

# Northern NY Agricultural Development Program 2011 Project Report

## **Project Title: Managing Fertility to Increase Yields in Field Grown Vegetables**

### **Project Leader(s):**

Stephen Reiners, Professor of Horticulture ([sr43@cornell.edu](mailto:sr43@cornell.edu)) – overall project advisor  
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### **Collaborator(s):**

None for this phase of the project.

### **Cooperating Producers:**

None for this phase, although several did submit their soil test results for group discussion/training purposes.

### **Background:**

Vegetable production for fresh market sales is seeing a dramatic increase in recent years in NNY, fueled by the interest and demand from consumers for local food. There are many new and/or small scale growers in NNY who need training in how to best manage their crops, especially in our colder climate and short growing season.

While growers realize fertility is important, most of the newer and/or smaller scale growers in NNY have a poor understanding of how to optimize fertility to enhance the performance and yield of their various crops. Whether they are using organic or conventional sources, NNY growers could increase profitability by having a more strategic approach to managing the fertility needs of their crops.

Previous outreach efforts by the project team has confirmed that many growers' crops experience nutrient deficiencies by mid- season when crop needs are greatest. Plants experiencing deficiencies of the macro-nutrients nitrogen, phosphorus and potassium will have lower yields, and decrease economic performance of the farms. Few of our growers have a way to provide supplemental fertility if necessary. CCE can help growers identify crop deficiencies through foliar tests, but the growers need to have a plan to correct them.

In addition to mid-season deficiencies in all the macro nutrients (nitrogen, phosphorus and potassium) our experience indicates there are pH issues and uneven applications of amendments. Organic growers who rely on low analysis fertilizers such as fish emulsion need to be especially mindful of the rates to be sure their crops are receiving adequate nutrition. 'Hungry' crops are a common sight in NNY vegetable field, and the common approaches used by growers now are costly and often insufficient. The short growing season in NNY makes it especially important for growers to keep their crops growing at full capacity all season long to get the maximum yield possible in just a few months.

### **Methods:**

For this first phase of the project, we urged growers to submit soil for nutrient analysis in the fall of 2011. We sent instructions, forms and general encouragement, and we received over 12 soil tests to work with.

We scheduled two day-long trainings in mid-February, one held in Watertown, the other in Plattsburgh, to reach as many NNY growers as possible. In the morning, Dr. Reiners gave an in-depth presentation on soil fertility, application methods, and organic and conventional options. We chose 5 soil test reports that reflected a range of growing conditions and soil nutrient levels for detailed discussions in the afternoon. Using group input Dr. Reiners explained which readings on each test called for attention and participants engaged in active discussions about how they might address the particular problems each test revealed.

### **Conclusions/Outcomes/Impacts:**

By engaging the participants in the soil test results discussions, they were able to put into practice the principles they learned in the morning sessions.

In their program evaluations, the total of 40 participants (20 at each location) indicated the following:

- 29 agreed or strongly agreed that testing their soil was worth their time and money
- 18 participants indicated they would begin testing their soil on a regular basis as a result of this program
- 13 already do plant cover crops but 18 said they would begin using cover crops this year
- 20 indicated this program convinced them that investing in irrigation would be worth the cost
- Of the 40 attendees, 17 indicated they follow organic practices, 7 follow mostly organic, and 12 use conventional practices
- Several commented on having learned that timing the fertilizer application with the growth stage of the crops can make a difference in production
- 14 stated they didn't know if they were applying an appropriate amount of fertility and would use soil test results in the future to fine-tune their applications

### **Outreach:**

None yet so far, we're planning that for the next phase of this project, after March 31, 2012.

### **Next steps if results suggest continued work is needed in the areas of research, demonstration and/or education.**

In the pre-survey, several growers revealed an incomplete understanding of fertility management, especially in regards to organic production practices.

Based on the survey, evaluation and discussions during these two meetings it is clear our growers need more training on fertility management, especially for organic growers.

We would like to follow up with our program participants to reinforce their winter training and coordinate on-farm discussion groups around these topics.  
We would like to conduct follow-up soil and tissue nutrient testing to help growers learn first hand the cause and effect of nutrient applications.

**Person(s) to contact for more information (including farmers who have participated):**

No participating farmers yet, we'll have them this coming growing season.  
For now, contact the Project Leaders

**Photos** - none for this phase, we expect photos this summer in the field.