

FINAL REPORT  
FN95-86

**1. PROJECT GOAL**

The goal of this project was to find ways to decrease cultivation in cut flower production, decrease labor costs due to cultivation and decrease soil compaction. Different weed control alternatives were utilized between the rows. The effectiveness of the mulches in preventing weeds as well as establishment cost and ease of application were considered.

**2. FARM OVERVIEW**

Initially when the grant was written in 1995, I grew cut flower seasonally in Belmont. During 1995, I started a retail flower shop and commercial greenhouse (4000 sq. ft) in Rutland. The business is organized into six phases of operation. These phases include the retail sales of: floral sales and design, greenhouse production, plant servicing, growing cut flowers for fresh and drying, customer educational workshops and miscellaneous garden and plant related items.

The business is located at 218 Stratton Road, Rutland, Vermont. During the summer, **Stratton Meadow Greenhouse** is open Tuesday through Saturday, from 10:00 am to 6:00 p.m.. Due to the nature of flower and greenhouse sales, which are both seasonal and holiday specific, longer hours are conducted during busy times such as: May and June, Thanksgiving, Christmas, Valentine's Day, and Mother's Day. For the busy greenhouse season, which runs from May 15th through July 4th, the greenhouse is open 7 days a week from 9:00 a.m. to 7:00 p.m.

Land for growing cut flowers is located less than a mile from the greenhouse on Cold River Road. This land had been part of a dairy farm and for the last 10 years was cut for hay. Part of the field had been used to stockpile manure, and therefore has a very high content of organic matter. At this site it is impossible to irrigate the crop.

### 3. COOPERATORS

The project included the following cooperators, Peg Dombro, Master Gardener, visited the field both years, Ted Hubbard preparing the land and Don LaDuc who put the plastic mulch down using his tractor. Numerous employees were involved in planting the field, tending the crops, harvesting the cuts, and the clean-up process after the final harvest in the fall.

### 4. PROJECT PROCEDURES AND METHODS

Approximately 3/4 of an acre were cultivated with the use of a tractor in the spring and 8 rows were marked. In order to prevent weeds in the growing space 4' black plastic was laid utilizing a tractor. Between the 8 rows, the following treatments were utilized: 3' wide brown kraft paper with sawdust placed on top to prevent the wind from disturbing, chewing fescue, tall fescue, perennial ryegrass and recycled canvas. Three areas were left unmulched and this area was occasionally cultivated. (Attachment 1 and 2)

During both growing seasons, the plastic mulch was in place by the 15th of June and the following week the field was planted. The alternative mulches were down by July 1st. Each year a different set of variables were experienced. During 1997 we experienced a very dry growing year and conversely in 1998 we had a very wet year once the plants were established. At no time was supplemental irrigation available. Each year more or less the same collection of annuals and perennials transplants were planted.

The three grasses were all seeded by hand, at the approximate rate of 4 lbs to the acre, and manually raked into the soil. Twice during the summer the grass was cut with a basic lawn mower. The perennial ryegrass filled in the best and appeared to grow the fastest.

The recycled canvas (old awnings) was inexpensive and the easiest of all to put down and at the end of the summer it was rolled and put away for the next year. Rain water did seem to find its way through or under the canvas and some puddling was noted especially after heavy rainfalls.

The kraft paper was the hardest to put down because it required a layer of saw dust to prevent it being blown away by the wind. However, the brown paper held up well and was totally biodegradable, therefore making it the easiest to deal with at the end of the season. The first year the distance between the rows was



sometimes greater than the distance in the rows and therefore, weeds were a problem at the edge of the paper. Unlike the canvas that could easily be modified to fit the varying space between the rows, simply by folding more of the material under and placing rocks on top of the awning to keep it in place.

The utilization of both the living mulches and the weed barriers did in fact decrease labor considerably, as well as improve soil moisture retention. Esthetically, the mulches enhanced the field's overall look, as well as improved the conditions for picking the flowers. Normally, when cutting and bunching the flowers, field workers sit or kneel between the rows, having a grassy swath or a non-soil material to sit on ~~which~~ makes the job a lot more pleasurable.

## **5. FINDING AND ACCOMPLISHMENTS**

The findings of this project clearly suggest that the use of living mulches as well as any weed barrier will decrease the utilization of labor for cultivation. All the five treatments were able to withstand traffic, however the kraft paper was the least durable and could easily be ripped. The grasses were all drought tolerant.

The findings of this research will offer growers sustainable practice for controlling weeds between the rows, rather than cultivation, that are inexpensive, easy to apply, esthetically pleasing to the eye, as well as creating a pleasant surface on which to gather flowers.

## **6. SPECIFIC SITE INFORMATION**

None

## **7. ECONOMIC FINDINGS**

The cost savings was very significant. The seed for the living mulches was inexpensive and the grass was very easy to establish, with no additional equipment necessary.

Seasonal labor is very expensive and equally hard to come by. In the early part of the summer, employees are more enthusiastic about weeding, however the story is different in mid-August. A grower with limited acreage and resources would best benefit from the use of living mulches and weed barriers. Paying employees to weed can be prohibitive.

**8. NEW IDEAS-NEXT STEP - AREAS FOR FURTHER STUDY**

One area that we had hoped to study would be the effect of the living mulches on soil qualities. Another area of interest would be the effect of the grasses on the presence of chewing and sucking insects on the cut flowers.

The findings of this research did not include evaluating the cut flowers to determine if the quality of the cut flowers was superior or inferior due to the incorporation of the mulches that were utilized.

**9. WILL YOU USE THE PRACTICE YOU INVESTIGATED**

Most certainly!

**10. WHAT DO YOU TELL OTHERS ABOUT THE PROJECT**

I have shared both the photos and I have explained the results to many of my grower friends. I am scheduled to give a presentation on growing great cut flowers at the Flower Show in Burlington, during the first week of March. Alternatives to traditional cultivation will definitely be a focal point.

Most growers will agree that managing the weeds between the rows is a major problem. Most growers can normally keep a "handle" on the weeds for the first month or so, but as the season progresses it is often hard to find the cut flowers amongst the weeds. Everyone that I have shared my finding with is very interested.

**11. OUTREACH PROGRAM**

Unfortunately, outreach for this project did not happen. I had planned to prepare a fact sheet and article for publication, as well as have a Grower Twilight Session. If the information is considered relevant and worthy I would be willing to write a fact sheet.

**12. PHOTOS AND FIELD MAP ATTACHED**

# # TREATMENTS

1 KRAFT PAPER

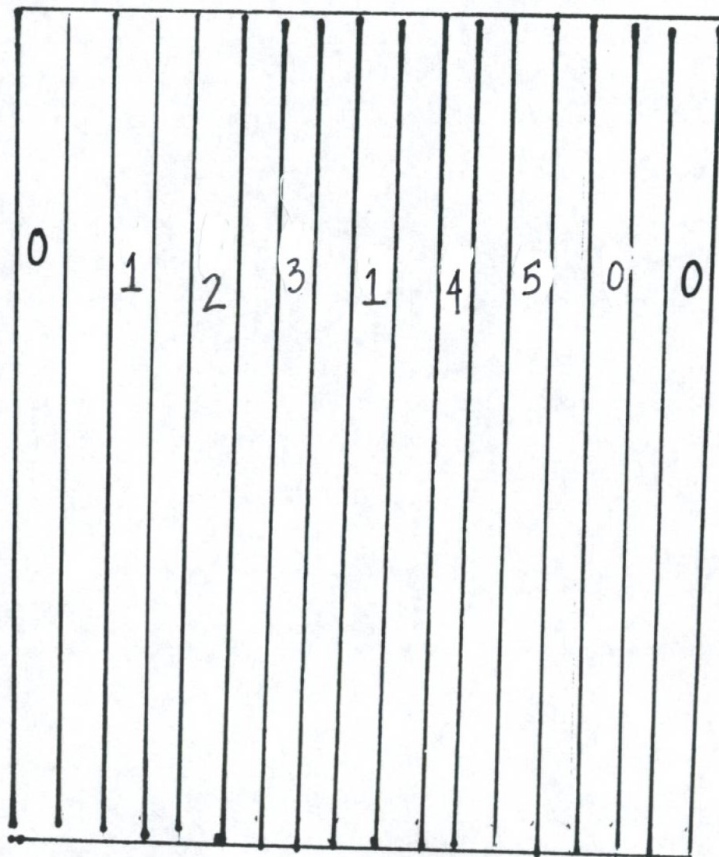
2 CHAWING FESCUE

3 TALL FESCUE

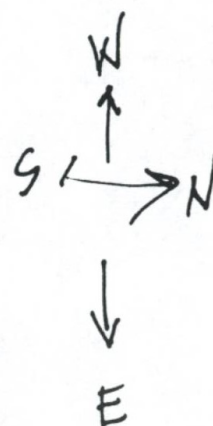
4 PERENNIAL RYE

5 RECYCLED  
CANVAS

0 NO TREATMENT



FIELD MAP



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