MAE Farm Parasitology Report April 2017

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History:

MAE Farms is a farrow to finish closed herd operation. The farm consists of 220 pigs and 27 head of cattle. The pigs are housed in groups of approximately 40 and are rotated on 13 different pastures outside. To revive the pastures, they are seeded with clover, fescue, or ryegrass and rested for a period of time to allow for regrowth of plants or they are stocked with a low density of pigs. The pigs are fed a diet of corn and soy meal, molasses, and mineral supplements once daily. Acorns are supplemented during the fall months. Banminth (pyrantel) is added to the feed to prevent intestinal parasites. When the herd was started, pigs were vaccinated for *Erysipelas* and *Leptospirosis*. Vaccinations continued for 2 years and were stopped due to the closed status of the herd.

All breeding on the farm is done naturally by the 5 boars on site. Breeds found on the farm include Duroc, Hampshire, Chester White and Berkshire. All animals are cross bred. If a new boar is introduced, the boar is quarantined before introduction to the herd. Farrowing occurs in the fields or in farrowing huts. Within the huts, the sows are able to move around unlike in the gestation crates used in commercial pig operations. The farm faces issues with black vultures that target newborn piglets. Surgical castration is the only piglet processing method that is practiced. Pigs have been selected for good hip conformation to allow them to move about the pastures. Each sow has two litters per year.

Pigs are directly sent from the farm to market. Weights are based off of customer demand. The behavioral changes that were noted in December of 2015 have not returned. The pasture used during that time is no longer used for pasture on the farm. The biggest issue that the farm faces is parasites. Liver spots have been an issue in the past. The issues have been resolved to date and no clinical signs of disease have been noted.

Results:

ID (pasture)	*Strongyloides ransomi*	*Trichuris suis*	*Oesophagostomum dentatum*	*Coccidia*	*Ascaris suum*
A1	-	-	+	+	-
A1	-	-	-	-	-
A1	-	-	++	+	-
A1	+	-	+	+	-
A1	+	++	-	++	-

A1	+	+++	-	++	-
B3	-	+++	+	++	-
B3	-	-	+	-	-
B3	-	++	+	+	-
B3	+	+	+	-	-
B3	+	-	-	+	-
B3	+	+	+	-	-
B3	+	-	+++	-	-
B3	+	+	+	-	-
B3	+	-	-	+	-
B3	+	+	-	+	-
B4 (sow)	+	+	+	+	-
C3	+++	-	-	+	-
C3	+++	-	+	-	-
C3	++	-	+	-	-
C3	++	-	++	-	-
C3	+	+	-	++	-
C3	+	-	-	+	-
C4	-	-	-	+	-
C4	+	-	+	-	-
C4	+	-	+	+	-
C4	-	-	-	++	-
C4	-	-	-	+	-
C4	-	-	+	+	-
C4	-	-	+	+	-
C4	-	-	+	-	-

Discussion:

Pastures and their highest parasite problems

- A1 (~13 grower pigs) - *Coccidia* and *Trichuris*
- B3 (~50 pigs) - *Oesophagostomum* and *Trichuris*
- B4 (2 sows with young piglets) - only 1 sow sampled
- C3 (~ 50 pigs, mostly older piglets) - *Strongyloides*
- C4 (~50 pigs; growers/finishers) - *Oesophagostomum* and *Coccidia*

Overall, the pigs on the farm appeared healthy and well maintained. The parasite ova counts found in the samples did not appear to be high enough to be pathological burdens, or to cause clinical signs. The most apparent parasite issues across the herd appeared to be *Strongyloides* and *Coccidia*. No samples reflected the presence of *Ascarids*.

Strongyloides were found in all five pastures sampled, especially in B3 and in greater numbers in C3. Neither of these pastures were sampled last spring. *Strongyloides* worms can be transferred to pigs via the soil by skin penetration but also via the sow's milk (lactogenic route). They are found in the villi of the small intestine. Eggs can be found in the feces about a week after infection. Clinical signs include diarrhea, anemia, not eating, emaciation, and death. *Strongyloides* may become a concern if clinical signs appear. The pigs and piglets do not seem to be showing any clinical signs at this time. The piglets are likely acquiring the worms through the sow's milk.

Coccidia was also found in all five pastures. The levels of coccia observed are not expected to cause clinical signs. Pasture A1 had the highest prevalence of coccidia, with it observed at moderate to high levels in one third of the samples tested. This is an increase compared to the samples taken last spring. *Coccidia* also increased, to a lesser extent, in Pasture C4. Clinical signs include yellow to white, foul smelling, watery diarrhea. Symptoms last 7-10 days. They usually affect pigs 1-3 months old. The piglets can appear weak, small in size, and dehydrated. It is important that the piglets are prevented from staying in areas that remain damp. Thorough removal of feces and disinfection of farrowing facilities between litters greatly decreases infection. Piglets that recover from infection are highly resistant to reinfection.

Oesophagostomum dentatum was also found in all five pastures. This worm has a direct life cycle wherein a free-living larval stage (L3), ingested from the environment, infects the pig. For the most part, they do not cause any symptoms in pigs. Heavy levels of parasitism by these worms can cause emaciation, anorexia, diarrhea and other GI disturbance. There was an increase in Pasture A1, as there were no *Oesophagostomum* detected there last spring. A decrease was observed in Pasture C4, compared to last spring. *Oesophagostomum* larvae can survive up to a year on pasture. If you notice clinical signs in your pigs and the presence of the worms is confirmed by finding characteristic lesions in the pig's small intestine and colon, it would be beneficial to rest the associated pasture for 1 to 2 months to allow the infective larvae to die-off. The removal of shade tree in Pasture C4 may have contributed to the desiccation of larvae on pasture and the reduction in numbers observed from the previous spring.

Trichuris suis was found in four of the pastures sampled (A1, B3, B4, C3). There was a marked decrease in Pasture C4. None were observed this spring. The increased heat from loss of shade may have helped kill off the *Trichuris* in Pasture C4. Levels remained about the

same in Pasture A1. The adult worm embeds in the epithelial cells of the large intestine. Clinical signs include bloody diarrhea in pigs 3 to 4 weeks after they are moved onto an infected pasture. The ova are fairly resistant to desiccation. They can survive on a pasture for several months. So it is recommended that an infected pasture be rested for 2-3 months if the worm burden is high enough that you see clinical signs.

We saw no presence of *Ascaris suum* in any of the samples. It is thought that Ascarids were the cause of liver spots at this farm in the past. No treatment or change is recommended for Ascarids unless the white spots on the livers or clinical signs of heavy breathing, unthriftiness, and stunted growth are observed.

In general, we saw no serious concerns, no clinical signs, from parasite loads throughout the farm. Careful observation of the herd and fecal surveillance by a veterinarian should still be performed regularly. Watch for watery or bloody diarrhea in the piglets. Keep in mind that eggs will remain in the soil for a long time. Less shade and less moisture may help dry some of the eggs out and make them less viable. Presently, with lack of clinical signs, internal parasites do not seem to be an issue for MAE Farms.