

Reedy Fork Dairy Farm Parasitology Report 2016

Introduction:

Reedy Fork Farm's Organic Dairy has been certified since 2007. To maintain the title of organic, Reedy Fork cannot use synthetic fertilizers, pesticides, herbicides, or GMO additives in feed. This farm is made up of 650 acres that allows extensive rotational grazing of the cattle. The cattle are mainly graze fescue, and are fed barley, wheat, and organic corn (with minerals and salt) that the owner sources locally in North Carolina. Creeks on the farm were recently fenced off for stream restoration and cows are watered using wells located on the farm. The dairy has about 200 cattle, they have 85-90 milking cows, 2 bulls, about 15-25 over 1.5 years but not part of the milking herd yet, 57 4-8 month olds, and a handful of calves in hutches that are under 2 months of age. The newborn calves are allowed to nurse on their mother for about three days to get colostrum and then they are moved to hutches. Once they reach about 4 months of age they are moved directly from the hutches into the 4-8 month old pasture. The 4-8 month olds are on a diet that contains corn, barley, wheat, oats, minerals, and molasses. Last year this group had the highest parasite load, so the owner moved them to a new pasture that only mature cattle had been on (the pasture they were on is resting because of the heavy parasite load). Once they are about 1-1.5 years old they are moved into another pasture where they reside until they are ready to become part of the milking herd (this pasture also has a few older cattle that do not have the temperament to enter the milking herd. The milking herd was on a large pasture at this point because the owner was working on mapping out where they are planting crops for the summer. Lactating cows are milked twice a day and produce on average 35-40 pounds of milk per cow per day.

Reedy Fork also has a feed mill that was started in 2007 when they dairy transitioned to organic. This mill produces organic feed for chickens, cows, ducks, goats, horses, pigs, sheep, and turkeys. Over the past few years the farm has tried to become self-sufficient with its own organic dairy grain. The time and acreage needed to produce this self-sufficient system has been the most limiting factor, so they have had to purchase grain from other Organic Valley Producers, this year they were able to purchase all their organic products from North Carolina.

They have not had to do a full deworming cycle since before they became an organic farm, so before 2007. If a calf looks like it has a heavy parasite load there are a few certified organic products that are approved for treatment. Reedy Fork adds diatomaceous earth and supplements (supplements include: cow salt, North Atlantic kelp, molasses, and a premixed mineral supplement) into the feed. The farm's fly control protocol includes predatory wasps and a fly vacuum for the dairy cows to walk through twice a day. The presence of fly related problems is relatively low in this herd.

Reedy Fork has added Highland Brown laying chickens over the past two years. The farm has about 500-600 chickens in total that are split into two groups (200 near the milking parlor (about a year old) and about 300-400 across the road (about 9.5 months old). The houses and

fences are easily moved. Ideally he wants to move to a system where the chickens move behind grazing calves. This way the cattle eat down the pasture and the chickens are placed on that pasture while it's resting. The group we sampled had been on the same plot about a week and a half. Chickens are fed the layer feed made at the mill that contains corn, soybeans, barley, crabmill, and oregano. These 200 chickens are producing about 110-120 eggs a day at the time of sample collection.

Data Collected:

Cows:

Cohort	Parasite			
	Strongyle-type	<i>Nematodirus</i>	<i>Trichuris</i>	Coccidia
0-2 Mo	Negative			
0-2 Mo	Negative			
0-2 Mo	Negative			
0-2 Mo	Negative			+
0-2 Mo	Negative			
0-2 Mo	Negative			
0-2 Mo	Negative			
0-2 Mo	Negative			

Cohort	Parasite			
	Strongyle-type	<i>Nematodirus</i>	<i>Capillaria</i>	Coccidia
4-8 Mo.	397			
4-8 Mo.	8			
4-8 Mo.	9			+
4-8 Mo.	13			+

4-8 Mo.	20			+
4-8 Mo.	23			
4-8 Mo.	167		++	
4-8 Mo.	2			+
4-8 Mo.				+
4-8 Mo.	90			
4-8 Mo.	19			
4-8 Mo.	173		+	
4-8 Mo.	181		+	
4-8 Mo.	93			
4-8 Mo.	220		+	+
4-8 Mo.	5			
4-8 Mo.	49			
4-8 Mo.	244		+	+
4-8 Mo.	46		++	++
4-8 Mo.	29		+	
4-8 Mo.	4		+	
4-8 Mo.	13		+	
4-8 Mo.	8		+	

4-8 Mo.	28		+	
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Cohort	Parasite				
	Strongyle-type	<i>Nematodirus</i>	<i>Trichuris</i>	Coccidia	<i>Moneizia</i>
1.5-2yrs	12				
1.5-2yrs	3			+	
1.5-2yrs	Negative				
1.5-2yrs	13				
1.5-2yrs	3			+	
1.5-2yrs	10			+	
1.5-2yrs	3			+	
1.5-2yrs				+	
1.5-2yrs	7			+	++

Cohort	Parasite			
	Strongyle-type	<i>Nematodirus</i>	<i>Trichuris</i>	Coccidia
Adult				+
Adult	47			
Adult	5			
Adult				
Adult				
Adult				
Adult	1			
Adult	3			

Adult				
Adult	2			++
Adult				+
Adult				
Adult				
Adult				+
Adult	36			+
Adult	17			+
Adult	5			

Chickens:

Chickens (near parlor)	Parasite			
	Ascarid	Coccidia	<i>Capillaria</i>	Strongyle- type
	+			
	+		+	
	+			
	+		+	
	+			
	+		+	
	+			
	++		+	+
	++		+	
	+			
	+		+	
	+		+	
	+++		+	

- + Parasite ova noted in the sample
- ++ Moderate parasite ova level
- +++ Moderate to heavy parasite ova level

Results and Recommendations:

Coccidiosis:

The main causes of coccidiosis in cattle include: *Eimeria bovis*, *Eimeria zuerneii*, and *Eimeria auburnensis*. *E. bovis* is the most common, which was found sporadically throughout the different cohorts on the farm. Coccidiosis generally manifests as a subclinical disease in groups of growing animals. In light infections, cattle appear healthy and eggs are present in normally formed feces, but feed efficiency may be reduced. More severe clinical signs including watery diarrhea could be masked by the fresh spring grass that can often cause watery feces. Oocyst levels in feces were undetectable or consistently low, and clinical signs of coccidiosis were absent from the farm. The incubation period of coccidiosis is 17-21 days, therefore if strict rotation guidelines are maintained it can be “out run” and effectively eliminated from the herd. Coccidiosis is more commonly a problem with densely populated groups on feedlots. Coccidiosis is a self-limiting disease, and recovery does not generally require treatment.

Strongyle-type:

The main strongyle-type parasite that affects cattle is *Ostertagia ostertagi*. It is also known as the brown stomach worm. They can lead to loss of appetite, diarrhea, and weight loss overall decreasing productivity. *Ostertagia* has a direct life cycle which takes around 21 days to complete. In the south *Ostertagia* is generally prolific in the spring and summer months in cows less than 1.5 years old. In severe cases it can lead to rapid weight loss, anorexia, swelling of the jaw (bottle jaw), anemia, poor hair coat and generally poor condition. No clinical signs of Ostertagiasis were present

Ascaridia gallii:

Ascaridia gallii is a common parasite that inhabits the small intestine of chickens, turkeys, ducks and quail. It has a direct life cycle so it does not need an intermediate host. The thick outer shell of *A. gallii* makes it resistant to environmental factors that would purge other parasites and help a rested pasture recovery quicker. It is moderately pathogenic and can lead to decreased production, diarrhea or impaction, and in severe cases death within 12 days.

Conclusion:

The parasite levels this year compared to last year are much lower. It appears that changing the pasture the 4-8 month old cows are in and the rotation has helped significantly. Putting the 4-8 month olds on a pasture that only mature adults were on has helped minimize the parasite transmission, because adult cows shed fewer eggs. We recommend moving the 4-8 month olds to a pasture where adult cows have been grazing in order to reduce exposure to *O. ostertagii*. All the other cohorts had as expected minimal levels of parasites due to their age resistance to abomasal nematode parasites.

The chickens had a fairly prevalent parasite load and we recommend moving them to a clean pasture and cleaning the houses before introducing new birds. Ascarid ova can persist in the environment for several months, so you will need to rest those areas from chickens for at least 4 – 5 months. The chicken houses will also contain infectious ascarid ova. A general cleaning of the house should be done first and then a heated pressure washer can be used to remove the ascarid ova that are present. If the flock is moved every 7-10 days freshly passed ascarid ova will not have enough time to become infective and the flock will hopefully stay parasite free.