-	92.3	-	107.4	-	107.4
Cash and cash equivalents	**-**	**42.3**	**-**	**42.3**	-	45.9	-	45.9	-	38.8	-	38.8
Derivative instruments in non-designated hedge accounting relationships	**-**	**0.9**	**-**	**0.9**	-	0.6	-	0.6	-	1.0	-	1.0
Derivate instruments in designated hedge accounting relationships	**-**	**2.6**	**-**	**2.6**	-	-	-	-	-	2.2	-	2.2
	7.6	**151.2**	**4.1**	**162.9**	12.4	138.8	3.5	154.7	6.5	149.4	3.7	159.6

Financial liabilities												
Trade and other payables, excluding other taxes and social security	**-**	**(102.4)**	**-**	**(102.4)**	-	(106.9)	-	(106.9)	-	(115.9)	-	(115.9)
Loans and overdrafts	**-**	**(222.2)**	**-**	**(222.2)**	-	(161.6)	-	(161.6)	-	(189.2)	-	(189.2)
Leasing obligations	**-**	**(34.6)**	**-**	**(34.6)**	-	(27.6)	-	(27.6)	-	(34.6)	-	(34.6)
Derivative instruments in non-designated hedge accounting relationships	**-**	**(0.6)**	**-**	**(0.6)**	-	(0.3)	-	(0.3)	-	(0.9)	-	(0.9)
Derivative instruments in designated hedge accounting relationships	**-**	**-**	**-**	**-**	-	-	-	-	-	(0.3)	-	(0.3)
Put options for purchase of share in an investment	**-**	**-**	**-**	**-**	-	(0.9)	-	(0.9)	-	-	-	-
Put option over non-controlling interest	**-**	**(7.4)**	**-**	**(7.4)**	-	(6.6)	-	(6.6)	-	(7.0)	-	(7.0)
Deferred consideration	**-**	**-**	**(0.6)**	**(0.6)**	-	(0.2)	(1.7)	(1.9)	-	-	(1.5)	(1.5)
	-	**(367.2)**	**(0.6)**	**(367.8)**	-	(304.1)	(1.7)	(305.8)	-	(347.9)	(1.5)	(349.4)

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.

*During the period it was identified that certain contract assets in a particular component were incorrectly classified as current trade receivables. The prior periods have been restated reducing current trade receivables by £8.5m in December 2021 and £9.6m in June 2022, with a corresponding increase in current contract assets.

18. RELATED PARTY TRANSACTIONS

Transactions between the Company and its subsidiaries, which are related parties, have been eliminated on consolidation and are not disclosed in this note.

Bomaz, Inc. and Bogz Dairy, LLC, are well-recognised breeders in the industry, and are related parties to the Group as these entities are under the control of relatives of Nate Zwald, our ABS Dairy COO.

We transact with Bomaz, Inc. and Bogz Dairy, LLC as part of our bull product development effort, under a variety of contracts and agreements. Payments in the six months ended 31 December 2022 amounted to £1.2m (2021: £0.1m). As at 31 December 2022, the balance owing to these entities was £0.1m (2021: £nil), all amounts were settled in cash.

These related party transactions were made on terms equivalent to those that prevail in arms' length transactions.

During the prior year, as part of an international secondment agreement with a member of Genus's executive, Genus agreed to fund an amount of £0.4m in respect of a personal taxation expense. A tax refund has been claimed and cash is expected to be received in Financial Year 2023, which will be used to settle the outstanding amount in full.

Other related party transactions
Transactions between the Group and its joint ventures and associates are described below:

	Transaction value			**Balance outstanding**		
	Six months ended 31 December 2022 £m	Six months ended 31 December 2021 £m	Year ended 30 June 2022 £m	**Six months ended 31 December 2022 £m**	Six months ended 31 December 2021 £m	Year ended 30 June 2022 £m
Sale of goods and services to joint ventures and associates	**-**	-	-	**-**	-	-
Purchase of goods and services from joint ventures and associates	**1.5**	2.8	**6.5**	**(0.2)**	(0.3)	(0.3)

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.

GENUS PLC
RESPONSIBILITY STATEMENT
For the six months ended 31 December 2022

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
Stephen Wilson

Chief Financial Officer
Alison Henriksen

22 February 2023

ALTERNATIVE PERFORMANCE MEASURES GLOSSARY

The Group tracks a number of APMs in managing its business, which are not defined or specified under the requirements of IFRS because they exclude amounts that are included in, or include amounts that are excluded from, the most directly comparable measure calculated and presented in accordance with IFRS, or are calculated using financial measures that are not calculated in accordance with 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. These APMs are consistent with how the business performance is planned and reported within the internal management reporting to the Board and GELT. Some of these APMs are also used for the purpose of setting remuneration targets.

These APMs should be viewed as supplemental to, but not as a substitute for, measures presented in the consolidated financial information relating to the Group, which are prepared in accordance with IFRS. The Group believes that these APMs are useful indicators of its performance. However, they may not be comparable to similarly-titled measures reported by other companies, due to differences in the way they are calculated.

The key APMs that the Group uses include:

Alternative Performance Measures	Calculation methodology and closest equivalent IFRS measure (where applicable)	Reasons why we believe the APMs are useful
Income statement measures		
Adjusted operating profit exc JVs	Adjusted operating profit is operating profit with the net IAS 41 valuation movement on biological assets, amortisation of acquired intangible assets, share-based payment expense and exceptional items added back and excludes JV and associate results. *Closest equivalent IFRS measure: Operating profit*[1] See reconciliation below.	Allows the comparison of underlying financial performance by excluding the impacts of exceptional items and is a performance indicator against which short-term and long-term incentive outcomes for our senior executives are measured: > net IAS 41 valuation movements on biological assets - these 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 projections rather than current trading; > amortisation of acquired intangible assets - excluding this improves the comparability between acquired and organically grown operations, as the latter cannot 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 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 performance; and > exceptional items - these are items which due to either their size or their nature are excluded, to improve the understanding of the Group's underlying performance.
Adjusted operating profit inc JVs	Including adjusted operating profit from JV and associate results. See reconciliation below.	
Adjusted operating profit inc JVs exc gene editing costs	Including adjusted operating profit from JV and associate results but excluding gene editing costs. See reconciliation below.	
Adjusted operating profit inc JVs after tax	Adjusted operating profit including JV less adjusted effective tax. See reconciliation below.	
Adjusted profit inc JVs before tax	Adjusted operating profit including JVs less net finance costs. See reconciliation below.	
Adjusted profit inc JVs after tax	Adjusted profit including JVs before tax less adjusted effective tax. See reconciliation below.	
Adjusted effective tax rate	Total income tax charge for the Group excluding the tax impact of adjusting items, divided by the adjusted profit before tax.	Provides an underlying tax rate to allow comparability of underlying financial performance, by excluding the

	Closest equivalent IFRS measure: Effective tax rate See reconciliation below.	impacts of net IAS 41 valuation movement on biological assets, amortisation of acquired intangible assets, share-based payment expense and exceptional items.
Adjusted basic earnings per share	Adjusted profit after tax profit divided by the weighted basic average number of shares. *Closest equivalent IFRS measure: Earnings per share* See calculation below.	On a per share basis, this allows the comparability of underlying financial performance by excluding the impacts of adjusting items.
Adjusted diluted earnings per share	Underlying attributable profit divided by the diluted weighted basic average number of shares. *Closest equivalent IFRS measure: Diluted earnings per share* See calculation below.	
Adjusted earnings cover	Adjusted earnings per share divided by the expected dividend for the preceding 12 months. See calculation below.	The Board dividend policy targets the adjusted earning cover to be between 2.5-3 times.
Adjusted EBITDA - calculated in accordance with the definitions used in our financing facilities	This is adjusted operating profit, adding back cash received from our joint ventures, depreciation of property, plant and equipment, depreciation of the historical cost of biological assets, operational amortisation (i.e. excluding amortisation of acquired intangibles) and deducting the amount attributable to minority interest. *Closest equivalent IFRS measure: Operating profit*[1] See reconciliation below.	This APM is presented because it is used in calculating our ratio of net debt to EBITDA and our interest cover, which we report to our banks to ensure compliance with our bank covenants.
Adjusted operating margin	Adjusted operating profit (including JVs) divided by revenue.	Allows for the comparability of underlying financial performance by excluding the impacts of exceptional items.
Adjusted operating margin (exc JVs)	Adjusted operating profit divided by revenue.	
Constant currency basis	The Group reports certain financial measures, on both a reported and constant currency basis and re-translates the current year's results at the average actual exchange rates used in the previous financial year.	The Group's business operates in multiple countries worldwide and its trading results are translated back into the Group's functional currency of Sterling. This measure eliminates the effects of exchange rate fluctuations when comparing year-on-year reported results.
Balance sheet measures		
Net debt	Net debt is gross debt, made up of unsecured bank loans and overdrafts and obligations under finance leases, with a deduction for cash and cash equivalents. See reconciliation below.	This allows the Group to monitor its levels of debt.
Net debt - calculated in accordance with the definitions used in our financing facilities	Net debt excluding the impact of adopting IFRS 16 and adding back guarantees and deferred purchase arrangements. See reconciliation below.	This is a key metric that we report to our banks to ensure compliance with our bank covenants.
Cash flow measures		
Cash conversion	Cash generated by operations as a percentage of adjusted operating profit excluding JVs. See calculation below.	This is used to measure how much operating cash flow we are generating and how efficient we are at converting our operating profit into cash.
Free cash flow	Cash generated by the Group before debt repayments, acquisitions and investments, dividends and proceeds from share issues. *Closest IFRS measure: Net cash flow from operating activities* See reconciliation below.	Shows the cash retained by the Group in the year.
Other measures		
Ratio of net debt to adjusted EBITDA	The ratio of net debt, calculated in accordance with the definitions used in our financing facilities, is gross debt, made up of unsecured bank loans and overdrafts and obligations under finance leases, with a deduction for cash and cash equivalents and adding back amounts related to guarantees and deferred purchase arrangements, to adjusted EBITDA.	This APM is used as a measurement of our leverage and is also a key metric that we report to our banks to ensure compliance with our bank covenants.

	Closest equivalent IFRS components for the ratio: The equivalent IFRS components are gross debt, cash and cash equivalents and operating profit.
	See calculation below.

1 Operating profit is not defined per IFRS. It is presented in the Group Income Statement and is shown as profit before tax, finance income/costs and share of post-tax profit of joint ventures and associates retained.

THE TABLES BELOW RECONCILE THE CLOSEST EQUIVALENT IFRS MEASURE TO THE APM OR OUTLINE THE CALCULATION OF THE APM

INCOME STATEMENT MEASURES
Adjusted operating profit exc JVs
Adjusted operating profit inc JVs
Adjusted operating profit inc JVs and exc gene editing costs

	31 December 2022		31 December 2021		30 June 2022		
	£m	£m	£m	£m	£m	£m	Reference
Operating profit		**14.7**		**23.9**		**49.4**	Group Income Statement
Add back:							
Net IAS 41 valuation movement on biological assets	17.2		6.8		5.4		Group Income Statement
Amortisation of acquired intangible assets	4.8		3.8		8.3		Group Income Statement
Share-based payment expense	2.3		2.2		3.7		Group Income Statement
Exceptional items	2.2		(1.7)		2.0		Group Income Statement
Adjusted operating profit exc JVs		**41.2**		**35.0**		**68.8**	Group Income Statement
Less: amounts attributable to non-controlling interest		0.2		(0.2)		(0.3)	Group Income Statement
Operating profit from joint ventures and associates	6.4		3.2		5.2		Group Income Statement
Tax on joint ventures and associates	1.4		1.3		2.6		Note 10 - Interests in joint ventures and associates
Net IAS 41 valuation movement attributable to joint ventures	(0.9)		0.4		1.4		Note 10 - Interests in joint ventures and associates
Adjusted operating profit from JVs		6.9		4.9		9.2	
Adjusted operating profit inc JVs		**48.3**		**39.7**		**77.7**	
Gene editing costs		7.7		3.6		7.9	Note 2 - Segmental information
Adjusted operating profit inc JVs and exc gene editing costs		**56.0**		**43.3**		85.6	

Adjusted profit inc JVs before tax
Adjusted profit inc JVs after tax

	31 December 2022	31 December 2021	30 June 2022	
	£m	£m	£m	Reference
Adjusted operating profit inc JVs	**48.3**	**39.7**	**77.7**	See APM
Less net finance costs	(6.1)	(2.7)	(6.2)	Note 4 - Net finance costs
Adjusted profit inc JVs before tax	**42.2**	**37.0**	**71.5**	
Adjusted tax	(10.2)	(9.3)	(17.4)	Note 14 - Earnings per share
Adjusted profit inc JVs after tax	**32.0**	**27.7**	**54.1**	

Adjusted effective tax £m/rate

	31 December 2022		31 December 2021		30 June 2022		
	£m	%	£m	%	£m	%	Reference
Adjusted effective tax £m/rate	**10.2**	**24.2**	**9.3**	**25.1**	**17.4**	**24.3**	Note 14 - Earnings per share
Exceptional items	(0.5)	(22.7)	0.1	-	(0.8)	(40.0)	No direct reference
Share-based payment expense	(0.5)	(21.7)	(0.5)	(22.7)	(0.5)	(13.5)	No direct reference
Amortisation of acquired intangible assets	(0.8)	(16.7)	(0.7)	(18.4)	(3.3)	(39.8)	No direct reference
Net IAS 41 valuation movement on biological assets	(4.0)	(23.3)	(1.3)	(19.1)	1.5	27.8	No direct reference
Effective tax £m/rate	**4.4**	**26.8**	**6.9**	**21.2**	**14.3**	**28.0**	No direct reference

Adjusted basic earnings per share

	31 December 2022	31 December 2021	30 June 2022	Reference
Adjusted profit inc JVs after tax (£m)	**32.0**	**27.7**	**54.1**	See APM
Weighted average number of ordinary shares ('000)	65.540	65.390	65.395	Note 14 - Earnings per share
Adjusted basic earnings per share (pence)	**48.8**	**42.4**	**82.7**	

Adjusted diluted earnings per share

	31 December 2022	31 December 2021	30 June 2022	Reference
Adjusted profit inc JVs after tax (£m)	**32.0**	**27.7**	**54.1**	See APM
Weighted average number of diluted ordinary shares ('000)	65.981	65.820	65.714	Note 14 - Earnings per share
Adjusted diluted earnings per share (pence)	**48.5**	**42.1**	**82.3**	

Rolling 12 month Adjusted Earnings cover

	31 December 2022		31 December 2021		30 June 2022		
	Pence	Times	Pence	Times	Pence	Times	Reference
Adjusted Earnings per share	**48.8**		**42.4**		**82.7**		See APM
Add: Prior June Adjusted Earnings per share	82.7		100.9		N/a		See APM
Deduct: Prior Interim Adjusted Earnings per share	(42.4)		(55.3)		N/a		See APM
Rolling 12 month adjusted Earnings per share	**89.1**		**88.0**		**82.7**		
Dividend for the period	10.3		10.3		32.0		Note 6 - Dividends
Add: Dividend for prior June	32.0		32.0		N/a		Note 6 - Dividends
Less: prior interim dividend	(10.3)		(10.3)		N/a		Note 6 - Dividends
Rolling 12-month dividend	**32.0**		**32.0**		**32.0**		
Rolling 12 month Adjusted Earnings cover		**2.8**		**2.8**		**2.6**	No direct reference

Adjusted EBITDA - as calculated under our financing facilities

	31 December 2022		31 December 2021		30 June 2022		
	£m	£m	£m	£m	£m	£m	Reference
Operating profit		**14.7**		**23.9**		**49.4**	Group Income Statement
Add back:							
Net IAS 41 valuation movement on biological assets	17.2		6.8		5.4		Group Income Statement
Amortisation of acquired intangible assets	4.8		3.8		8.3		Group Income Statement
Share-based payment expense	2.3		2.2		3.7		Group Income Statement
Exceptional items	2.2		(1.7)		2.0		Group Income Statement
Adjusted operating profit exc JVs	41.2		35.0		68.8		Group Income Statement
Adjust for:							
Cash received from JVs (dividend and loan repayment)	-		-		3.2		Group Statement of Cash Flows
Depreciation: property, plant and equipment	14.9		12.2		26.4		Note 9 - Property, plant and equipment
Operational lease payments	(6.5)		(5.6)		(12.4)		No direct reference
Depreciation: historical cost of biological assets	7.2		5.5		10.7		No direct reference
Amortisation and impairment (excluding separately identifiable acquired intangible assets)	2.9		2.0		4.3		Note 7 - Intangible assets
Less amounts attributable to non-controlling interest	0.2		(0.2)		(0.3)		Group Income Statement
Adjusted EBITDA - as calculated under our financing facilities		**59.9**		**48.9**		**100.7**	

Rolling 12 month Adjusted EBITDA - as calculated under our financing facilities

	31 December 2022		31 December 2021		30 June 2022		
	£m	£m	£m	£m	£m	£m	Reference
Operating profit							
Adjusted EBITDA - as calculated under our financing facilities	59.9		48.9		100.7		See APM
Add: Prior June Adjusted EBITDA	100.7		106.1		N/a		See APM
Deduct: Prior Interim Adjusted EBITDA	(48.9)		(57.1)		N/a		See APM
Rolling 12 month Adjusted EBITDA		**111.7**		**97.9**		**100.7**	

BALANCE SHEET MEASURES
Net Debt
Net debt as calculated under our financing facilities

	31 December 2022		31 December 2021		30 June 2022		
	£m	£m	£m	£m	£m	£m	Reference
Current unsecured bank loans and overdrafts	7.3		10.6		7.1		
Non-current unsecured bank loans and overdrafts	214.9		151.0		182.1		
Unsecured bank loans and overdrafts		222.2		161.6		189.2	Group Balance Sheet
Current obligations under finance leases	9.9		8.6		10.1		
Non-current obligations under finance leases	24.7		19.0		24.5		
Obligations under finance leases		34.6		27.6		34.6	Group Balance Sheet
Total debt financing		256.8		189.2		223.8	
Deduct:							
Cash and cash equivalents		(42.3)		(45.9)		(38.8)	Group Balance Sheet
Net debt		**214.5**		**143.3**		**185.0**	
Deduct:							
Lower of obligations under finance leases or £30m		(30.0)		(27.6)		(30.0)	
Add back:							
Guarantees		13.7		19.1		20.2	No direct reference
Deferred purchase arrangements		1.4		1.1		-	No direct reference
Net debt - as calculated under our financing facilities		**199.6**		**135.9**		175.2	

CASH FLOW MEASURES
Cash conversion

	31 December 2022		31 December 2021		30 June 2022		
	£m	£m	£m	£m	£m	£m	Reference
Cash generated by operations		**25.7**		**22.2**		**56.6**	Note 15 - Notes to the cash flow statement
Operating profit	14.7		23.9		49.4		Group Income Statement
Add back:							
Net IAS 41 valuation movement on biological assets	17.2		6.8		5.4		Group Income Statement
Amortisation of acquired intangible assets	4.8		3.8		8.3		Group Income Statement
Share-based payment expense	2.3		2.2		3.7		Group Income Statement
Exceptional items	2.2		(1.7)		2.0		Group Income Statement
Adjusted operating profit exc JVs		**41.2**		**35.0**		**68.8**	Group Income Statement
Cash conversion (%)		**62%**		**63%**		**82%**	

Free cash flow

	31 December 2022	31 December 2021	30 June 2022	
	£m	£m	£m	Reference
Cash generated by operations	**25.7**	**22.2**	**56.6**	Note 15 - Notes to cash flow statement
Net interest and tax paid	(13.9)	(10.6)	(22.3)	Note 15 - Notes to cash flow statement
Capital expenditure	(15.0)	(27.8)	(50.9)	Group Statement of Cash flows
Dividend received from joint venture and associate	-	-	3.2	Group Statement of Cash flows
Joint venture and associate loan repayment	-	-	-	Group Statement of Cash flows
Proceeds from sale of property, plant and equipment	-	0.1	-	Group Statement of Cash flows
Dividend to non-controlling interest	(0.1)	-	(0.1)	Group Statement of Cash flows
Free cash flow	**(3.3)**	**(16.1)**	**(13.5)**	

OTHER MEASURES

Ratio of net debt to adjusted EBITDA

	31 December 2022		31 December 2021		30 June 2022		
	£m	**Times**	**£m**	**Times**	£m	Times	Reference
Net debt - as calculated under our financing facilities	**199.6**		**135.9**		**175.2**		See APM
Rolling 12 month Adjusted EBITDA - as calculated under our financing facilities	**111.7**		**97.9**		**100.7**		See APM

Ratio of net debt to Adjusted EBITDA	**1.8**	**1.4**	**1.7**

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