

**Interim Progress Report for 1994-1995**  
**Increasing Options for Cover Cropping in the Northeast**  
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submitted by:

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**Cover Crop Trials:**

Two replicated trials were established in the fall of 1994. In the first, 5" x 12" plots of the following cover crops were planted on September 3 and Sept 16:

- oilseed radish
- yellow mustard (*Brassica hirta*)
- white senf mustard (*Brassica hirta*)
- forage kale
- canola
- forage turnip
- oats
- control

Biomass samples were collected from both planting dates twice during the growing season. Soil samples were taken in plots from the first planting date at the same time that biomass samples were collected. Plots were left to winter-kill. In late March, residue samples and soil samples were collected from all plots. Residue samples were divided into cover crops and weed samples for measuring the weed suppressive effects of each cover crop. To date, all biomass samples have been dried and weighed. These samples still need to be ground and analyzed for percent N. Soil samples from the fall of 1994 have been analyzed for nitrate content, and the data are currently being analyzed. Spring samples still require laboratory analysis.

The second trial consisted of the following cover crops overseeded into a standing cabbage crop in 9" x 15" plots:

- red clover
- alsike clover
- hairy vetch
- rye
- ryegrass
- control

Because of our observations from the previous year's overseeding trial, the plantings were staggered in order to allow cover crops to get established, but not become too competitive with the cabbage crop. Clovers were overseeded on August 15, the vetch on August 24, and rye and ryegrass plots were planted on September 13. Observations during the fall indicated that while the clovers and vetch became well established, the rye and ryegrass plots never established well, probably due to the fact that the ground was not freshly worked when they were planted, as was the case with the earlier planted cover crops (planted following cultivation). Also, compared to last year's trial, the frame leaves of the cabbage were much larger, filling in more of the field, and leaving narrower strips between rows where cover crops could find sunlight and grow. There were no differences in cabbage yields between treatments, measured in early December.

Unfortunately, we were not able to follow this trial through spring regrowth of the cover crops because sheep got into the field during the winter and spring and severely grazed the cover crops.

In the summer of 1994, a large commercial storage cabbage grower expressed interest in experimenting with overseeding cover crops in cabbage. We planted a non-replicated demonstration trial in a field of red cabbage at his farm consisting of vetch, rye and ryegrass in plots measuring 7.5" x 100". The vetch was overseeded on August 24th, following final cultivation, and the rye and ryegrass were planted on September 13. Although we did not take biomass or soil samples at this trial, we observed several interesting things:

--while residual herbicides were used on the cabbage field at cabbage planting and later in the season as a post-emergence application, the cover crops were planted late enough that the herbicides seemed to have no deleterious effect on them. In fact, they established quickly and grew quite well, especially the vetch. This was probably due in part to the very mild fall during 1994, and possibly the cover crops were also responding to higher fertility levels in the commercial field.

--conventional harvesting methods, which include the use of large trucks, tractors, and many harvesters, did not seem to cause a lot of damage to the cover crops. Regrowth, especially of the vetch, was strong, with little signs of wheel-traffic damage.

--while the grower was pleased with the results of this demonstration, he has had reservations about using the practice on a larger scale. His reasons are that he has no way of seeding the cover crops other than a spinner-broadcaster, and he does not want cover crop seeds to fall into the heads of cabbage as they formed. He is also hesitant about the cost of seeding hairy vetch.

### Cover Crops Seeder:

Although we have not been able to build a mechanical seeder to seed cover crops into cabbage yet, we have made significant progress towards that goal. In February, we went to Ithaca to view a similar seeder that was designed and built in Dr. Jane Mt. Pleasant's lab for overseeding cover crops into corn. From viewing this seeder, we were able to come up with a simple plan for retrofitting an existing seeder at Porter Farms for this purpose. We should be able to put the new seeder together in the next couple of months.

### Outreach Efforts:

We have been involved in a number of outreach efforts to publicize this project and to get the information in the hands of growers. Although we did not host a field day this year, we have published several newsletter articles and given talks to primarily grower audiences:

1. Lake Plains Vegetable News Newsletter Articles. Two articles were published in this Cornell Cooperative Extension newsletter which has a circulation of approximately 500 growers and vegetable industry representatives. The articles presented results and conclusions from the first year's trials. Other vegetable agents across the state have reprinted the articles, or summaries of the articles, in their own newsletters, so that many of the vegetable growers in NY have seen the articles.
2. NOFA/The Natural Farmer Articles. The same articles were recently submitted to the editor of The Natural Farmer, the region-wide newsletter of the Northeast Organic Farmers Association. Publication is expected sometime during 1995.
3. Presentations at Extension and Grower Meetings. The information gained from these trials has been presented at several meetings during 1994-5, including an agricultural production in-service training for CCE vegetable agents, specialists and faculty (25 in audience); the Lake Plains Vegetable Program Fresh Market Vegetable Meeting (80 growers in audience); and the CCE Fresh Market Sweet Corn IPM Program (20 growers in audience).
4. Future Presentations. Several more presentations are planned for the future, including an oral presentation to be given at the American Society for Horticulture Science meetings

in Montreal in July, 1995, and a presentation at the CCE Cover Crops Symposium, to be held in Ithaca in November.

**Linkages with Other SARE or Related Projects:**

Although the scope of this project has been focused on two specific cover cropping systems for vegetable growers, we have been able to successfully link our work with a number of other SARE or related projects. Specifically, Lee Stivers has been able to use this project as a base to expand her work in cover crops in a number of different directions:

--Lee is a cooperator on the NE SARE project "Management Strategies for Improved Soil Quality with Emphasis on Soil Compaction", coordinated by Dr. Dave Wolfe, Cornell University. As part of this research project, we will be conducting cover crops trials at several locations across NY, including many of the species used in the trials at Porter Farms.

--Lee is also cooperating on a USDA/IPM grant with Dr. Rose Loria, Cornell University, studying the soil-pathogen suppressive effects of brassica cover crops, including some of those used in the Porter trials.

--A project funded by USDA/EPA has allowed Lee to work closely with five area vegetable growers in using a process of "whole farm planning" to integrate cover crops into their operations. Participating growers will have the opportunity to try out the cover crops used in these trials on their own farms.

--A SARE grant written by Dr. Steve Reiners, Cornell University, and Lee Stivers will fund a Cover Crops Symposium at Cornell for Extension faculty and staff, as well as interested growers and NRCS staff. This will be an opportunity for sharing information and ideas among many people across the state who are working with cover crops, not only in vegetables, but also in field crops and fruit crops.