

NORTHEAST SARE  
2000 FARMER/GROWER GRANT REPORT

Project Title: Pasture Aeration

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## **Introduction**

I am a full-time dairy farmer with my brother and father. The farm has been in the family for over 50 years. We own 350 acres and rent an additional 175 acres. We raise 75 acres of corn, 30 acres of oats, 60 acres of alfalfa, and some mixed hay. We have been using rotational grazing for our herd of 65 Holstein dairy cows for 9 years. We have 26 acres of pasture in paddocks and we will also graze cropland if we need to. Our pastures have a thick dense sod that is at least 50 years old. I think that if we were to aerate these pastures our pasture production would increase. The local NRCS office brought a compaction meter to a pasture walk we hosted this past summer. We tested our pastures and we did have some compaction problems from the animals. I believe that aerating these pastures would also help relieve some of this compaction.

I have pasture that has been in sod for at least 50 years. This sod has a lot of thatch and I have some compaction problems from the cows being on pasture during wet weather and from traveling the same lanes for years. I want to aerate my pastures to try to remove some of the thatch and compaction. I feel that by doing this I can increase my pasture production, and also have a better pasture for frost seeding clover into if I wish to do so. Aeration will also allow the rain to penetrate into the soil instead of running off of my steep pastures. I read in a publication by Penn State that it is best to aerate during periods of cool weather to facilitate the recovery of the grass. Therefore I plan on early spring aeration with an aerator that removes plugs as opposed to one that has solid spikes. The solid spikes tend to compact the soil. By taking a plug out water and fertilizer can penetrate into the soil to the plant roots.

I plan on aerating about 12 acres of the 26 acres of pasture I have. This would be six paddocks of the 14 paddocks I graze. I will then measure production on all of the paddocks to compare between aerated and non-aerated pasture production. I plan on renting an aerator from a local golf course and using one of our tractors to pull it.

## **Results and Observations**

On April 11, 2000 we rented an aerator from the local golf course. It was a six-foot wide machine that had solid spikes that pushed down into the earth as opposed to the aerators that have hollow tines and pull out a plug of soil. I would have liked to have used a plug aerator but did not have access to one. We aerated the areas we planned to aerate in about four hours. We only aerated the pasture once.

This past year was an exceptional grazing year here in Somerset County. We had hoped to see a difference between the aerated and nonaerated pastures. But, this year we saw no measurable difference between the aerated and nonaerated pastures. They all seemed to yield the same. Species in the paddocks also did not change. The amount of thatch did not change either. The holes the aerated left were present for about 40 days after we aerated, but this apparently did not make a measurable difference in moisture retention because we had more than enough rainfall this past grazing season. I still believe that in a dry year aeration would help with moisture retention and reduce runoff from our steep pastures. Maybe multiple aerations (once a month) would make difference.

## **Conclusions**

We saw no benefits from aerating our pastures once this past grazing season. Maybe it was because we had a great grazing season with more than adequate rainfall. I still believe that in a dry or average year we would see some increased yields from aerated pastures. I also believe a plug pulling aerator may have made a difference.