

**Sustainable Agriculture Research and Education Program
Create a Demonstration Agroforestry Field
Farmer/Grower Grant Final Report
GRANT NUMBER FNE #99-289**

1 Restate the goals of your project.

Many Northeast smallholders struggle with an overabundance of poor, rocky fields. Some can buy better growing places at the bottom of the hill, but those spots are becoming harder to find and still harder to afford as they continue to be built up into apartment complexes and shopping malls. More farmers will be encouraged to grow market vegetables on their rocky hillsides rather than just cutting hay off them year after year -- or putting them into rotations that send too much of their remaining topsoil into the rivers at every spring rain -- if they can visit demonstration plots to see the advantages and techniques needed for use of permanent beds and trees.

2 Update the information on your farm since you received a farmer/grower grant. Include acres farmed, crops/livestock.

Original farm information: I am a part-time farmer, working on developing my farm as a full-fledged CSA including conversion from personal ownership to community land trust. Since 1990 the fields and gardens have produced more than 200 different varieties of diversified herbs, flowers, fruits, and vegetables. Of Ash Grove's 20 acres, four are now under cultivation with the balance in pastures and wildlife habitat. Soil series: channery silt loam, heavy on the channery.

Updated information: Cultivated acreage has been increased to six acres.

3 Who were your cooperators and what were their roles in the project?

3.1 *Pauline Burnes, 67 Greenwood, Canisteo NY* *Advisor -- garden design & tree selections*

Ms. Burnes assisted with design and layout of the beds and comparison fields, and selection of the trees to be used.

3.2 *Jim Grace, Steuben County Cooperative Extension* *Advisor -- tree care*

Mr. Grace made only one visit to the farm, and never did provide any assistance with publicizing or setting up farm field days when asked to do so.

3.3 *Dan Hurley, Elmira NY* *Nursery*

Mr. Hurley routinely assisted with free advice and sympathy.

3.4 *Ash Grove Community Farm Core Group & Volunteers* *Happy Workers*

Unfortunately our ongoing participation problem continued and one person was left with all of the work.

4 Technical Advisors:

4.1 *Pauline Burns, MLA -- confirmed that the farmer's plan was feasible and made suggestions regarding suitable trees.*

4.2 *Jim Grace, Cooperative Extension -- unsatisfactory participation.*

5 Tell us what you actually did in your project and how it was done.

- 5.1 Plan: Plow and cultivate the four-acre field that's been under cultivation for the past eight years (three years working, two years fallow, three years working). This field was selected because although good and rocky its general tilth, pH, and condition are otherwise good. It is on a slight slope to the west, cold and very windy, with moderate to poor drainage.

Actual: No change.

- 5.2 Plan: Rent or hire the equipment necessary to form the permanent raised beds and tree-growing berms -- half of the overall field in permanent raised beds only (no trees), half with every fifth bed built larger to accommodate trees.

Actual: Original plan was for four-foot permanent raised beds, which could not be done by the large equipment hired. We therefore changed the plan to 16 eight-foot raised beds and planted trees in all of those beds.

- 5.3 Plan: Buy four trailer loads of bark mulch from the local lumber yard and spread in the paths between the beds. Weed control and accessibility will be key to success of the field days and more casual tours necessary for achievement of the project's educational goals.

Actual: We were able to help a nearby town with disposal of its autumn leaves and used those instead of bark mulch for weed control, with the additional advantage of being able to use the decomposed leaf mulch as compost on the beds after breaking down in the paths.

- 5.4 Plan: Buy two trailer loads of compost and spread on the raised crop beds along with farm-prepared compost (another two trailer loads already created). Reserve some compost for the tree plantings.

Actual: Stable compost was still very raw when it arrived, so it was reserved until the second year. It was supposedly "certified weed free" but it sure grew a great oat crop, so this decision was a good one or we would have been pulling oat grass from the raised beds for the rest of our lives.

5.5 Plan: Plant seeds and transplants directly into the compost-dressed beds.

Actual: As planned, using only the farm-produced compost.

5.6 Plan: Plant trees on the prepared berms (with reserved compost):

- ❖ lindens -- flowers for herbal tea, seedlings for nursery sales, mature trees to hand-carvers (basswood)
- ❖ ginkgo biloba -- seedlings for nursery sales, leaves for tea
- ❖ butternuts -- seedlings and permanent mature nut crops
- ❖ contorted filbert -- seedlings, nuts, and ornamental sales
- ❖ juniper -- protective windbreak for early spring crops, also edible berries
- ❖ pine nuts -- windbreak, nuts (additional experiment in best growing techniques this far north)
- ❖ sassafras -- seedlings for restoration of native plantings, bark and root for tea
- ❖ rosa rugosa -- windbreak, winter browse for goats, rose hips

Actual: By the time we received word that our grant had been awarded, not all of our original selections were available. Our final order was for:

- ❖ lindens -- flowers for herbal tea, seedlings for nursery sales, mature trees to hand-carvers (basswood)
- ❖ ginkgo biloba -- seedlings for nursery sales, leaves for tea
- ❖ butternuts -- seedlings and permanent mature nut crops (grown from seed)
- ❖ contorted filbert -- seedlings, nuts, and ornamental sales (not available, replaced by blueberries)
- ❖ juniper -- protective windbreak for early spring crops, also edible berries (not available, replaced by white locust and white birch)
- ❖ pine nuts -- windbreak, nuts (additional experiment in best growing techniques this far north)
- ❖ sassafras -- seedlings for restoration of native plantings, bark and root for tea (not available, replaced by American Cranberry)
- ❖ rosa rugosa -- windbreak, winter browse for goats, rose hips (transplanted from cuttings taken from our own hedgerows)

5.7 Plan: Establish deer control (livestock guardian dog, tree wraps for babies, and fencing if needed). Deer pressure is nothing like it was five years ago, thanks to continued housing development in the area.

Actual: Maremma/Great Pyrenees LGD was adopted through a rescue organization, shot dead on our property by a trespassing neighbor when the dog challenged his illegal poaching tree blind. Farmer lost her off-farm job and was not able to buy tree wraps and fencing.

5.11 Plan: Record all hours spent on the gardens, all losses due to wind, drought, disease, etc., and all production. Keep records from the two different gardens separate, and compare results. Analyze and draw conclusions:

- a) Did interplanting of trees seem to reduce or increase losses?
- b) Did receipts from the trees themselves as crops count as a significant part of the garden's production?
- c) Was more or less effort required to maintain the garden with trees?
- d) Did the garden with trees require more or less water?
- e) Were there any other advantages or disadvantages noted regarding the inclusion of trees in a diversified permanent raised-bed system?

Actual: Recording hours spent in the gardens was simplified because it turned out that only one person showed up to work (the farmer). Between April 1999 and October 2000, she spent 20 hours per week on this project -- times 52 weeks (not counting winter months) for a total of 1500 hours.

- a) Did interplanting of trees seem to reduce or increase losses?

Seedling trees did not have an appreciable effect on other garden losses. Interspersal of trees in the raised beds would have posed a problem if we were planning to use mechanical cultivation but worked well with our manual-based Fukuoka/Stout-style of cultivation.

- b) Did receipts from the trees themselves as crops count as a significant part of the garden's production?

We had no receipts from tree sales.

- c) Was more or less effort required to maintain the garden with trees?

Interspersal of trees in the raised beds would have posed a problem if we were planning to use mechanical cultivation but worked well with our manual-based Fukuoka/Stout-style of cultivation.

- d) Did the garden with trees require more or less water?

Seedling trees did not seem to make a difference on water needs.

- e) Were there any other advantages or disadvantages noted regarding the inclusion of trees in a diversified permanent raised-bed system?

Not as seedlings, at least.

- 5.8 Plan: Document entire project by video, photograph, and text reports. Publish ongoing project reports at Ash Grove Farm's website in NOFA-NY's newsletter, and in NOFA's 7-state quarterly journal.

Actual: Project was documented at Ash Grove Farm's website <http://www.ic.org/agrove/SARE99.html>. A workshop about the project was offered for presentation at the NOFA-NY winter conference in 1999/2000 but was declined (no reason given). A workshop about the project was presented at NOFA's 7-state summer conference at Hampshire College in Amherst, MA in August 2000. Because the project was not successful in that it did not reach its short-term goals, it was not reported in newsletters and journals. Because the farmer lost her off-farm job she did not purchase video equipment.

- 5.9 Plan: Write and send articles about the project to Countryside, Harrowsmith, The Mother Earth News, and other "mainstream" publications.

Actual: Because the original goals of the project were not met, these articles were not written.

- 5.10 Plan: Conduct regular tours and field days at the project.

Actual: Needed (and expected) assistance from Cooperative Extension in planning and presenting and publicizing these events was not received; whenever they were approached by the farmer they were either "all booked for the next five months" or "not planning that far in advance yet". We did attempt one bus tour on our own, but without our input or knowledge it was presented to the tourists as a "Mystery Shopping Trip" and the only way it could have crashed and burned any worse would have been if the bus had actually caught fire. This did not happen, everybody survived, and valuable information was gained through the experience.

5.12 Plan: Continue progress reports and workshops for at least three years.

Actual: The trees were delivered by the supplier during the second week of April 1999, while our ground was still frozen and we had two feet of snow cover. We did not know until March that our grant had been awarded, so did not have planting holes prepared. The farmer did her best to heel trees in and get them planted quickly, but most of the trees died within the first year. The farmer has been seriously discouraged by this failure and continued failure of her efforts to create a CSA project in this area. She is presenting NOFA conference workshops on two other topics this year and plans to offer one on surviving failures next year.

6 How will you measure your results?

Plan: Results will be measured by recording time spent working in each garden by all staff and volunteers, losses, and production from both gardens. Records will be kept on Dori Green's Pentium II computer in a Microsoft Access database. Dori works full-time as a professional technical writer, database designer, and systems analyst.

Actual: Minimal production was realized from the gardens in 1999 and 2000.

7 What were your findings and accomplishments? Did you have unexpected results? If so what were they?

Findings: One person cannot adequately serve four acres with only manual tools. Even if someone is pretty good with plants, this does not guarantee that they will succeed with trees.

Accomplishments: Kept some of the trees alive. Discovered previously unknown personal limitations (opportunities for educational growth -- before I spend any more money on trees I will hire a tree specialist or become one).

Unexpected results: Surprised and dismayed by the lack of support and assistance from Cooperative Extension and NOFA-NY. Tree supplier was located in Maine; I still think they should have known better than to deliver the trees while snow was still two feet deep.

8 Did any site conditions, conditions specific to your farm and this growing season, affect the outcome?

Yes, bitterly cold winter winds and a lack of snow cover killed many trees in their first year. Windbreaks and wraps will be necessary for future efforts. The raised bed field had always perked badly and fish could be raised in the paths between beds by June of the second year. This made early planting difficult -- cold wet feet or hot hurting feet in gum boots.

9 What were your economic findings, if any?

One unemployed person cannot support a startup community farm. What a surprise.

10 Have the results from your project generated new ideas about what is needed to solve the problem you were working on? What would be the next step?

I am continuing work in the raised bed field, still experimenting with different forms of organic no-till cultivation. Including trees in those beds is still in the plan, but only as financed by the community through a "memorial tree" program. The next step is to secure the future of this farm with formation of a committed CSA core group, or to turn it over to the bank and walk away.

11 Will you continue to use the practice you investigated? Why or why not?

Yes, I remain convinced that crops and trees can be successfully interplanted in raised beds. I certainly will not try to plant more than 100 trees in one weekend by myself!

12 Explain what you did in your outreach program. Please send a copy of any articles written about your project.

I presented a workshop at the NOFA seven-state summer conference in 2000, complete with color transparencies. The annotated workshop is posted at <http://www.ic.org/agrove/sare99/sld001.htm> . I'm continuing to develop the raised beds created as part of this project and will be publishing and presenting future results.

13 Include your name and date at the end of the report.

Doratheia E. Troicke-Green, May 5 2002.