

## Project Description

### Wood Chip Heavy Use Area Protection for Winter Feeding Cattle

#### Why the need to stabilize cattle holding areas?

For farms that turn animals outside, there are nearly always some periods during the year when supplemental feed must be provided because pasture is not available. This presents a challenge because it doesn't take long for penned livestock to turn an area to mud – a stress recipe for animals, farmers and the environment. That is why the conservation district is constantly planning improvements with farmers to better manage livestock and the natural resources they depend on – soil, water, air, plants and wildlife.

In 2018, PA NRCS funded a project through its Conservation Innovation Grant (CIG) to implement a wood chip surface heavy use area protection at Dewy Meadows Farm in Bradford County, Pennsylvania.

#### Why Wood Chips?

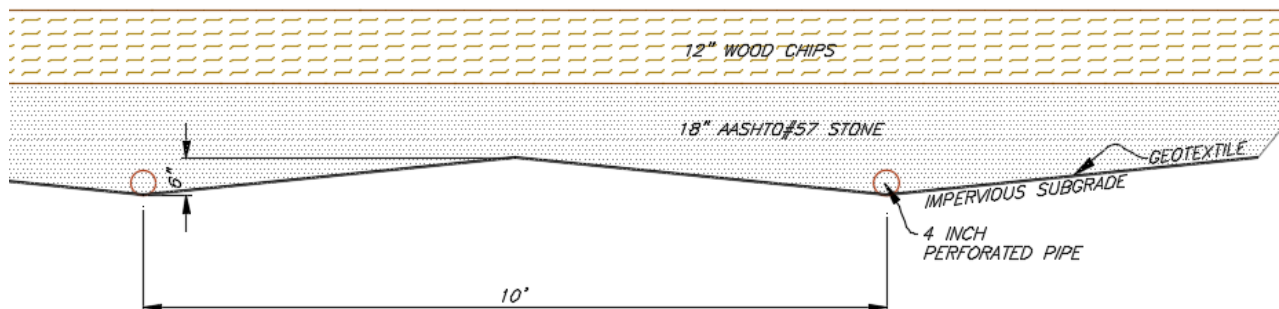
The traditional solution is concrete because it does an excellent job of containing nutrients and taking abuse. Concrete is costly, and farmers often feel they do not want their livestock confined strictly to concrete for extended time. Wood chips provide an alternative surface to hard concrete, nutrients are still captured, and cost may be lower. Wood chips have been used for this purpose in European countries for decades, but very little in the US.

#### How does it stay dry?

Drainage is the key - moving water away from where animals are. The wood chip area is uncovered and open to the elements. The wood chips are placed over a drainage collection system. The design used at Dewy Meadows Farm includes a native, clay soil, sloping subgrade with perforated pipes spaced 10 feet apart. Over the pipe is 18 inches of clean, AASHTO #57 stone and then 12 inches of screened (fines removed) hard wood chips – the same chips often used in industrial size heating systems. The wood chips and stone are very well drained, keeping the surface relatively dry. All the drainage that passes through the system can then be collected at the end of a pipe and treated in several ways. At Dewy Meadows Farm it is pumped to an irrigation sprinkler in the pasture.

Livestock are not fed or watered on the wood chips. Much of the manure is deposited where livestock eat. The wood chip surface would not withstand this volume of manure. There must be an adjacent area with a harder surface where animals are fed and watered. Manure can then be regularly collected from the feeding area and stored, or field applied as appropriate.

Soiled wood chips on the surface (3-4") are removed seasonally for composting and replaced with new wood chips.



## Evaluating Performance

Questions being evaluated include: How often will the surface wood chips need to be replaced? Does this system produce less runoff than concrete? What is the nutrient content of the runoff? How does the farmer like managing the system? How do livestock perform (growth)? How long will the drainage system function without plugging up?

Dewy Meadows Farm and the conservation district will be monitoring the system and sharing lessons learned. The open house scheduled for April 6, 2019 (10 am – 2pm) will provide an opportunity for anyone interested to see the system first hand after three months of winter use.

