June 4, 2001

Northeast Region SARE
10 Hills Building
University of Vermont
Burlington, VT 05405-0082

FINAL REPORT
Rhodes Greenhouses
Henderson, New York 13650

Flood Benches-Potted Vegetable Production

This project was started to determine if our major crops could be grown using flood benches, raised benches that were lined with a thin layer of plastic film to hold water so that water, labor and time could be saved.

As outline in our previous materials, we put these benches in two greenhouses and used them last year and part of this year. On some of the benches we also used capilary mat to compare the two systems.

The strictly flood bench worked well, when the benches are leveled and would work well in a floor that is cement. Our floors are crushed stone, but we found that once the benches are leveled in the spring, they worked well with our 3 one Half to 6" pots.

We did not find a problem with salt build up as we used clear water much of the time, and injection fertilizer at other times, or watered from the top occationally.

Comparing capilary mat to the strict plastic lined benches, the flood benches worked about evenly, and were cheaper then using cap mat in addition to the plastic lined benches.

It is our plan at this point, to build more benches as funds allow to make it possible to water cell paks, or bedding plants also with this method of water. We believe that it saves water, fertilizer and alot of time.

Concering the production of potted vetables, our trials last year went well, but on a small scale. We used the plumbing on the benches for both a tube system into the pots and also simply capilary action using the flood benches.

We are awaiting some other funding sources to pursue market investigation within our area to see if full scale production is warrented, but we believe that with the local NYS Prisons in

the area as well as Ft. Drum, that there are markets there for greenhouse grown produce.

We have used the system and found that it is advisable to put the system at least for the whole greenhouse or part of it, on one valve, with each bench having its own value also. By turning on the main valve, it waters the entire system without turning on 16 individual valves. We are also looking into using solinoids next year for this process.

OVER ALL CONCLUSION:

This system has done as we had hoped it would, saving time and fertilizer and water and the fact that is worked is driving us to install more for next year, and expand its use into the pak watering area. The system would work best on cement floors, but simple adjustment with pieces of wood is easy to do for gravel floors. This system works especially well for the new wave petunias which take a lot of water and dry out often. Fertilizer must be maintained however so that clear water is not entirely used all the time to prevent yellowing of the plant.

1. "Flood Benches and Greenhouse Vegetable Production"

   Farmer/Grower Grant Final Report FNE00-316

2. The goals of our project were to explore the production of greenhouse vegetables and also the creation and use of greenhouse flood benches for the watering of potted horticultural products.

3. Since the start of this project in 2000 we have added two more greenhouses, 30' by 96 which have been used for bedding plant production and this year, 2001 we added a few more flood benches to try some other crops and see how they would do with this system.
   The other segments of the business have stayed the same.

4. Janele Lehman was in charge was watering as were Gary Rhodes and Jolene Rhodes, but the bulk of the day to day system use was Janelles reponsiblity.

5. The project consisted of designing and building flood benches and growing greenhouse vegetables in 12 inch pots on these benches. The benches were built out of 2by4 lumber and expanded metal bench material was used because of its strength. 12 inch pots were used for growing the vegetable plants as they were easy to move and clean up.

6. We found that the flood benches work well with most potted plants, especially our 3 1/2 pots up to 8 inch materials. The benches were lined with plastic which was discarded at the end of the year which help in the cleanup and elimination of debris at the end of the growing season. Some plants did not do well under the conditions of flood bench watering and grew too fast so watering had to be taylored to those plants or they were simply all moved to another separate table. The vegetables grew well but needed more nitrogen and we used a slow release fertilizer for them.

7. There was no site conditions that affected our results.

8. While it was hard to document, we saved time in watering all the small plants and people who worked during the watering season were somewhat happier as they didn't have to spend all day watering by hand. While we did not go into full vegetable production, we plan to next year acording to our plan now.

9. Our next step will be next year to start production of vegetables for retail sales that will be conducted in our 6000 sq. ft. Building that is currently empty.
New ideas that have come out of this effort include that narrower benches are better then the current 6' wide benches not so much for water but for ease of reach. Otherwise we believe that the benches worked well. the benches work best on cement floors that do not heave during the winter and spring thraws.

10. We will continue to use the flood benches as well as put greenhouse vegetable production into effect next year.

11. The local paper did a article on our project and we showed people the project who shopped here if they asked as well as the tours that we conduct for schools and youth groups.

Gary L. Rhodes Nov. 21, 2001