

<i>Project Title:</i>	Evaluating Diatomaceous Earth as a Wormer for Sheep and Cattle	<i>Time Span:</i>	April 92 to December 94
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		<i>Enterprise:</i>	Sheep, Dairy

Project Description

Controlling parasitic worms in a livestock operation is critical to maintaining a productive and healthy flock of sheep or herd of cows. Medicating the animals to control parasitic worms in many cases is time-consuming, labor-intensive, and expensive.

Diatomaceous Earth (D.E.), fossilized deposits of diatoms (tiny phytoplankton found in oceans and lakes), has been used for centuries to control insect pests and parasites. The silica shells of the diatoms kill insects and worms upon contact by desiccating and absorbing the waxy or oily cuticle layer of the bugs. D.E. has advantages compared to synthetic insecticides or deworming medication because it is natural, effective, non-toxic, and affordable.

Many producers are not aware of this resource so this project will:

1. Demonstrate and evaluate the use of D.E. as a wormer when fed free-choice as a mineral mix to ewes and lambs on pasture.
2. Evaluate D.E. as a wormer for dairy youngstock on pasture when fed in a mineral mix.
3. Record observations on the fly control and external parasite control potential of D.E. in livestock production.

1992 Project Results

Both lambs and heifers were given D.E. free-choice. The lambs were observed to eat D.E. and go back for more.

Before this study began, the ewes tested at the *medium* level for Haemonchus, barber-pole worms. D.E. was fed to the ewes at a rate of 50% D.E. and 50% mineral supplement. Twelve weeks after D.E. treatment, the ewes tested *medium low* for Haemonchus although no other worming medication was used.

Lambs fed with D.E. appeared to have a faster weight gain, cleaner tails, and brighter wool. The overall body condition of the lambs seemed to improve.

Five hundred pound heifers fed D.E. free-choice to on pasture showed no worms either mid- or late-season. The cattle consumed D.E. at a rate of one lb per week per heifer.

There appeared to be less problem with gnats on the faces and backs of the animals sprinkled with D.E. D.E. may also have contributed to reducing the number of flies on the farm.

Cost Comparison of Diatomaceous Earth to Conventional Worming Medication

Conventional Medication*	\$1.50/head/day
Diatomaceous Earth	\$0.20/head/day

*administered 3 times/year - very labor intensive

1993 Project Results

Lambs that were born between April 15 and May 10 were raised on pasture with no grain and fed a free-choice mixture of one-third D.E. and two-thirds salt. No other worming program was used. On October 20, 72% of the lambs were sold as finished lambs and averaged 120 pounds each. The other 18% were sold as feeder lambs and averaged 104 pounds.

After weaning, the ewes were judged to have a body condition score of about 2.8. They fed only on pasture forage and had the same worming program as the lambs of one-third D.E. and two-thirds salt.

The dairy cows and heifers were offered D.E. free-choice all year. Fecal samples from the dairy heifers showed no signs of worms.

When the dairy cows were without D.E. for a few days they would crave D.E. and eat several pounds when it was given to them. This heavy feeding of D.E. did not have any negative side effects on the cows and they remained in good condition.

Cost Comparison of Diatomaceous Earth to Conventional Worming Medication

Conventional Medication*	\$1.80/head/year
Diatomaceous Earth	\$0.28/head/year

*administered 3 times/year - very labor intensive

Gnats and flies were less of a problem this year than last year. This could be a result of the D.E. or the cool summer or a combination of both.

1994 Project Results

As in 1993, Deutschlander fed the ewes, lambs and cattle a mix of one-third D.E. and two-thirds salt/mineral free-choice. Ewes, lambs, and cattle were grazed together and the results of feeding D.E. were mixed.

The results with the lambs were very disappointing with heavy parasite infestations, poor growth rates, and some lamb losses. The average weight for lambs coming off the pasture was 70 pounds. In 1993, the lambs weighed 120 pounds. Deutschlander took a losses on the lambs in 1994 due to the poor growth weight and lamb loss. He feels that it would have been better to have used some de-worming medicine with the lambs. Part of the reason why the lambs acquired more of a parasite problem this year than in other years was that pastures were grazed harder and a lot closer in 1994.

The cattle and ewes performed much better than the lambs while on pasture. There was a savings of \$1.50 per head for both ewes and cattle using D.E. as the wormer than medicines. Deutschlander observed that the body conditions of the ewes and cattle were very good when they were taken off the pasture.

Deutschlander plans to continue using D.E. after this project is completed. He is encouraged that D.E. does work and, as he gains a better understanding of how to use it, he thinks he can make it a more effective means to control parasites. He plans to take a closer look at his farming practices and management, like pasture rotations, and how they affect the efficiency of D.E.

Management Tips

1. Free-choice feeding of D.E. is the best option.
2. A dust bag with D.E. helps a lot for fly control.
3. Use back fencing to reduce grazing pressure and allow for a rest period for the pasture.
4. Monitor parasite levels and use worming medication as needed.

Location of Project

About one mile north of Pine City on Hwy 61. Turn west on County Rd. 11; go three and one half miles; after Nelson's Processing Plant take first road to right. We are first farm on right; all white buildings.

