

MAE Farms Parasitology Report – December 2016

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History:

MAE Farms is a farrow-to-finish swine operation located on 73 acres in Louisburg, North Carolina. The farm was established by Mike Jones in 2004, and is mostly comprised of Chester White, Duroc, Hampshire, Berkshire, and Hereford hog crossbreeds. Currently, the farm contains about 215 swine in total: 127 growing hogs, 18 sows, 7 boars, and 63 suckling piglets. Additionally, the operation consists of other animals on-site such as cattle, ducks, and chickens.

The protocol for rotating pigs within the farm remains the same as in previous years, and incorporates at least three general rotations. The sows are taken to farrowing huts two weeks before parturition, and are reintroduced to open pasture 4-6 weeks after their piglets are born. There is an overnight acclimation to the open pasture by the sows, and then the piglets join their mothers on the same pasture. Together, both groups remain on the pasture until the piglets are weaned at 8-10 weeks (there is no early weaning unless the sow is not performing well, or is being aggressive towards the piglets). The sows are then moved to a breeder pasture, where they are allowed to breed naturally, whereas the weaned pigs are moved to a grower pasture. From the grower pasture, pigs are ultimately moved to market/cull pastures.

At MAE farm, castration is the only piglet processing that occurs. Additionally, there is no current vaccination protocol as the herd has never broken with the swine diseases of PRRS, Pseudorabies, or PEDV. The pigs are fed a base diet of corn, soy, molasses, and oregano with an added vitamin and mineral pack. The larger hogs (in addition to the base diet) are also fed kefir, sweet potatoes and acorns. There are various rations for different stages (i.e., gestation, lactation, grower, starter, finisher, and maintenance). With respect to parasite prevention, Banminth (pyrantel) is administered continuously throughout the various rations for all hogs, and fenbendazole is used on an as-needed basis (i.e., when the pigs become agitated, and go off feed). Mr. Jones discussed with us that last December had been very wet and warm, and some of the pigs began to exhibit the aforementioned agitated behavior. They broke out of their pen, began to ingest only dirt (would not suckle, or eat feed), and 12 pigs died. Mr. Jones submitted various specimens for necropsy at Rollins Diagnostic Laboratory, and the presence of digestive tract nematodes was noted. The pen utilized during the incident is no longer in use.

Results:

Pasture and pig type	<i>Trichuris suis</i>	<i>Strongyloides ransomi</i>	<i>Ascaris suum</i>	<i>Oesophagostomum dentatum</i>	Coccidia
P1 - feeder		+		+	
P1 - feeder		+			
P1 - feeder	++				
P1 - feeder	+				
P1 - feeder				++	

P1 - feeder				++	
P1 - feeder				++	
P1 - feeder (poor prep)		+		+	
P2 - piglets		+			
P2 - piglets		+		+	
P2 - piglets		+			
P2 - piglets		+			
P2 - piglets		+			
P2 - piglets	-	-	-	-	-
P2 - piglets				+	
P2 - piglets		++			
P4 - weanlings		+			
P4 - weanlings		++		+	+
P4 - weanlings		+		+	
P4 - weanlings	++	++		+	+
P4 - weanlings		++++		+	
P4 - weanlings	++	+			
P4 - weanlings	+++			+	+
P4 - weanlings		+		+	

Discussion:

Overall, the parasite ova levels found in the samples were either not high enough to indicate pathological burdens, or were not associated with clinical signs. The most significant parasites noted in the samples were *Strongyloides*, and Strongyle-type eggs associated with *Oesophagostomum*.

Strongyloides was found in all three groups of pigs sampled – piglets, weaned pigs, and feeder pigs. *Strongyloides* is transferred to pigs through both their mother's milk (lactogenic route) and skin penetration (from the pasture soil). This worm is commonly found in the villi of the small intestine and has a prepatent period of about one week. While the Banminth given to these pigs through their feed is effective against the worms through the lactogenic route, it is ineffective against the skin-penetrating worms. Currently the pigs – particularly the piglets - do not seem to be showing clinical signs associated with *Strongyloides* such as diarrhea, anemia, anorexia, emaciation, and death. Unless clinical signs are observed, treatment is unnecessary.

Oesophagostomum dentatum was also found in all three groups of pigs sampled, most significantly in the weaned and feeder pigs. This worm has a direct life cycle in which the free-living infective L3 stage is ingested from the environment. Most infections are asymptomatic in pigs, but a heavy burden can cause anorexia, emaciation, and GI disturbances/diarrhea. If you begin to notice these signs in your pigs, and characteristic lesions are found in the pig's small intestine and colon, it would be beneficial to keep pigs off of the pasture in question until the worms have time to die. Unfortunately, *Oesophagostomum dentatum* infective larvae may survive up to one year on pasture.

Trichuris suis was found in some weaned and feeder pigs. This worm is commonly found embedded 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. These ova are fairly resistant to desiccation and can remain on a pasture for several months. If parasite burdens become high enough to produce clinical signs in a certain pasture, it would be recommended to rest the infected pasture for 2 to 3 months before introducing a new group of naïve pigs. *Trichuris suis* worms are not susceptible to Banminth (pyrantel).

No ascarids (*Ascaris suum*) were noted in any of the samples, but it was reported that milk spots are still sometimes found in livers, thus leading to their condemnation. The phenomenon of milk spots occurring while swine are on certain deworming medications is poorly understood. We recommend continuing to use the Banminth within the feed since the current milk spot rate appears to be low, and not utilizing the Banminth could potentially result in an increase in milk spots seen.

Lastly, we attempted to determine whether or not there was an association between the presence of nematodes in the digestive tract and the erratic behavior exhibited by some of the pigs last December (i.e., going off feed, not suckling, ingesting dirt, and mortality). Unfortunately, no such association (between the presence of erratic behavior and nematodes found within the digestive tract) was supported by the literature (i.e., the phenomenon appears to be completely coincidental). Therefore, the use of fenbendazole during such periods remains at your discretion.