

Tree Filter and Wetland Livestock Waste Management Plan

Final Report for FNC97-198

Project Type: Farmer/Rancher

Funds awarded in 1997: \$4,808.00

Projected End Date: 12/31/1999

Region: North Central

State: Kansas

Project Coordinator:

[Bob Sextro](#)

Project Information

Summary:

PROJECT BACKGROUND

We operate a grade A dairy currently milking 100 cows three times a day. We own approximately 70 acres of crop ground and lease an additional 160 acres of cropland for row crops. We also lease approximately 260 acres of brome, fescue and native grass pasture. Water for the household, dairy, and lots comes from our own well. Pastures are equipped with ponds and spring water.

PROJECT DESCRIPTION AND RESULTS

The project goal is to successfully manage the waste from the dairy operation in an environmentally friendly way that would not require purchasing additional equipment as would be needed with the traditional lagoon type system. This plan would also allow us the benefits of the waste of fertilizer when applied to the crop ground, as well as an increased animal habitat.

The process initially started at our local NCCD office when we requested cost share on a waste facility. From there we received the mandatory requirements necessary to meet KDHE approval and receive the cost share. Our extension agent put us in contact with Joe Horner, KSU Extension Ag Engineer, and David Bruton of Fish and Wildlife Department. We explained to each, what we wanted to do. These two men each designed the project. Mr. Horner designed the solids basin, wet cells, etc. - (the actual system itself) and Mr. Bruton designed the lay out of the vegetation. Which shrubs and trees would work best in the various areas to give the most benefit and best chances of surviving the conditions.

Once the designs were on paper, we then submitted the idea to KDHE for approval. Upon receiving the go ahead from KDHE we contacted a local contractor to build the solids basin. A local excavator was hired to create the wet cells and berms. Upon completion of all of this, vegetation consisting of maple, cotton woods, hackberry, walnut, ash, sumac, plum brush, lilac and willows were planted along the filter strip and the wet cells. Cattails were introduced into the first cell, with limited success so far. Wild flowers have also been planted along the cells and fruit trees planted on the inside of the berms. Brome was sown as a ground cover where needed.

People:

- Greg Kramos & David Bruton – KS Department of Fish & Wildlife
- Joe Horner – KSU Ag Engineer
- Dave Key – County Extension Agent
- Carl Lee – NE District Office for KDHE
- Karen Van Winkle – Nemaha County NCCD

Results:

So far the results have been favorable. We use a conventional manure spreader to haul solids on our fields. The solids have been tested and are being spread then tilled into the soils, reducing smell and runoff. This has also reduced the need to purchase some fertilizer. Exit samples have been taken and are expectable, but on the high end of the scale. The samples are taken where the filter strip feeds into the river. We hope that as the plant life grows it will pull more of the ammonias, nitrates, etc. out of the discharge water so that sample levels drop over time. Over all, the results have been what we had hoped for. If we were redoing the plans, we would increase the size of the solids holding basin to allow for additional storage. During an extremely long wet period, like the spring of 1999, it can get full with no place available to haul the solids do to wet fields.

Discussion:

We have learned that this can be an acceptable alternative to a lagoon. We did not have to purchase additional equipment, or hire someone to pump our lagoon. Advantage is the vegetation has brought additional wildlife and song birds. We believe this to be a positive step for our environment. Disadvantage is this method does initially cost more than the traditional lagoon system. Not including any equipment purchases that are required. Our system also requires that attention be given to the vegetation. But, if you enjoy being outside, seeing wildlife and hearing the songbirds it is really nice. We even planted wildflowers which add beauty and pleasant fragrances, a sharp contrast to the usual manure smell.

OUTREACH

An open house/field day was held in April of 1999. Approximately 65 producers and 10-15 extension and agency personnel attended. Brochures were handed out. Joe Horner, the designing engineer spoke about the requirement and reasons for such a system. A waste management seminar was held in September of 1999. Results from the samples taken at our sight were used to demonstrate how manure can be sampled and combined with soil samples be used much more advantageously.

Dave Key, our county extension agent, is thinking of making the tour an annual event as long as there is sufficient interest to warrant it. At the present time, we believe there will be another field day/open house in the spring of 2000.

Several magazine articles have been done covering this project and several other manure systems within the state of Kansas.

Research

Participation Summary

Any opinions, findings, conclusions, or recommendations expressed in this publication are those of the author(s) and do not necessarily reflect the view of the U.S. Department of Agriculture or SARE.



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