

Project Title: Innovative Uses of Leaf Compost for the Modern Farmer/Grower

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#### Grant Final Report

1. The goals of my project were the following:
  - A. Eliminate the need for tilling field crops
  - B. Substantially reduce the amounts of chemical fertilizers and water needed to grow field crops and greenhouse food crops
  
2. Since receiving the grant I have added another 30' x 96' greenhouse and 14' x 72' seed house bringing my total to four (4) houses in production of food crops. I am also in the process of renegotiating my contract as a DEP approved compost facility with the City of Waterbury, CT.
  
3. I discussed this project with Martin Ghent of the CT Agricultural Experiment Station and he inspected the greenhouse tomato crop.
  
4. My experiment was divided into two (2) phases, field crop production and greenhouse production. I shall first deal with the field crops: As shown in the slides, the loam was skimmed off of a parcel of land large enough to plant 500 field tomatoes, 100 squash, and 100 cucumbers. Finished leaf compost (of which a soil sample is included) was then banded in rows 3 feet wide approximately 6-8 inches deep. The crops were then planted directly into this media. For the greenhouse phase of the experiment I used two houses; one as a control house in which 700 tomatoes were planted into a mix of 70% leaf compost and 30% inert ground styrofoam plastic. The test house was divided into two zones both of which used the same media mix but test zone #1 was given 10% less water and fertilizer, and test zone #2 was given 20% less fertilizer and water.
  
5. For field crops I found this method of planting very successful under the conditions which I created (removing all topsoil to simulate poor or marginal land). The tomatoes and field crops grew very well. The first and second set of fruit on the tomatoes were of a large size with excellent quality and taste. However, after these sets I feel it necessary to take a leaf analysis and apply fertilizer as indicated by the analysis.

There was one additional problem; I intended to use no chemical weed control and after the second set of buds on the tomatoes the weeds began to grow with a vengeance. For this years field crops I have purchased a plastic layer and

plan to cover my rows of compost with black plastic and run a drip tube under it and feed as necessary.

In the greenhouse tomatoe crops I found the control house was getting too much food, noted by more branch growth and branches growing out from the fruit sets. The test house zone #1 (with 10% less water and fertilizer) was somewhat better. Zone #2 was markedly better and production and fruit size were normal. I did, however, find that when I pulled up the plants after production ceased that the root zone was not developed as well as plants grown in commercial media (70% peat moss, 30% rockwool). Thus, for greenhouse tomato production I would suggest a mix of 60-70% commercial media, with the additional 30-40% consisting of compost (70% compost, 30% inert material).

6. Field crops and greenhouse tomatoes can be grown in a mixture of compost and inert material saving the grower 25% on fertilizer costs and 25% water. However leaf and soil analysis is necessary to monitor the progress of the plants.

7. Not only can the farmer save money on fertilizer and water, he can be paid by local municipalities to compost leaves. The price varies from, in the Waterbury, CT area, \$9-20 per ton. After composting these leaves we are left with thousands of yards of "black gold." It should be mentioned that the composting process is labor intensive and requires some expensive equipment.

8. The next step is to secure two 5-year contracts with the two municipalities we are currently taking leaves from at a fair price that will save each town money and allow a small profit margin for the farm. Then, to add the necessary equipment needed, paid for from the money made by composting. Once this is accomplished, begin to use the piles of compost to the farms advantage.

9. Once the contracts are in place and the material source is constant, I plan to utilize the practices outlined in this study. For field crops, screened compost in three foot wide rows covered with black plastic and a drip tube underneath for reduced water and nutrients. For greenhouse crops, a mixture of screened compost, an inert material to lighten up this media, and a percentage of commercial mix. Additional compost, if any, could be mixed 50% compost and 50% sand, sreened and sold as loam to local builders and landscapers.

10. Most vegetable producers who I have spoken to about this method show little interest as, I feel, they are firmly rooted in agricultural practices that date back years. They will still plow, harrow, and fertilize as their fathers did and since they grow good crops they see no reason to change.

11. I have had several farmers visit the farm and see what was done and how. I plan to submit an article to the CT Ag Station detailing my findings. In the fall, if all contracts are in place, a farm tour for producers will be given.