Ostertagia ostertagi

- Brown stomach worm
- 6-10 mm
- Larvae destroy gastric glands
- Severe diarrhea & weight loss
- Fecal flotation, Fecal egg count
- Tx: Albendazole, Fenbendazole, Ivermectin, Moxidectin

N.B.: *Ostertagia* is the most important and most pathogenic nematode of cattle. By destroying the gastric glands, the pH of the abomasum is disrupted. This results in decreased protein digestion, loss of fluids and electrolytes, and increased toxin production.

On Slide #3, notice the bottom 2 images – where the larvae “dive in” this creates characteristic umbilicated lesions, giving a cobblestoned appearance that the pathologists refer to as “Moroccan leather”

Cooperia spp.

- Cattle bankrupt worm
- 4-8 mm
- Diarrhea
- Anorexia
- Depressed growth
- Synergistic w/ *Ostertagia ostertagi*
- Fecal flotation, Fecal egg count
- Tx: Albendazole, Fenbendazole, Ivermectin, Moxidectin

N.B.: Although this is the 2nd most common parasite in cattle, it is poorly pathogenic and is not associated with significant economic consequences

Bunostomum spp.

- Hookworm
- 10-28 mm
- Anemia
- Diarrhea
- Weight loss
- Fecal flotation, Fecal egg count
- Tx: Albendazole, Fenbendazole, Ivermectin, Moxidectin

N.B.: *Bunostomum* is a small intestinal hookworm, and worm-per-worm, it is fairly pathogenic. However, it is rarely seen in the USA, and at such low numbers, producers don’t perceive it to be much of a concern
Trichuris ovis

- Whipworm
- 2-3 mm
- Rarely pathogenic
- Fecal flotation, Fecal egg count
- Tx: Fenbendazole, Ivermectin
- N.B.: Like most whipworms, this parasite prefers to live in the cecum of cattle. Numbers are usually low and it is not considered to be of pathological significance in adult cows, but may cause protein-losing-enteropathy (PLE) in calves. Although not a big problem in the US, this is a VERY significant parasite in other countries where the numbers are ridiculously high.

Capillaria sp.

- Capillary worm
  - Confused with Trichuris
- 5-8 mm
- Nonpathogenic
- Fecal flotation, Fecal egg count
- Tx: None needed

Dictyocaulus viviparus

- Lungworm
- 3-8 cm
- Cough
- Dyspnea
- Lethargy
- Baermann technique, Fecal flotation, Fecal egg count
- Tx: Fenbendazole, Ivermectin
- N.B.: Adult cattle become immune, but this worm is a common reason for pneumonia in calves

Fasciola hepatica

- Common liver fluke
- 3-4 cm
- Hepatic trauma
- Hepatitis
- Death
- Fecal sedimentation, Baermann technique
- Tx: Albendazole, Clorsulon, Nitroxynil, Raoxanide
- (continued next page)
Cattle and Swine Parasites

- N.B.: *Fasciola hepatica* is an insidious parasite – liver damage is slow to develop, but cumulative. Over time it can cause significant reductions in productivity of the herd (decreased rate of gain, decreased milk production). Eventually, some cattle may die and the flukes are found on necropsy, or cattle shipped to market may be condemned by the inspectors and this may be the first time the producer becomes aware of the problem.

**Moniezia benedeni**

- Tapeworm
- Up to 100 cm
- Nonpathogenic
- Proglottids, Fecal flotation, Fecal egg count
- Tx: Albendazole, Dichlorophen, Fenbendazole, Niclosamide

**Trichomonas foetus**

- Trichomoniasis
- Protozoan
- 10-25 um
- Early abortion storms
- Pyometra
- Preputial/vaginal washings & culture
- Tx: Replace bulls? Treat semen with dimetridazole
- N.B.: *Trichomonas* is typically considered a venereal disease of cattle. Infections can cause abortion storms, but not to the degree expected with something like Equine Herpes Virus. As an example, if every cow in a herd were pregnant, infection with *Trichomonas* would yield a 70% calf crop (perhaps less), with the majority of cows still delivering normal calves.

**Babesia bigemina**

- Babesia, Texas Cattle Fever
- 2-3 um x 4-5 um
- Anemia
- Fever
- Splenomegaly
- Blood smear
- Tx: Antibiotics, Dip for ticks
- N.B.: Yet another rbc parasite, *Babesia* is associated with significant economic losses in cattle herds. As the immune system recognizes the parasite, rbcs are lysed, resulting in signs of bilirubinemia (jaundice), hemoglobinemia (red plasma), hemoglobinuria (red urine – ranchers call this “Redwater disease”), weakness, and death.
Cattle and Swine Parasites

Eimeria spp.
- Coccidia
- 16-47 um x 13-32 um
- Death in very young
- Decreased production
- Diarrhea +/- blood
- Fecal flotation, Fecal egg count
- Tx: Amprolium, Sulfamethazine
- N.B.: Typically just a calf issue. Adults may harbor the parasite but tend to be unaffected by it.

Cryptosporidium spp.
- Crypto
- 6 um x 6 um
- ZOONOTIC
- Diarrhea
- Fecal flotation, Direct smear
- Tx: Supportive care, Antibiotics
- N.B.: “Crypto” can be profoundly dehydrating, especially in calves, and so treatment with fluids is usually done AND usually successful at saving them. If a calf dies “from Crypto”, it’s usually because they’ve become septic with something else, such as salmonellosis. This is a really common cause of calf diarrhea (“calf scours”) and you need to be especially careful if you’re on the farm and working with calves that have diarrhea. In Vet School, 6 of the senior students went out to treat “Crypto calves”, and 5 came down with severe diarrhea, 2 of them requiring hospitalization. I was the one that didn’t get infected. 😊

Cochliomyia hominivorax
- Screwworm
- High mortality
- REPORTABLE
- Maggots penetrate tissue
- Identify larvae, wounds
- Tx: Ivermectin, Organophosphates
- N.B.: Screwworms are “south of the border” due to an extensive eradication campaign in the United States. They are particularly nasty parasites because unlike most maggots of dipterous flies that eat only diseased tissue, screwworm maggots eat healthy tissue, boring through cattle and resulting in hemorrhage, infection, and death. Vigilant surveillance for any invasion by screwworms along the border states is ongoing.
Sarcoptes scabiei

- Mange mite
- REPORTABLE in some states
- Skin scraping
- Tx: Ivermectin, Eprinomectin, Doramectin

End of cattle, Beginning of Swine

Ascaris suum

- Large roundworm of swine
- Transmission: ingestion of eggs
- Signs:
  - Coughing during larval migration
  - Significant quantities decrease growth rate and feed efficiency
- Common, so populations assumed to have A.suum
- Strategic deworming of herds

Trichuris suis

- Whipworm of swine
- Clinical Signs:
  - Stunting, bloody diarrhea, rectal prolapse
- Populations assumed to have T.suis
- Can hatch in human intestines, creating transient infection
  - Being studied for use in Crohn’s disease and IBD
- N.B.: If you’re interested in weird trivia, T. suis helminths diminish immune responsiveness and reduce inflammation in experimental colitis. The thought was that this might help prevent or even ameliorate Crohn’s disease, which is believed to be due to an inappropriate immune response to normal intestinal bacteria. People with Crohn’s disease are using this therapy currently, swallowing 2500 live T.suis eggs every 3 weeks, and results are quite positive...

Strongyloides ransomi

- Threadworm of swine
- Clinical signs in suckling pigs
  - Acquire larvae through milk
  - Heavy burdens can cause diarrhea, anemia, emaciation and death
- Adults usually not clinically affected
- Ivermectin effective against adults
  - Given to sows 1-2 weeks before farrowing to decrease larval transmission
**Isospora suis**

- Coccidia
- Adults are resistant carriers
- Piglets 3-6 weeks old affected with diarrhea and stunted growth
  - Mortality 20-25%
- Thorough cleaning of farrowing facilities
- Coccidiostats fed to sows prior to farrowing

**Trichinella spiralis**

- Trichina worm
- ZOONOTIC
- Significance: Infects all animals
- 50 years ago, that was a problem
- Better management practices have reduced the incidence in the US to near zero
- N.B.: The problem in the past was that we fed hogs “slops” – garbage, including meat, even meat from dead hogs. This perpetuated the trichinosis problem, and humans could easily contract the parasite by eating undercooked pork. Since we’ve changed the way hogs are fed in this country, trichinosis is almost unheard of, but still very prevalent in other countries were hogs are still fed garbage.

**Taenia solium**

- Pork tapeworm
- ZOONOTIC
- Significance: None (in swine)
- N.B.: Although pretty much a non-problem in the pig, *Taenia solium* undergoes aberrant migration in humans, forming cysts in any number of organs (cysticercosis) and the brain (neurocyticercosis). Slide 33 shows a human brain at autopsy with neurocysticercosis. This is NOT the parasite you wish to acquire...