

HISTORY

Reedy Fork Farms is a certified organic dairy with Holsteins and Holstein-Jersey crosses. There are several groups of cattle kept on separate pastures: 96 cows in the milking herd, approximately 30 heifers, a group of cattle ranging from 12 to 18 months of age, a group of about 40 weaned calves, and a small group of calves still being fed milk.

Calves are separated from their dam at birth and moved to calf stalls for 20 to 40 days. They are given colostrum collected from the cows. Waste milk is given to the calves for a period of 90 days. They are then moved onto a permanent pasture. This is a recent change from previous years, when calves were kept on a different lot and rotated through the pasture.

Calves are eventually moved to a pasture that houses cattle ranging from 12 to 18 months of age. After 18 months of age, they are moved to another permanent pasture for breeding. Males have been castrated, but are kept in the herd.

The heifer pasture is not rotated, but this is a goal in the future.

The milking cows are kept in three-acre plots and are moved to a new area every other day.

There is not a current de-worming protocol, and animals have not been de-wormed in one and a half years, but with current issues with pneumonia, Once PMH (Intervet) is being given to calves. This vaccine is given to calves older than 3 months of age and is a modified live vaccine that protects against causes of bacterial pneumonia, *Mannheimia haemolytica* and *Pasteurella multocida*. Calves are also given a clostridial vaccine.

BREEDING PROGRAM

Bulls are put on pasture with the heifers and with the cows. The farm is currently breeding seasonally, with calves born in the fall, so that milk production will peak in the winter. This results in calves being put on pasture for grazing in the winter.

NUTRITION

In addition to grazing, cows are supplemented with silage or balage, and a concentrate mixture of corn and barley as needed.

HEALTH ISSUES

Pneumonia has been noted in this season's calves after being placed on pasture. This same group is also afflicted with pink eye. The pink eye did not appear until after a new group of fifteen heifers was purchased and added to the herd.

Coughing and nasal discharge were noted in this group. Two calves were observed to have advanced clinical signs of pink eye. This group of calves was also observed to be less thrifty by the owner compared to previous seasons. All groups of animals were noted to have a large number of flies.

TREATMENTS

Currently the pink eye is being addressed organically with aloe and kelp.

SAMPLE COLLECTION

Several fecal samples were obtained from each group of animals and flies were trapped from one of the cows.

TESTING

A double centrifugation technique was utilized to calculate the number of eggs per gram of feces. Strongyle-type eggs were enumerated and the presence of other parasite eggs or larvae was noted. The flies were identified with microscopy. The larvae were identified through microscopy, staining with Lugol's iodine, and measurement.

RESULTS

Calves in stalls or near barn		
<i>Identification</i>	<i>Strongyle-type eggs per gram</i>	<i>Other parasites</i>
280	0	
465	65	
466	3	
Bull calf	28	Few coccidia
Unknown	3	
Calves on pasture		
<i>Identification</i>	<i>Strongyle-type eggs per gram</i>	<i>Other parasites</i>
25	260	<i>Nematodirus</i>
264	211	<i>Nematodirus</i>
269	117	
274	250.5	
434	363.5	Many larvae
439	271	<i>Nematodirus</i>
448	217	Many (>100) larvae, few <i>Trichuris</i>
449	52	<i>Trichuris</i> , few coccidia
449	104	Few coccidia
451	140	<i>Trichuris</i> , <i>Nematodirus</i>
457	28	
457	50	
Unknown	50	<i>Nematodirus</i>
Unknown	796.5	<i>Nematodirus</i> , <i>Trichuris</i> , few larvae
Unknown	70.5	Moderate coccidia
Unknown	52	Few larvae
Unknown	175.5	Mild coccidia
12-18 month old animals		
<i>Identification</i>	<i>Strongyle-type eggs per gram</i>	<i>Other parasites</i>
216	1.5	
372	2	Mild coccidia
378	10	Rare coccidia
859	7	
Unknown	15.5	
Unknown	0	
Unknown	15	
Unknown	16	
Unknown	6	
Unknown	1	
Unknown	15	Mild coccidia
Unknown	1	
Heifer and Cow Pastures – all unknown		
<i>Heifers – strongyle-type eggs per gram</i>	<i>Cows – strongyle-type eggs per gram</i>	
0	3	
0	0	
2	0.5	
0	1	
1	3	
0.5	0	
	2	
	0	
	1	
	0	

Horn flies were identified on the cows

IDENTIFIED PARASITES

Strongyle-type eggs in cattle can be found as a result of infection by several different intestinal nematodes, but *Ostertagia*

Ostertagia (the brown stomach worm) is most common. Heavy infections with *Ostertagia* or other stomach worms in young cattle, or unexposed adult cattle can cause watery diarrhea, anemia (pale mucous membranes), and bottle jaw. Chronic infections may cause weight loss, poor hair coat, and poor appetite.

Nematodirus worms are found in the small intestine of ruminants and may cause diarrhea and poor appetite in unexposed calves with heavy burdens. The level of *Nematodirus* found here was not significant. Adults have good immunity against infection after exposure.

Trichuris worms are found in the large intestine of ruminants and rarely cause symptoms except in cases of severe infection, which is not indicated by the numbers seen in the fecal counts.

Coccidia is seen most commonly in animals less than a year of age. Infections are sporadic in wet seasons, and more common when animals are stressed due to weather or over-crowding. Chronic infections can result in unthrifty calves with watery feces, and straining to pass feces. The infection is usually self-limiting and recovery is spontaneous.

Trichuris and coccidia are ingested from pasture as infective eggs passed in the feces of other infected animals. *Ostertagia* and *Nematodirus* are ingested from pasture as infective larvae that have hatched from the eggs passed by infected animals.

Larvae observed in the feces of the calves on pasture were further identified as *Dictyocaulus viviparus* (lungworm). Infective larvae are ingested from pasture. From the intestines, the larvae migrate to the lungs, and reside in the airways where they produce eggs. The eggs hatch into larvae, and are coughed up, swallowed, and passed in the feces. Infection with lungworm can result in bronchitis or pneumonia. Symptoms include coughing, nasal discharge, and difficulty breathing. Lack of weight gain and weight loss may be seen. Secondary infection by bacteria can worsen the disease.

Horn flies are commonly found on cattle and are usually found on the back. They feed on blood and other fluids, and cause pain and irritation to cattle. Large numbers of the flies can decrease weight gain and milk production. Horn flies can potentially spread *Moraxella*, the bacteria responsible for pink eye, although face flies are the more likely culprits.

RECOMMENDATIONS

Besides the flies, nothing in the 12 – 18 month-old calves, heifer lot, and cow pasture is concerning with regards to parasite infections. Fecal egg counts of less than 100 eggs per gram are considered not clinically significant in cattle.

In the young calf group on pasture, the levels of strongyle-type eggs is a concern and the presence of lungworm larvae is likely the cause of the respiratory symptoms being observed. Both infections may explain why these calves appear unthrifty. Infection probably occurred when the previously unexposed calves were placed on infected pasture. We strongly recommend obtaining approval from your organic certifier to use an anthelmintic for these calves. *Dictyocaulus* is susceptible to many of the synthetic anthelmintics. The calves are already exhibiting clinical signs and in addition to losses in weight gain, these animals could be at risk for death if the disease is complicated by a bacterial pneumonia. If anthelmintic treatment is not an option, we recommend supportive therapy to help these calves clear the infection on their own. Once they recover, they will have a strong immunity against future infection. With treatment, the infection should be cleared from this group and, by moving them to another pasture and allowing the current pasture to rest at least one grazing season, it is possible to clear or greatly reduce infective larvae on this pasture.

Rotational grazing for post-weaning calves, as done in the past, is also recommended. Placement of these susceptible calves on a permanent pasture may explain the increase in the fecal egg counts compared to last year.

Fly control is highly recommended in this same group as a control measure for pink eye. There is a vaccine available that may help decrease the severity and incidence of the infection. A veterinarian could also temporarily close the eyelids with sutures to help protect the globe and allow for healing in those animals already affected.

Since the pink eye agent was believed to be brought in with the newly acquired heifers, it may be pertinent to establish a quarantine area that can be used to house new arrivals for a period of time prior to introduction into the main herd. This will allow for any disease that the new animals may harbor to manifest, and allow for proper treatment or prevention of infection of the rest of the herd.