

Reedy Fork Organic Dairy

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Introduction

Reedy Fork Organic Dairy has been a certified organic farm since 2007. No synthetic fertilizers, pesticides, or herbicides may be used on its pastures, and no GMOs are given in feeds. The farm is on 600 acres, and the herd includes 85-100 cows in the milking herd, 50 heifers, about 60 calves born between September 2014 and March 2015, and ~15-20 steers. The replacement heifer group will be rotated through three main large pastures. When in one large pasture, ideally there are sections fenced off, and the cattle are rotated depending on grass length (about every 3 days to 1 week). Once a group is moved off a pasture that pasture typically is uninhabited for over a month prior to another group being placed there. The main forages grown on Reedy Fork farm are fescues, with some introduced clover, lespedeza, and orchard. In several of the pastures the main water source is a creek. They are currently working to get the creeks fenced off and install waterers.

Reedy Fork has their own organic feed mill on site. Although they are not able to grow all the ingredients they use they try their best to source them from certified organic farms in NC, but some ingredients do come from organic farms outside of the state. They sell most of their feed to other organic dairy farms in NC and their other largest market is backyard chicken owners that want organic chicken feed.

The herd at Reedy Fork is mainly closed, with the only new animals introduced being bulls, which are quarantined briefly prior to being placed with females. Breeding is done solely via live cover, and females are bred from late December to late April. Calves born on the farm destined to become replacement heifers or beef steers spend 2-3 months in hutches before being placed on a paddock behind the calf barn. They then are moved to a larger pasture where they remain until the fall of that season, and from there are moved to another pasture until they are large enough to be moved to the breeding group. Each year's groups are not mixed with current groups to avoid spread of illness.

No dewormers have been used on this farm since before 2007. Diatomaceous earth and kelp are added supplementally in the feed to help reduce parasites and the rates of pink eye. The milking herd walks through a Fly-vac each day on their way to the milking parlor to control external parasites. Additionally predatory wasp species have been used to eat the fly larvae and reduce fly numbers.

Methods

Fresh manure was collected from each of the following groups: hutch calves, 6-8 month olds in a paddock, 6-10 month olds on pasture, 1 year + heifers on pasture, breeding heifers, and adult cows. Samples were analyzed after using a modified double centrifugation method.

Results

Fecal egg counts were performed for each sample and strongyle-type eggs were reported as eggs per gram. Parasite ova/oocyst numbers for *Nematodirus*, *Coccidia*, *Trichuris* and *Strongyloides* are denoted by 0 (none found) 1+ (few), 2+ (moderate numbers) and 3+ (many).

Calves	Strongyle-type	<i>Nematodirus</i>	<i>Coccidia</i>	<i>Trichuris</i>
625	0	0	0	0
340	0	0	0	0
623	0	0	1+	0
626	1.5? suspect contamination	0	1+	0
627	0.5? suspect contamination	0	1+	0

6-8 month paddock	Strongyle-type	<i>Nematodirus</i>	<i>Coccidia</i>	<i>Trichuris</i>
	112.5	2+	0	0
	408	2+	1+	0
	492.5	2.5+	1+	0
	92	1+	3+	0
	246.5	1+	0	0
	57	0	3+	0

6-10 month	Strongyle-type	<i>Nematodirus</i>	<i>Coccidia</i>	<i>Trichuris</i>
616	278	0	1+	0
382	700	3+	1+	0
unidentified	227.5	1+	0	0
385	111	1+	1+	1+
unidentified	389.5	2+	1+	0
unidentified	234.5	1+	1+	0
unidentified	378	2+	0	0
618	369.5	1+	0	0
unidentified	356	1+	0	1+
unidentified	518.5	2+	2+	0

1 year +	Strongyle-type	<i>Nematodirus</i>	<i>Coccidia</i>	<i>Trichuris</i>	<i>Strongyloides</i>
unidentified	18	0	0	0	0
unidentified	1	0	0	0	0
540	3.5	0	0	0	0
577	12	0	0	0	0
303	12	0	0	0	0
546	7	0	0	0	0
328	3	0	0	0	0
517	0.5	0	0	0	0
502	108	0	1+	0	0
583	12.5	0	0	0	0
353	1	0	0	0	0
baby calf	0	0	0	0	1+

Heifers	Strongyle-type	<i>Nematodirus</i>	Coccidia	<i>Trichuris</i>	<i>Strongyloides</i>
unidentified	12	0	0	0	1+
unidentified	1	0	0	0	0
no tag horns	1.5	0	0	0	0
503	0	0	0	0	0
unidentified	33	0	1+	0	0
heifer horned	2	0	0	0	0
unidentified	0	0	0	0	0
unidentified	0.5	0	1+	0	0
unidentified	0	0	0	0	0
bull	0	0	0	0	0
no horn bull	0.5	0	0	0	0

Cows	Strongyle-type	<i>Nematodirus</i>	Coccidia	<i>Trichuris</i>
random	3.5	0	0	0
random	0	0	0	0
random	0	0	0	0
random	0	0	0	0
random	0.5	0	0	0
random	0.5	0	0	0
random	1	0	0	0
random				0
random	2	0	0	0
random	0	0	0	0
random	0.5	0	0	0
random	0.5	0	0	0
random	11	1+	0	0
random	0	0	0	0
random	1	0	0	0
random	0	0	0	0
random	2	0	0	0
random	0	0	0	0
random	0.5	0	1+	0
random	0	0	0	0
random	0	0	0	0

RESULTS/RECOMMENDATIONS

Coccidia

Coccidiosis in cattle is typically due to infection with *Eimeria bovis*. This parasite infects the small intestine, causing diarrhea which may be hemorrhagic and animals sometimes have a fever.

A few hutch calves, and a few of the 6-8 and 6-10 month old calves were found to have low to moderate levels of coccidia. The most likely source of *Eimeria* infection is via oocyst contamination of the environment from previous calves. The only calves with higher coccidia levels were those in the 6-8 month old group. Altering the flow of calves after their period in the hutch may reduce levels of infection in this group. However, this did not appear to be a major concern at Reedy Fork.

Nematodirus

Nematodirus is a trichostrongyle nematode that we found in small numbers in the 6-8 month group and 6-10 month group. Heavy infections can lead to damage to the small intestine and severe diarrhea, weight loss, and loss of appetite. Again, the flow of calves from the hutch-calf stage to their first pasture may reduce *Nematodirus* levels. Adult cows typically are resistant to disease caused by *Nematodirus*, so getting the calves through to adulthood without severe disease should eliminate any problems from this parasite. *Nematodirus* was also not the most prevalent parasite at Reedy Fork, so it is less of concern as well.

Trichuris discolor* and *Strongyloides papillosus

Ova from the nematodes *Trichuris discolor*, (a whipworm that can cause diarrhea and weight loss in calves), and *Strongyloides papillosus* (a threadworm that can cause bloody diarrhea and dermatitis) were observed in a few animals. However, they were present in such low numbers that they are not of concern at this time.

Ostertagia ostertagi

The major strongyle that infects cattle is *Ostertagia ostertagi*. This parasite may cause clinical signs in young calves, as well as high levels of shedding ova, however it is rarely an issue in adult cattle. The only way for animals to become infected with *Ostertagia* is by grazing on a pasture contaminated by infective larvae. These larvae develop in the abomasum and may either emerge or enter an arrested state. Active worms damage the abomasum and cause loss of protein and nitrogen. When animals become clinically affected, signs include anorexia, diarrhea, and poor growth.

The only groups on the farm that presented with a significant parasite load were 6-8 and 6-10 month old groups. The main parasite we saw was strongyle-type ova (*Ostertagia*), which is only transmitted via grazing on pasture containing infective larvae. Because of its mode of transmission, we can infer that these calves became infected by strongyles on the paddock on which they were placed after being moved from their hutches.

In order to reduce the parasite load in the younger animals we would recommend changing up the pattern in which you rotate the calves each year. Since you are not relying on the paddock area grasses to provide nutrition one option would be to till up and remove the vegetative growth that is present. If the paddocks are to acclimate calves coming from hutches to a grazing experience, then each group of hutch-calves should go onto a paddock not previously grazed within 2-3 months. Allow the area to rest for at least 2-3 months during the summer so all the infective larvae will die due to desiccation. With the young calves who are more susceptible to infection it is important that they be placed into pastures that do not have high levels of infective larvae. Even if you intensively manage and rotate the calves through small sections, they can still ingest high levels of infective larvae that have overwintered in the pasture from the previous grazing season. The data supports that the milking herd and the breeding heifer groups are rather resistant to infection and are not producing large amounts of worm ova. Pastures grazed by mature animals are a good option to use the following season for the younger calves.