Producer Grant - Final Report - FNE 95 - 110

Northeast Region Sustainable Agriculture
Research and Education Program

Project Title: UTILIZING a LIVING MULCH SYSTEM for SPECIALITY CUT FLOWER PRODUCTION and PASTURE REGENERATION

Project Leader: Pam Talley

Address: Rt 6, Box 373
Lewisburg, WV 24901

Telephone: (304)497-3840
Best Time To Call: evenings

1. Restate the Goals of your Project.

The goals of my project, Utilizing a Living Mulch System for Speciality Cut Flower Production and Pasture Regeneration, was to produce cut flowers and ornamentals without the adverse effects of chemical herbicides and fertilizers on the environment, by using a living mulch system. At the end of the season, the field would have grazing potential and could be returned back into a productive pasture.

2. Update the information on your farm.

Since I received this producer grant in early 1995, I have completed my 3rd year of commercial production of Speciality Cut Flowers. Along with the flowers this year, I harvested 30 - 40 lbs fresh Shiitake mushrooms per week from logs cultivated 2 years ago. I have expanded my commercial sheep flock to 35 ewes. For the future, while maintaining my full-time job, I plan to include the above on my own 114 acre, recently purchased farm in Greenbrier County, WV. Lots of hard work lies ahead.

3. Who were your collaborators and what were their roles in the project?

I involved the County Cooperative Extension Service ans the Soil Conservation Service in my project. Representatives from both visited my farm to see the flower field, use of paper mulches, and living mulch system. Along with several follow up phone calls, I was given advise on returning the field bach into pasture. I also shared my project with the Appalachian Flower Growers Network. From contacts through them, I made a trip to Charleston, WV, where I visited some 1st year flower growers.

4. Tell us what you actually did in your project and how it was done.

In mid-April, I plowed for the 3rd and final time a 3 acre field cover cropped with rye. 8,000 flower plugs arrived about this time. I hardened them off since they came directly from greenhouses in Ohio and West Virginia. The field was ready for planting after final discing in mid-May.

The limited supply of Planters Paper, a recycled paper mulch from Ken-Bar Inc., forced me to get innovative with other biodegradable mulches. Rolls of 16" corrugated cardboard, left over from brooding turkey on a local farm, as well as brown 40 wt Kraft paper, was experimented with in designated rows.

On May 31st, using a 2-row waterwheel transplanter containing a mild starter solution, Statice and Celosia were planted through the papers, while Globes, Ammobium, Strawflower, and Salvia were planted directly into the soil. Pumpkins, gourds and Sunflowers were direct-sowed into the remainder of the field. Two weeks later, prior to rain, I broadcasted 10# / acre of White Dutch Clover across the plot.

The flowers established well even though June brought severe storms containing damaging wind and excessive rain. Much of the paper mulch did not withstand these extremes. It tore and blew beyond repair. The corrugated cardboard however, was strong enough to last the season. To salvage the perennial Statice, I transplanted it through yet another mulch product in July.

The wet spring helped the clover germinate and grow well, along with millions of weed seedlings. A great deal more time than expected was spent hand weeding in the rows of flowers. In between the rows, I mowed with a push mower once a week. This encouraged the lower growing clover to spread and become well established, while controlling the taller weeds and grasses. This was all more labor intensive than I had planned; however, the plants matured quicker, and harvest began 15 days ahead of schedule, in mid-July. The quality of flowers was far superior than I had ever grown.

On July 7th, Gary Redden, from the SCS, and Wayne Richmond, from the Extension Service, visited to assess the living mulch system, and paper mulches. After an afternoon of evaluation and conversation, they made some recommendations on how to better transform the clover stand into a valuable pasture for next spring. A concern was pure clover would bloat sheep. They suggested that a grass mixture be sod drilled into the field this fall. I took their advise and sod drilled a mix of 8# Orchard Grass and 2# Red Clover per acre in mid-November, after the crop debris was brush hogged down.

The beginning of August brought no rain, and deer. For the first time in 3 years, I noticed tremendous damage to the pumpkins, and some varieties of flowers. I tried to deter them with fencing, obstacles, human hair and sent, none of which worked. As a last resort I contacted the game warden for help; however, by this time 90% of the pumpkin and gourd crop was not salvageable.

By mid-August, the lack of rain and extreme heat stressed the flowers, and blooming slowed down. However in areas of the field where the clover was the thickest, there was a noticeable difference in the performance of the flowers. The clover appeared to hold enough moisture in the ground to allow the rows of Statice and Globes to produce harvestable, quality blooms.

Harvest continued until mid-October. I picked flowers nearly every day until frost. In November, the field was brush hogged and grass mix sod drilled.

Today, beneath the snow, the well established clover and seedling grasses await the spring and the return of grazing lambs.

5. What were your findings and accomplishments? Did you have unexpected results?

Despite more intensive initial weeding than expected, the living mulch system of White Dutch Clover complemented my overall farm plan quite well. I harvested flowers 15 days ahead of schedule, and some varieties through the dry weather. I contribute this to the clovers' ability of nitrogen fixation, and moisture retaining capacity of the mulch it made. I was able to rotate the flower field back into a productive pasture without further disturbing the soil.

A pleasing discovery was that corrugated cardboard works very well as a biodegradable mulch. It is readily available to me at no cost, being a waste product from brooding turkeys. It was difficult to put down, but from past experience using plastic mulch, it's no harder. I will continue to use it in the future.

A not so pleasing outcome of the season was the significant deer damage compared to years past. A thought is that the deer were initially attracted to the tender clover in between the rows of flowers, and later found pumpkins and flowers to be more palatable.

6. Is there any specific site information relevant to your project or results?

The only specific site information relevant to my project was that the farm plan, established by the SCS, determined the field be returned to pasture after harvest this year. This is why I chose a living mulch system of clover. I could benefit two fold.

7. What were your economic findings?

I estimated that I saved $200 on fertilizer and herbicide costs by using this living mulch system. The earlier harvest allowed me to wholesale dried flowers to local merchants, before other growers my area. Also, I had a selective volume of quality flowers for an August Art & Craft fair, which in years past I had not been able to participate in.

An additional economic finding was the discovery of corrugated cardboard rolls as a mulch

product. This will save me $ on mulches in years to come.

8. Have the results from your project generated new ideas about what is needed to solve the problem you were working on? What would the next step be?

The idea of substituting conventional cultivation and chemical weed control with a living mulch system, I believe is a better farm plan. In addition, there are several biodegradable mulch products that can be used in place of traditional black plastic, which is difficult to retrieve from the field at the end of the growing season. By using a living mulch system, dollars are saved on herbicides and fertilizers, soil moisture is retained, contributing to earlier harvest. It just makes good sense, dollars and cents, to further explore living much systems and biodegradable mulch products for use in speciality crops in general.

9. Will you continue to use the practice you investigated?

I will continue to use some type of mulch system in my cut flower fields because of the benefits I discovered through this project. I plan to explore the use of different cover crops, rye and hairy vetch, on my new flower plot. It is in a non-restricted tillage zone and has a different soil type, needing organic matter. With these, I will have both fall and spring grazing, as well as weed suppression in my flowers. Unlike the clover, which had to be planted after the flowers, allowing weed seedlings to become established, rye or vetch is mowed to kill prior to planting the flowers. The cover crop debris then acts as a mulch, and should inhibit early weeds from competing with the flower plants.

Where the need to rotate a field back into grazing land arises, I will utilize a living mulch system of White Dutch Clover again.

10. What do you tell other producers about your project and the results?

I would recommend trying to adapt a living mulch system to other flower producers if they are wanting to rotate fields. If they choose to use clover, consider the use of biodegradable mulch products to plant all the low growing varieties of flowers through or many hours will be spent pulling early weeds. Some mowing in between the rows is required to allow the clover to spread. In fields that will remain in production year after year, I recommend other growers use and convert cover crops into mulches.

11. Explain what you did in your outreach program?

My outreach program involved the local SCS and County Extension Service. It gave these people a chance to see an alternative crop, commercial production of speciality cut flowers, and the use of a different mulching system, comparring them to conventional methods. They used me

as a resource for other interested growers, and I used their knowledge to better utilize my farm. They made recommendations to me that I would not have otherwise thought about. They will return to this plot in the spring to assess the regenerated pasture.

This fall, The Center For Economic Options regretfully replaced Bonnie Tatterson, and the organization's involvement in promoting Speciality Cut Flower Growers throughout West Virginia. However through her efforts, and contacts made through the Appalachian Flower Growers Network, I was fortunate enough to visit 1st year producers in the Charleston, WV area, and share with them this project, and my successes and failures of Speciality Cut Flower Production.

12. Included are pictures of my project. The numbers on the back of each correspond to the descriptions below.

1). Straw flowers prior to the clover becoming established.

2). Statice, after clover and *weeds* became established. This row was planted through Planters Paper, but it had to be taken up after it tore in the storms. Otherwise, the weeds in the rows would not have been a problem.

3). Statice planted through the Planters Paper.

4). Statice planted through corrugated cardboard.

5). Planters Paper and corrugated cardboard after the storms.

6). Brown 40 wt Kraft paper after the storms. Notice the weed suppression I was getting from the paper. This is a row of Celosia.

7). Beginning of July- living mulch of clover established, rows mowed. Notice the early visible color of the yellow Statice. Beginning to notice deer presence, but no damage. Electric fence wire visible in foreground, bag of hair hanging off scarecrow and from fence post near apple tree. Pumpkins growing well to left.

8). Deer arrive along with harvestable Red Globe flowers. At first these guys were cute, but their friends and families were not!