FOR IMMEDIATE RELEASE **8 December 2015**

Genus plc
('Genus' or the 'Company')

Genus tackles major pig disease with breakthrough technology

Genus (LSE: GNS), a global pioneer in animal genetics, announces the development of the first pigs resistant to Porcine Reproductive and Respiratory Syndrome Virus ("PRRSv"), through a long-standing collaboration with the University of Missouri.

The production of PRRSv resistant pigs is a significant breakthrough in combating this devastating porcine disease, and Genus is excited to be progressing the development of this technology under an exclusive global license from the University of Missouri.

PRRSv is the most significant and harmful pig disease faced by many farmers, causing animal reproductive failure, reduced growth and premature death. Even though it has challenged the pork industry for more than 25 years, there is currently no cure for PRRSv. The technology has the potential to eliminate the disease impact on the animals, improve the well-being of pigs, and enhance pig farm productivity, which ultimately will help meet the global demand for pork products.

Using precise gene editing, the University of Missouri was able to breed pigs that do not produce a specific protein necessary for the virus to spread in the animals. The early stage studies conducted by the University demonstrate these PRRSv resistant pigs, when exposed to the virus, do not get sick and continue to gain weight normally. Genus will continue to develop this technology, and we expect it will be at least five years until PRRS resistant animals are available to farmers. Genus intends to commercialize the technology through PIC, its porcine division.

The university research results have been published in the peer-reviewed scientific journal, Nature Biotechnology, on December 7.

Speaking about this breakthrough, Dr Jonathan Lightner, Chief Scientific Officer and Head of R&D of Genus, said:

"The demonstration of genetic resistance to the PRRS virus by gene editing is a potential game-changer for the pork industry. There are several critical challenges ahead as we develop and commercialize this technology; however, the promise is clear, and Genus is committed to developing its potential. Genus is dedicated to the responsible exploration of new innovations that benefit the well-being of animals, farmers, and ultimately consumers."

Dr Randall Prather, distinguished professor of animal sciences at the University of Missouri, said:

"We are delighted to have been working with Genus and to have discovered a major breakthrough in tackling this devastating disease that causes suffering to so many animals around the world."

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About Genus plc and the Pig Improvement Company (PIC)

- Headquartered in Basingstoke, United Kingdom, Genus is a world-leading pioneer in animal genetics. The company helps nourish the world through the responsible exploration of new technologies that benefit its customers, the well-being of livestock, and ultimately consumers.
- PIC is a subsidiary of Genus, and is the global leader in providing genetically superior pig breeding stock and technical support for maximising genetic potential to commercial pork producers. PIC has been delivering genetic improvements for over 50 years.
- Genus' customers' animals produce offspring with greater production efficiency, and quality, and use these to supply the animal protein supply chain. Genus is a leading partner of choice in dairy, beef and pork markets through PIC, for porcine customers, and ABS, which serves dairy and beef customers.
- Genus companies operate in over 25 countries on six continents, with research laboratories located in Madison, Wisconsin, USA. For more information visit www.genusplc.com.

About Porcine Reproductive and Respiratory Syndrome Virus

- PRRSv is a devastating disease that can cause persistent infection in pigs and lead to reproductive failure, reduced growth and premature death. There is currently no cure for the disease, which causes the suffering or death of millions of pigs and piglets each year. Current treatment is expensive with limited effectiveness.
- PRRSv is considered to be the most economically burdensome viral disease of pig farms in Asia, Europe and North America. Financial losses are mainly due to increased death loss, poor reproductive performance and increased use of vaccines and medications.

- Secondary diseases following a PRRSv outbreak on a farm can further reduce productivity and lead to additional costs. Diagnostic testing and herd monitoring after a PRRSv introduction are necessary to develop comprehensive control strategies, which are costly and have limited effectiveness.
- In 2006, a more severe form of PRRSv decimated pig populations throughout China. According to the China Animal Disease Control Center, in the summer of 2006, a new severe variant of PRRSv affected over two million pigs.
- A 2011 Iowa State University[i] study estimated PRRSv cost the U.S. pork industry $664 million per year, and in Europe figures are estimated[ii] at €1.5 billion per year.

About gene editing technology

- Gene editing allows precise changes to be made in the genome of the animal without introducing genetic material from another organism. In the case of the PRRSv resistant pigs, small changes were made to inactivate a single gene from the pigs that produces a protein, known as CD163, the PRRS virus requires for infection to occur.
- The gene editing technology used to create protection from PRRSv does not involve transplanting genes from one species to another.

[i] *Dr DeraldHoltkamp ISU 2011*

[ii] *EuropeanPRRSpective presentation June 2015*