

SIU Sustainability Council Project
Final Report

Project title: Season Extension of Organic Vegetable Production to Provide Local Produce to Campus Dining Halls.

Project I.D. #:101205

Award date: Dec. 10 2012

Completion date: Dec. 31, 2013

Funds used (if different from award amount):

Brief write up of project/project experience (not to exceed 250 words):

The utilization of season extension techniques enabled us to grow food in early spring, late fall and the winter for some items. Of our 2013 total farm income of \$24,921.05, produce grown using season extension accounted for \$10,100 of sales. This included \$6000 of produce grown in the high tunnel, heated cold frame and greenhouse, and \$4,100 of produce grown in low tunnels in the field. We were able to grow tomatoes and green peppers in the greenhouse, lettuce and salad mix in the high tunnel and cold frame and broccoli, cabbage, spinach, lettuce and carrots in the low tunnels. The low tunnels allowed us to have produce ready for the dining halls about a month earlier than if no tunnels were used. Improvements made to the high tunnel such as recovering, weed barrier and new soil will allow us to continue to use this space for many crops including strawberries in spring and tomatoes, peppers and squash in the summer. At the moment we have been able to sell tomatoes, basil, lettuce, bok choy, tat soi, cilantro, salad mix, kale and carrots at the Carbondale Community Farmers Winter Market in the Carbondale High School bringing in much needed revenue for the farm and wages for student workers when we would otherwise have to wait until warmer weather in April. The utilization of season extension techniques also offers students the opportunity to learn valuable hands on skills which are sought by future employers in the horticulture industry.

Best things learned/produced from project:

This project has enabled us to learn more about season extension techniques and to increase our farm income and student worker opportunities. High tunnel production is highly used by many vegetable farmers in the region due to the many NRCS high tunnel grants awarded during the past several years. Knowledge of high tunnel maintenance and crop management is very important for horticultural graduates and until now, direct experience at SIUC was not available. The improvements made to the high tunnel did not only benefit student workers but students in greenhouse and nursery management who came out as a lab activity to re-cover the high tunnel which is something you can only learn by doing. Other aspects of crop production are different in season extension structures during the off-season compared to growing in the field in season. This includes fertilization, watering, pest and disease control and planting and harvesting dates. Many of these details are site specific and difficult to get a feel for from books or lectures. The season extension structures have also attracted research from the agriculture and

chemistry departments with one project assessing the effects of a beneficial soil bacterium on the initiation and growth of strawberry roots in the high tunnel and one comparing organic greenhouse and field tomatoes to conventional tomatoes through chemical analysis.

How do you define sustainability?

The most important aspect of sustainability for the farm is the conservation and improvement of soil and farming in a way that leaves the land in better shape than it was when we started. This includes reduced tillage, continual ground cover by growing crops or cover crops throughout the year, increasing organic matter and proper nutrient management. With the use of low tunnels in the field we are able to continue to grow crops when otherwise the soil would be bare. This increases soil organic matter and nutrients, improves soil structure and decreases weed pressure. We have managed in one year to increase the organic matter in the soil by .5. This may not seem like a lot but organic matter increases very slowly if at all. Many farms in the first several years of production actually see a reduction of organic matter. The fact that it seems to be increasing is a good sign that we are doing something right. This will enable us to continuously farm this area without detrimental effects. We also continue to learn how to better manage our soil and we know that there is still more we can do to increase its productivity.

Besides soil conservation, the sustainability of the farm is also depended on student involvement, the dining halls and community support. If students are not interested, then there is no point in doing this. Thankfully, students are very interested and we have a good crew of workers, interns and volunteers. Our relationship with housing continues to grow and we feel that we have worked out a farm plan that addresses both of our needs and through our markets we have found considerable support from the community and local farmers. For the farm to continue to grow and explore its place at SIU and the larger community we will need to work on our relationship with the soil, the students, housing, local farmers and the people we serve through our markets and on outreach tours and workshops.

Has this changed over the course of your project? If so, how?

I don't think our definition of sustainability has changed but rather our means of how to attain it for the farm. This is constantly evolving and as the farm grows and more people become involved it will be interesting to see how the definition of what makes a farm sustainable will develop. I think farm sustainability is very specific to its location and what may be good for us will not be good for others. This will be a process that will involve many people and will entail considerable knowledge of our soil, environment, students and community.

What do you see as the next step for the project?

I believe the next step for us will be to further learn how to use season extension techniques as efficiently as we can and how to decimate this knowledge more effectively to students and local farmers. We would like to encourage more research as well which will benefit local farmers and bring money into the program.

Optional: Do you have any suggestions for the SIU Sustainability Council to improve the Green Fund award process?

Attach a minimum of five images – these will be used to promote interest in Sustainability Council projects. These can be photographs of the progress of the project, the completed project, or promotional materials.

Greenhouse tomato harvested in early February. We think this is too much of a coincidence.



January: Tomatoes in the greenhouse trellised on string. These will be sold at the winter market and to the dining halls when they open. In 2013 we sold 733 lbs of tomatoes for \$3/lb. A very good price for organic greenhouse tomatoes in winter.



February: Growing lettuce in the high tunnel before the improvements. This entailed 580 2.5 in. trays to be filled with soil.



October: The new improved high tunnel. No more trays! Now we can grow strawberries in spring and tomatoes, peppers and squash in summer. Amy Borens greenhouse management class lends a helping hand.



Student workers Carly Merz and Marlee Trandel start the huge job of carting in soil for the new beds.



Student worker Jessica Brunner attacks the mound of soil for the high tunnel.



March 19th: Lettuce planted in low tunnel in the field. The temperature hovered around zero when we transplanted and constructed the tunnels. We thought we were crazy to think

this could work. We were quite surprised and pleased when this lettuce was ready to harvest only one month later on April 20th, a few weeks before the kitchens closed for the semester. If they had not been covered their harvest date would have been May 20th and the kitchens would have been closed. On sunny days low tunnels can raise the temperature within them almost 20 degrees.



Student worker Carly Merz with bok choy from the high tunnel. They were seriously bigger than her head.



April: Broccoli coming out of its low tunnel big and healthy. When we planted and covered them they were purple from cold induced phosphorus deficiency. Again we didn't have much hope. These plants produced the most beautiful broccoli we have ever grown. However, they could not be harvested until May 6th, the week the kitchens closed, but still 2 weeks ahead of their due date. Thankfully, the new Carbondale Community Farmers Market had just opened. We harvested 181 lbs of broccoli bringing in \$453 dollars. Its earliness gave us an advantage at the market and also beat the bugs which were still sleeping.



April: Lettuce, cabbage and broccoli uncovered and ready for harvest.



April 2nd: Over wintered carrots being dug in the field. The winter covers kept them from freezing and although they were very slow, they continued to grow. We were able to harvest 845 lbs from the field bringing in \$1690. We currently have some in low tunnels in the field which are growing faster because of the tent structure and an earlier planting date. We are selling them at the winter market.



December: Some of the produce we will have at the winter market thanks to the season extension grant. We sold all 60 pounds of tomatoes that day. In January bok choy, tat soi, microgreens, and basil will also be available.



December: Some of the lettuce from the heated cold frame and some carrots from our low tunnel in the field. This basket was overflowing with carrots just a half hour before. Being the only ones with carrots in December pays off.

