

**PROGRESS REPORT**  
**1999 VEGETABLE IPM RESEARCH AND DEVELOPMENT PROJECT**

Title: Exploring Mechanisms by which Poultry Compost Increases Yield and Reduces Incidence of Root Rot in Beets

Principle Investigators: Anusuya Rangarajan, Dept. of Fruit and Vegetable Science, Cornell University, Ithaca NY

Cooperators: George Abawi, Dept. of Plant Pathology, Geneva  
Steve Reiners, Dept. of Horticulture, Geneva

Abstract:

Previous research with poultry composts applied to beets has indicated improved yields and reduced incidence of root rot on treated fields. The objective of this research proposal was to determine if poultry composts affect beet growth and disease incidence by increasing tissue concentrations of several micronutrients, particularly sodium, chloride and manganese (in addition to supplying available soil nitrogen). Two field trials examined effect of compost rate and sidedressing with two micronutrient salts on composition, quality and yield of beets. Compost enhanced beet yields in larger size classes, which was not desirable for processing grades. Earlier harvesting may have eliminated this oversize. Stand counts over the season indicated that plant population varied over the first month as seedlings emerged or died. In fields with high compost rates, plant populations were reduced compared to low or no compost plots. Crop nutritional composition was also changed, with higher levels of sodium and manganese than in non-composted control plots. Greenhouse experiments explored the potential nutrient effect of this compost on beet disease resistance. Beets were seeded into compost amended soils, and either inoculated with *Rhizoctonia* or non-inoculated. Germination and stand counts were evaluated over a four-week period. Poultry compost provided no reduction in disease incidence in greenhouse studies. In compost amended soils, greater disease losses were observed than in non-inoculated pots. The higher level of compost (equivalent to field rates) reduced germination and plant stands over the experiment.

For a printed copy of the entire report, please contact the NYS IPM office at:

IPM House  
630 W. North St.  
New York State Agricultural Experiment Station  
Geneva NY 14456  
315-878-2353