

# Reedy Fork Dairy Farm Parasitology Report Fall 2016

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## History:

Reedy Fork Dairy Farm, certified organic since 2007, has a herd of 200 cattle, which are mostly Jersey/ Holstein crosses and include groups of milking cows, heifers that are not a part of the milking herd, 1-2 year olds, less than 1 year olds, and calves less than 2 months old. The herd is mainly closed but a bull is brought in annually for breeding. The farm sets aside about 100 acres of pasture and moves groups of cattle periodically through different sections to allow for rotational grazing. Mature cows are moved about twice a week whereas calves are moved less frequently, depending on availability and height of the grass on pasture. Newborn calves under 2 months of age live in hutches until about 4 months of age when they are put on pasture. Current newborns have access to shelter to overwinter from January until March to decrease the threat of pneumonia for this susceptible population.

On pasture, the cattle mainly graze fescue as well as clover and orchard grass, both of which have to be planted. Otherwise, the cattle also are fed sorghum silage, alfalfa hay, and a grain mixture consisting of corn, roasted soybean, and wheat. Their diet is also supplemented with kelp, salt, and minerals year round. The calves receive diatomaceous earth in their feed to combat parasitic infections. In the winter, cows are supplemented with hay while calves are supplemented with grain.

Historically, the farm has not had too many issues with helminths with the extent of their negative side effects being low body condition scores, though the animals seemingly become better in health with age. The manager has noticed diarrhea in older calves but this symptom may be due to the fact that these calves have been maintained on older pasture and have not been getting enough hay. Nevertheless, this age group (less than 1 year of age) has also been recorded to carry the highest parasite loads. The farm has a history of lice but this issue has since resolved. The farm does control for flies by the administration of fly spray and a fly vacuum.

The other main health issue for the cattle is pneumonia and the cattle are vaccinated against this respiratory disease.

Reedy Fork Dairy Farm also has 1300 Highland Brown chickens. In order to maintain this population, birds at 4 months of age are brought in from an Amish farmer in Pennsylvania. The chickens start laying at 6 months of age. The main health issues of recent history include prolonged and difficulty in recovery from moulting as well as several mysterious cases of chickens with swollen heads and apparent exudate streaming from their ocular region. The farm also deals with predatory hawks and skunks.

**Data collected:**

Cattle

Samples were obtained from the following groups:

- Newborn calves less than 2 months of age: living in hutches
- Two groups of cows less than 1 year of age
  - 1st group: had been on same pasture from January to March 2016, and then moved off of this pasture; pasture was allowed to rest for 7 months and same group moved back onto this pasture (which we sampled) mid November 2016 (3 weeks ago)
  - 2nd group: Have been at calf barn and surrounding pasture this past spring and summer; moved to a different pasture (which we sampled) in mid November 2016 (3 weeks ago) which had been rested since early September 2016 (about 2 months)
- Cows 1-2 years of age
  - Same group as the '4-8 month olds' that were tested in Spring 2016 by previous students in this selective
  - Had been grazing on pasture this past summer that is now housing the 2nd group of less than 1 year old cows (see above: pasture resting since September)
  - Currently moved to pasture that contains barn and is split by a creek; rotated every 2 months to pasture on other side of creek
- Heifers 2 years and older
  - Have been on current pasture since August 2016 (past 4 months)
- Herd of mixed aged cows born from ill-mannered cow
  - Have been on same pasture all year long

Cohort	Parasite	
	Coccidia	Strongyle Type (eggs/gram)
<2 months	+	100
<2 months	+	125
<2 months	+	<25

Cohort	Parasite	
	Coccidia	Strongyle Type (eggs/gram)
<1 year		<25
<1 year	+	<25
<1 year	+	100
<1 year	+	75
<1 year	+	75
<1 year		400
<1 year		75
<1 year		<25
<1 year		100
<1 year		250
<1 year	+	100
<1 year	+	125
<1 year		725
<1 year		225
<1 year		200
<1 year		75
<1 year	+	700

Cohort	Parasite	
	Coccidia	Strongyle Type (eggs/gram)
1-2 years		<25
1-2 years		<25
1-2 years		<25

1-2 years		150
1-2 years		50
1-2 years		500
1-2 years		50
1-2 years		<25
1-2 years		<25

Cohort	Parasite	
	Coccidia	Strongyle Type (eggs/gram)
>2 years		<25
>2 years		<25
>2 years		<25
>2 years	+	<25

Cohort	Parasite	
	Coccidia	Strongyle Type (eggs/gram)
Mixed	+	<25
Mixed	-	<25
Mixed	+	<25

## Chickens

Cohort	Parasite	
	Ascaridia	Capillaria
Pen 1	-	-
Pen 1	+	+
Pen 1	++	+
Pen 1	+	-
Pen 2	+	-
Pen 2	++	++
Pen 3	+++	+
Pen 3	-	-
Pen 3	+	+++

+ Parasite ova noted in the sample

++ Moderate parasite ova level

+++ Moderate to heavy parasite ova level

## **Results and Recommendations:**

### Coccidia

Coccidiosis in cattle is caused by several species of the *Eimeria* genus, the most common of which is *E. bovis*. Typical clinical signs of coccidiosis include watery diarrhea, however subclinical infections can occur. Animals with subclinical infections usually appear healthy but may have reduced feed efficiency.

Low levels of coccidia oocysts were detected in the feces of multiple cohorts of cows throughout the farm, most commonly in the mixed herd of cows on pasture and the calves of less than 2 months of age. However, no calves appeared to have heavy loads of coccidia nor have visible clinical signs, coccidiosis does not seem like significant problem for Reedy Fork Farms.

### Strongyle Type

The major strongyle type nematode that affects cattle is *Ostertagia ostertagii*. Clinical signs include loss of appetite, swollen lower jaw, general poor condition, and diarrhea. Disease is most often present in young calves and is typically presented in the

spring and summer months. The life cycle of the parasite requires ingestion of infective larvae from a previously contaminated pasture.

Strongyle type eggs were present in highest numbers amongst the <1 year old cohorts on pasture. However no signs of clinical disease were present in these animals. Most of the older animals (> 1 year old), including the 4-8 month old cohort from the previous spring report that had the highest egg counts in the spring of 2016, had reduced strongyle egg counts indicating that these animals have developed immunity as they age. Since immunity progresses with age and since the < 1 year olds do not show clinical signs of disease (i.e. diarrhea), we do not recommend any treatment at this time. We recommend moving the younger calves (<2 months) in the hutches, after overwintering in a sheltered area to avoid pneumonia, to a pasture that has either been rested for at least 6 months or has been previously grazed only by older cows (>2 years of age). Moving the calves to a pasture previously grazed by <1 year olds would expose this young vulnerable population to a highly contaminated environment as the <1 year olds, possessing the greatest worm burden and ova production, would contaminate the pasture with the highest numbers of parasites.

### Ascaridia

*Ascaridia galli* is a common parasite inhabiting the small intestine of chickens, turkeys, ducks and quail. The life cycle of *A. galli* is direct and thus animals are infected by feeding on pasture. The thick outer coating of *A. galli* makes it resistant to environmental factors such as rainfall that would eliminate other parasites and help a rested pasture recover quicker. It is moderately pathogenic and can lead to decreased production, diarrhea or impaction, and in severe cases death within 12 days.

Chickens from all 3 lots have been found to be infected with *Ascaridia*. This infection, usually 2 to 3 years in duration, will most likely last for the entire lifetime of a chicken. Though egg counts may be high, infections appear not to be overwhelming as the chickens seem to behave normally and do not have clinical signs of disease. Since the chickens are not ill, we do not recommend treatment for this infection unless the producer wants to investigate the potential for increased egg production. We do suggest testing the feces of chickens when first introduced into the flock to see whether birds sent from the supplier are already infected with *Ascaridia*. New, uninfected birds should be added to clean pasture uninhabited by previous birds as ova are quite hardy and can last in pasture for long periods of time (years) and even with repeated rainfall.

## Capillaria

*Capillaria*, depending on the species, infects different segments of the gastrointestinal tracts of birds. Clinical signs of disease are generally nonspecific and may include overall unthriftiness, lethargy, anorexia, and decreased growth. In severe cases of disease, death may follow.

Like *Ascaridia*, chickens from all 3 lots have been found to be infected with *Capillaria*. However, the number of *Capillaria* ova appears to be lower than that of ascarid ova. Infections do not seem to be injurious as the chickens seem to be behaving normally and in good health. As such, we do not recommend any treatment at this time. Some control measures can be instituted to decrease rate of transmission including cleaning out coops, changing out bedding so that it is dry, and rotating to clean pasture. Diatomaceous earth can be supplemented at 2% in feed to reduce numbers of infecting worms.