NO GUTS NO GLORY

Porcilis® ILEITIS Argus® SC/ST

DRIVEN BY PREVENTION™

MERCK Animal Health
Gut health is key to better performance.

Build a productive herd with a healthy gut. *Lawsonia* and *Salmonella* work together to damage the pig’s gut, which can slow ADG. If you only protect against one, profit may be left on the table. Vaccinate against *Lawsonia* with PORCILIS® ILEITIS and *Salmonella* with ARGUS® SC/ST to complete your herd’s gut protection and help improve operation efficiency.

**A FIRST LINE OF DEFENSE**
The gut is a primary defense against pathogens.

- The epithelial cells lining the gut represent the largest interface between the pig and the outside environment
- When epithelial cells become damaged, inflammation results
- The mucous layer covering the epithelial cells of the intestinal tract is called the mucosal surface. This layer is mainly composed of mucins and is the first barrier pathogens must overcome for successful colonization.¹

**GUT HEALTH CRITICAL IN YOUNG PIGS**
The nursery and early stages of a pig’s life establishes health and level of performance for the remainder of its life.

- The gastrointestinal system undergoes the most rapid development during the first three months of life
- During this critical time, any disease challenge can have a serious, long-lasting impact
- When gut health is compromised, it reduces the overall growth of pigs and can even result in mortality

**MULTIPLE GUT PATHOGENS AMPLIFY DISEASE IMPACT**
Research has shown that *Lawsonia* and *Salmonella* favor each other when infecting the pig. This brings to light the importance of understanding the status of both pathogens in a herd and striving to control both *Lawsonia* and *Salmonella* to increase intestinal health.

- *Lawsonia* and *Salmonella* both significantly alter the gut environment of pigs¹
- *L. intracellularis* causes disease more efficiently when other microbes such as *Salmonella* are present
- In a study that followed 105 farms, researchers found that infection by *Lawsonia* was a significant risk factor for increased *Salmonella* shedding¹
- Pigs challenged with *Lawsonia* and *Salmonella* showed statistically significant increases in other pathogens, including *Anaerobacter, Barnesiella, Pediococcus, Sporacetigenium, Turicibacter, Catenibacterium, Prevotella, Pseudobutyrivibrio* and *Xylanibacter*¹

**STRESS IS A CONTRIBUTING FACTOR**
- It is common in every stage of the production cycle
- Different types of stress include social, environmental and weather changes
- It compromises the immune response, allowing pathogens to multiply, thereby increasing disease pressure
ILEITIS

Ileitis is a pervasive pathogen that decreases the average daily gain of grow-finish swine. In addition, it reduces the efficiency of feed utilization, which means that more feed is needed for each pound of growth. Finally, the acute hemorrhagic form can also cause mortality.

- Clinical signs include mild soft, watery and/or pasty diarrhea
- Ileitis may progress subclinically with no visible signs, but still can result in reduced weight gain
- Acute ileitis tends to be a hemorrhagic form characterized by black, tarry feces and sudden death, most commonly affecting late finishing pigs and replacement animals
- Stress from weather changes, moving or commingling pigs may cause a subclinical infection to become clinical

SALMONELLOSIS

Salmonellosis in swine is a concern both for its impact on grow-finish productivity as well as food safety. All ages are susceptible, but the disease is most common in weaned and grow-finish pigs. *Salmonella* can survive for an extended period in the environment and can be a constant threat.

- *S. choleraesuis* is the specific species adapted to swine
- Pigs infected with *S. choleraesuis* may have inflamed, thickened ileums and colons, as well as generalized sepsis
- Asymptomatically infected pigs can become long-term carriers that intermittently shed bacteria when stressed
- The most common serotype in pigs is *S. typhimurium*, which is associated with diarrhea in young pigs and is a food safety concern
ARGUS® SC/ST
PROVEN PROTECTION AGAINST BOTH SALMONELLA CHOLERAESUIS AND SALMONELLA TYPHIMURIUM

ARGUS SC/ST aids in the prevention of pneumonia, diarrhea, septicemia and mortality caused by Salmonella choleraesuis and aids in the control of disease and shedding of Salmonella typhimurium.

ARGUS works similarly to natural infection. The avirulent strain is ingested through the drinking water and is taken up by macrophages associated with the gastrointestinal tract. Macrophages then present antigens to the immune system, mounting a robust immune response that affords protection when natural challenge threatens pigs. It has been proven to reduce levels of Salmonella in ileocecal lymph nodes of pigs at slaughter.⁸

SOURCES:
1Borewicz, KA. Changes in the porcine intestinal microbiome in response to infection with Salmonella enterica and Lawsonia intracellularis. PLOS One. 2015;13(10):e0139106.
8Data on file, Merck Animal Health.