Healthy Hog Seminar
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Diseases of the Gastrointestinal Track
Primary Causes of Diarrhea

• Bacterial
  • E. coli
  • Salmonella sp.
  • Clostridium perfringens
  • Brachispyra hyodysentery
  • Lawsonia Intracellularis (Ileitis)
  • Brachispyra pilosicoli

• Viral
  • T.G.E.
  • Rotavirus
  • Circovirus (PCVII)

• Protozoal
  • Coccidia
  • Balantidium coli

• Parasitic
  • Ascaris suum (Round Worms)
  • * Oesophagostomum
Neonatal Pig Diarrhea

• Environment Contributors
  – Draft
  – Cold or Chilled pigs
  – Wet or damp environment - drippers
  – Poor sanitation
• Sow not milking
  – Sick, fevered, off feed
  – Feeding program
  – Water available and intake
  – % gilt litters

Colibacilloses/Ecoli

• E. coli are gram negative bacteria that affects many body systems.
Colibacillosis/Ecoli

- General Periods of Manifestation
  - Neonatal diarrhea (0-72 hours of age)
  - Milk scours diarrhea (9 days-weaning)

Colibacillosis/Ecoli

- **Clinical Signs:**
  - Yellow fluid diarrhea
  - Dehydration
  - Inflamed butt
  - Mild inflammation of small intestine on postmortem
  - Fluid filled intestinal loops
  - Undigested curd in the small intestine on postmortem
Colibacillosis/Ecoli

- **Diagnostics:**
  - Culture of the small intestine
  - Histopathology on the small intestine
  - Submit live pigs or sections of the intestine to the diagnostic lab from pigs that **began to scour that morning** and that have **not been treated**.
Colibacillosis/Ecoli

- **Treatment:**
- **Injectable Medication**
  - 1st drug of choice Naxcel/Excede
  - 2nd drug of choice Garacin

Clostridial Enterotoxemia

**Cause:**
- *Clostridium perfringens* is a gram-positive bacteria.
Clostridial Enterotoxemia

Discussion:
• There are two types of Clostridium perfringens:
• Type A: Causes mild clinical signs of diarrhea in pigs that are not milking well or pigs with overwhelmed immune systems.
• Type C: Is fast acting causing severe signs of diarrhea and possible sudden death.

Clostridial Enterotoxemia

• Clinical Signs:
• Type A
  – Mild to severe pasty diarrhea, typically 2-5 days of age
  – Yellow to orange-yellow colored diarrhea
  – Death within 12 hours to 3 days or survive but growth is stunted
Clostridial Enterotoxemia

• Type C
• Sudden death
• Reddish-brown diarrhea
• Red colored intestines on postmortem
Clostridial Enterotoxemia

• **Diagnosis:**
  • Type A
    • Culture and histopathology
  • Type C
    • Lesions of necrotic blood and debris filled intestine.
    • Culture and histopathology on affected intestine.

Clostridial Enterotoxemia

• **Treatment:**
  • Penicillin, Lincomix, Tylan
  • Ampicillin (Prescription Required)
TGE/Transmissible Gastroenteritis

- **Cause:**
  A highly infectious Coronavirus.

- **Discussion:** There are two manifestations of this disease:
  - **Acute** - In a naive herd death loss is severe, approaching 100%.
  - **Enzootic** - Gradual increase in PWM (18-25%) caused by a scour that does not respond to antibiotic therapy.
TGE

- More prevalent in cold months
- Gilt litters are more severely affected if herd has broke in the past.
- Clinical signs begin within 24 hours after birth.
- Can affect any age pig
- Duration and severity depends on age
- Villous atrophy - pigs die due to dehydration and malnutrition.
TGE

• Diagnostics:
• Characteristic smell
• Submit multiple sections of fresh and formalin fixed lower small intestines
• IHC, Fluorescent antibody test, Electron Microscope, Histopathology
• It is extremely important to select an animal that just began to scour that day.
• Serology test is also available
TGE

• Prevention:

• BIOSECURITY

TGE

• Treatment:
  • Transfer piglets onto immune sows if available
  • Electrolytes
  • Keep warm and dry
  • Avoid stress
  • Antibiotics will not cure this disease.
  • Antibiotics for secondary infection
  • Whole herd feedback with intestinal organs and fecal material from affected pigs.
Rotavirus

- **Cause:**
  - Rotavirus is a virus that more commonly affects the gut in newborn pigs.

Rotavirus

- **Discussion:**
  - Usually affects pigs one to five days of age.
  - Clinical signs similar to T.G.E., but less severe.
  - Death loss is usually low unless there are concurrent infections or stress such as chilling.
  - More of a problem in the gilt litters - less immunity.
Rotavirus

- **Clinical signs:**
  - Dehydration
  - Occasional vomiting
  - Yellow or gray-black diarrhea

Rotavirus

- **Diagnostics:**
  - Histopathology on small intestine
  - Fluorescent antibody test on multiple sections of small intestine
Rotavirus

- **Treatment:**
  - There is no cure for rotavirus
  - Feedback of intestines from affected pigs to all females at least 14 days prior to farrowing if the farm is not experiencing an active PRRS infection.
  - Sprinkle Diabond on heat pads.
  - Antibiotics - only to reduce secondary bacterial infections.

Coccidiosis

- **Cause:**
  - *Isospora suis* an intracellular protozoan parasite.

- **Discussion:**
  - Protozoa are one-celled organisms
  - Pigs between 7 to 14 days are highly susceptible.
  - Mortality is usually low.
Coccidiosis

- Clinical Signs:
  - Yellow to grayish diarrhea
  - Diarrhea loose to **pasty** in consistency
  - Poor response to antibiotic therapy
  - Dehydration; weight loss; stunted growth
Coccidiosis

- **Diagnostics:**
  - Diff-Quik staining of small intestine scrapings
  - Histopathology on multiple sections of small intestine

Coccidiosis

- **Prevention:**
  - Proper sanitation
  - Allowing the crates to dry
Coccidiosis

• **Treatment:**
  - Sanitation is critical to controlling this disease. (Flame crates)
  - Provide a clean, warm, dry, and draft free environment for pigs.
  - Sprinkle lime or Diabond on heat pads.
  - Prescription-Marquis Paste

Preweaning Scour Treatment

• Stop moving pigs
• Fix environment
• Address sow needs
• Diabond on mats
• Remove mats – brooder paper
• Attention to heat lamps or heat pads
• Scrape behind sows
Preweaning Scour Treatment

- Implement vaccine program
- Manure feedback
- Sanitation
  - Change disinfectant – Virkon S, Synergize
  - Flame wire floors and crates
  - All-in-all-out
  - Let crate dry before reloading
  - Wash sows before loading in crate
  - Processing equipment

Nursery Age Pigs

Edema Disease
Salmonella
Nursery Age Pigs

• Diseases such as T.G.E., rotavirus, clostridium and E. coli can also affect nursery pigs. They appear with similar clinical signs, but may be less severe.

Edema Disease

• **Cause:**
  - Toxigenic *E. coli* bacteria

• **Discussion:**
  - Triggered by changes in gut flora caused by changes in diet (low Zinc level), inadequate vaccination, decay of colostral immunity, stress of weaning and/or other infectious agents.
Edema Disease

- In our system it is usually seen 18 to 25 days after weaning in larger healthy looking pigs.

Edema Disease

- **Clinical Signs:**
- Yellow diarrhea in Fall Behind pigs
- Inflamed butt
- Lack of coordination (i.e. staggering, knuckling, paddling)
- Head and eye lid swelling
Edema Disease

- Sudden death of good pigs
- **Postmortem:**
  Fluid around the stomach and gall bladder and spiral colon on postmortem
Edema Disease

- **Diagnostics:**
  - Culture of affected intestine
  - Histopathology on sections of colon and jejunum
  - Clinical signs

Edema Disease

- **Treatment:**
  - Remove all feed for 24-48 hours.
  - Run bleach through the water.
  - Mass inject with Nuflor if necessary (Prescription Required).
Edema Disease

- Prevention:
- Good sanitation and a smooth transition to solid diets.
- Flame nursery before next group is placed.
- Shut feeders off for 24 hours during 3rd week.

Nursery and Finishing Pigs

- Bloody scour
- Salmonella, Ileitis, Gastric ulcer
- Swine Dysentery, Whip worms
Salmonellosis

• **Cause:**
  • Salmonella is a gram negative bacteria. Two main types affecting pigs are:
  • 1. *Salmonella choleraesuis* – finishing
  • 2. *Salmonella typhimurium* – nursery and finishing

Salmonellosis

• **Discussion:**
  • *Salmonella choleraesuis*
    – severe signs of diarrhea and septicemia.
  • *Salmonella typhimurium*
    – mainly clinical signs of diarrhea.
Salmonellosis

- **Clinical Signs:**
  - Bright yellow diarrhea (occasionally with blood)
  - Cyanosis (blue coloring of the skin) of the extremities
  - Coughing and thumping
  - Icterus (yellow coloring of body organs) on postmortem

Salmonellosis

- **Clinical Signs:**
  - Fever (103-106°F)
  - Sudden death to slowly wasting away
  - Emaciation/poor doing pigs
  - Rectal Strictures
Salmonellosis

Diagnostics:
- Postmortem: enlarged spleen, liver, lymph nodes and/or wet heavy lungs.
- Culture of intestine, spleen, liver and lymph nodes. **Lymph nodes are important especially if pigs have been treated with antibiotics.**
- Histopathology on the intestine, liver, spleen and lungs
Salmonellosis

• **Treatment:**
  - Injectable Medication
    - Naxcel
  - Water Medication
    - Neomycin
    - Gengard

Salmonellosis

• **Prevention:**
  - All-in/all-out groups
  - Reduce stress
  - Vaccination
  - Prevent access to flush gutters
Proliferative Ileitis

• **Cause:**
  - *Lawsonia intracellularis* is a spirochete bacteria.

Proliferative Ileitis

• **Discussion:**
  - Clinical signs range from poor growth performance to high death losses depending on age of the pig, antibiotic used and environmental stress on the pig.
  - Two manifestations of disease:
    - **Acute:** usually seen in pigs weighing more than 150 lbs.
    - **Chronic:** usually seen in pigs weighing less than 150 lbs.
Proliferative Ileitis

- **Clinical Signs:**
  - Sudden death
  - Moderate to severe thickening of the ileum and spiral colon on postmortem
  - Stool may be brick red in color to black or bloody
  - Dead and live pigs are pale in color
  - Chronic diarrhea, weight loss, and slow growth rate

Proliferative Ileitis

- **Diagnostics:**
  - Postmortem: thickened surface of the ileum, cecum and colon. Often referred to as “Garden Hose Gut.”
  - Silver-staining to visualize bacteria in gut wall.
  - Histopathology of section of small intestine.
Proliferative Ileitis

• **Treatment:**
  - Tylan
  - Lincomycin