



 Never Stop Improving

Driving Market Acceptance through Shared Value

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 PIC[®]

Driving Market Acceptance



Gaining widespread adoption of the PRRS-Resistant Pig throughout the full value chain by demonstrating shared benefits



Farmer/Producer

PRP will drive greater productivity, animal welfare and efficiency for farmers

Improve the sustainability of producer operations

Directly reduce emissions and input usage (feed etc)



Packer/Processor

More reliable and resilient supply chain

More efficient production - Reduced GHG missions

Increased food security

Reduced need for antibiotic use



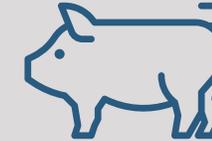
Food Service/Retail

Supports sustainability goals reduced scope 3 emissions

More reliable and resilient supply chain

Responsibly supports antibiotic policies

Higher animal welfare in the supply chain



Consumer

Higher animal welfare, removing disease

Food availability and affordability

Reduced need for antibiotics

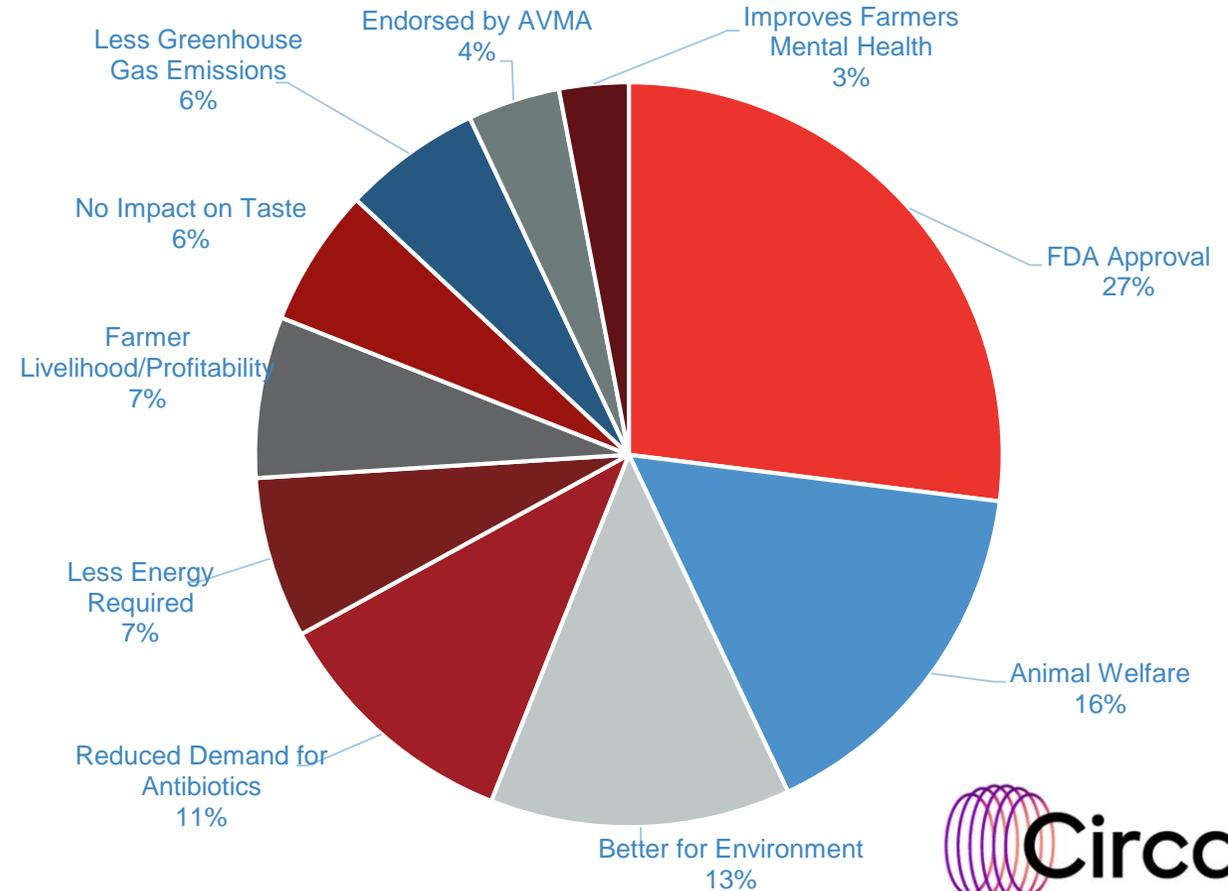
Better for the environment

Consumer Research



What drives consumers to accept and purchase the PRRS-Resistant Pig?

- When explained the benefits, 72% of mainstream consumers liked the concept of a gene-edited, disease-resistant pig.
- Animal welfare, increased sustainability and reduced demand for antibiotics are key drivers and help increase purchase intent.
- Consumers value transparency



Consumer research conducted by Circana in 2023



Quantifying the benefits of the PRRS-Resistant Pig



Reduced need for antibiotics, increased animal welfare



Animal &
Plant Health
Agency

PRRS “has an immunosuppressive effect and exacerbates other diseases including those due to bacterial pathogens and thus acts a driver for antimicrobial use.”

IOWA STATE
UNIVERSITY



Dr. Gustavo Silva & Dr. Isadora Machado, Iowa State University College of Veterinary Medicine

Research: Impact of PRRS on need for antibiotic use

Outcome: Study shows that PRRS infection increases antibiotic usage



PRRS infections more than double the use of antibiotics



380% increase in pig antibiotic treatments



>200% increase in injectable antibiotic use



Lower antibiotic usage improves sustainability and reduces farmer costs



Medication costs



Employee costs

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1. Research from Iowa State University: Impact of PRRS on need for antibiotic use (2023)

Quantifying the benefits of the PRRS-Resistant Pig

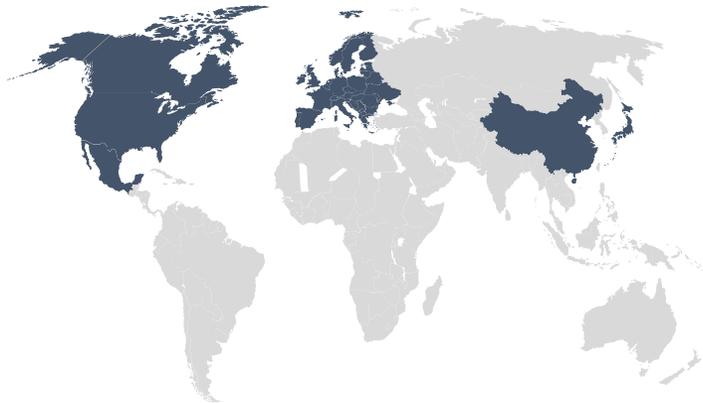


Reduced emissions, land and water usage

PIC Genetic Improvement Porcine Life Cycle Assessments (LCA) conducted in North America, EU and Asia

LCA focus:

1. What's the full environmental impact of a PIC pig compared to the industry average in each region?
2. Δ PIC genetic Improvement Year-Over-Year (YOY)
3. What is the full environmental impact of the PRRS-Resistant Pig?



Results:

- North America
 - **7.5% reduction** in GHGs compared to industry average
- Europe
 - **7.7% reduction** in GHGs compared to industry average
- Asia
 - Forthcoming
- PRRS-Resistant Pigs
 - Forthcoming



International Organization for Standardization: ISO 14040, 14044 and 14046 Standards



animals

Thoma, Greg J., Banks Baker, and Pieter W. Knap. 2024. "A Life Cycle Assessment Study of the Impacts of Pig Breeding on the Environmental Sustainability of Pig Production" *Animals* 14, no. 16: 2435. <https://doi.org/10.3390/ani14162435>

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PRP Provides Holistic Benefits



Improved animal welfare, fewer antibiotics, lower emissions and better economics

Animal welfare¹

- Reduction in antibiotic usage
- Prevents respiratory distress, fever, premature birthing and many other symptoms

Employees

- Focus on raising healthy and happy animals
- Reduce risk of distress from managing a sick herd



PRP benefits all stakeholders

Sustainability²

- Reduction in GHG emissions
- Reduction in feed and water intake
- Reduction in land usage

Producer productivity & robustness

- Improved consistency and predictability of results
- Enhanced productivity delivering lower cost and greater input efficiency



¹ Research from Iowa State University: Impact of PRRS on need for antibiotic use (2023)
² Preliminary data from Life Cycle Analysis conducted by Dr Greg Thoma from Colorado State University in 2023

Gene Editing Conversation is Bigger Than just a PRRS Resistant Pig



Breakthroughs will play a more routine role in delivering progress towards societal expectations



Human Health

Gene editing (gene therapy) is actively delivering breakthrough options

Initial product recently approved in the US and UK

Multiple additional first-in-class products currently advancing through system



Fruits and Veg

Active commercial launch of multiple products

Marketing is leading with new technology brings new benefits

Setting the stage for food chain discussions

www.pairwise.com



Animal Production

Gene edit products in multiple species – broiler, cattle, aqua – arriving into global supply

Most initial products focused on animal health (disease resistant) and welfare (single sex / polled)



Consumer

Consumer acceptance growing with increased awareness

Acceptance drivers align with our shared benefits

Younger generations are most accepting



A close-up photograph of a piglet drinking water from a trough. The piglet is light pink with large, upright ears. Water is dripping from its snout. The trough is made of white plastic with blue markings. The background shows other piglets and a blue plastic floor.

Thank you

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