

1. PROJECT NAME: Bringing Organic Sweet Corn Back to Long Island

GRANT #: FNE 04-534

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2. GOALS :

Our goal was to test the use of a silk application of vegetable oil—or vegetable oil with *Bacillus thuringiensis*--to control corn earworm. We wanted to produce a marketable quality and quantity of organic sweetcorn to supplement our farmers market stand and CSA shares.

3. FARM PROFILE: basic info about farm. # acres, current crops, livestock, any unusual features of operation.

Garden of Eve farm was founded in 2001 by environmental activists Chris Walbrecht and Eve Kaplan, who are now Chris and Eve Kaplan-Walbrecht (since Sept 2004), and is a diverse certified organic vegetable and flower farm located in Riverhead on the East End of Long Island. We grow 75 different varieties of vegetables on 5-8 acres, although our farm is approximately 80 acres. We also grow 1-2 acres of cut flowers and have 200 laying hens. We have heated greenhouses, unheated hoop houses, tractors, seeding and cultivating implements, and both overhead and drip irrigation.

We began the operation selling solely at farmers markets on Long Island and in NYC, but have been scaling back on off-farm farmers markets and aiming to build our CSAs and on-farm farmstand. In 2005 we will have approximately 150 CSA members in Manhattan and Brooklyn, will do one farmers market in Brooklyn, and have a farmstand on the farm. We have been organic since we started in 2001, became certified in 2002, though some fields are “certified transitional” until 2006 due to prior use by other farmers.

Garden of Eve has been growing sweet corn for two years. We also grow popcorn, which we harvest for fresh “baby corn” for sale at our farmers markets. Both crops have experienced heavy damage from corn pests, although we have had some very limited success with early harvest sweet corn. Since we rely on farmers markets and CSA retail outlets as our main source of income, sweet corn is a very important crop for us and is in high demand. We receive requests for it weekly, and participate in two all-organic markets where no sweet corn is currently available.

Through our trial of SARE’s organic corn techniques, we hoped to be able to increase the quality and quantity of our corn production to address the unmet demand for this product, as well as educating neighboring farms – for whom summer sweet corn is also a very important product – about organic growing methods so that they can reduce their use of chemical insecticides.

4. PARTICIPANTS: technical advisory, cooperators, roles in project

In late May, project technical advisor Daniel Gilrhein, Extension Entomologist for Cornell Cooperative Extension at the Long Island Horticulture Research and Extension Center (LIHREC) came out to the farm and set pheromone traps with pheromone lures and showed Chris how to monitor for European Corn borer and corn earworm larvae and moths. He explained that this monitoring would be helpful in determining the level of threat to the crop and the timing of appropriate responses. Dan was very helpful throughout the project and sent a follow-up letter on November 22, 2004.

We anticipated collaborating with John White of EECO Farm in Easthampton, who had also applied for a SARE grant to grow organic sweet corn and was also collaborating with Dan Gilrhein, however John left EECO Farm early in the summer season and so collaboration was not possible.

In 2005 we have plans to collaborate with the other collaborators mentioned in our proposal, including: Connie Farr, President of the Northeast Organic Farming Association Long Island Chapter, Scott Chaskey, farmer, Quail Hill Farm, and Mick Mackinajian, farmer, Makinajian Poultry Farm and Country Store. Mick Mackinajian and Scott Chaskey have grown some sweet corn using organic methods on their respective farms, and we will join with them in presenting a talk at one of the Long Island NOFA meetings coordinated by Connie. In addition, we hope to write an article about our collective experience with organic sweetcorn for submission both to the Long Island NOFA newsletter and the "Natural Farmer" NOFA publication.

5. PROJECT ACTIVITIES: what you did, how it was done. Changes over time and why was necessary

We completed some of the activities that we anticipated doing, but some extenuating circumstances arose that made it difficult to complete others.

We grew Silver Queen white and Quickie bicolor sweet corn. We anticipated trying to start some of the corn under plastic, starting in a cold-house under plastic in April. A late wind storm tore down the house we had expected to use, and we try to minimize the use of plastic in the field, so we decided to wait until the soil was warm enough to direct seed the corn in late May.

We purchased Entrust instead of Bt, based on the recommendation of our technical advisor Dan Gilrhein. He said that through studies performed at the LI Horticultural Research and Education Center (LIHREC) near us in Riverhead, they had found that Entrust provided superior results to Bt..

We purchased organic corn oil from a local health food store. When we went to purchase the "Zea Later" oil applicator from Johnny's seeds, they were already sold out (guess it is popular!). We were also somewhat short on staff due to the fact that Eve began a new full-time job off the farm in May. So we decided that rather than applying the oil/Bt mix ear-by-ear, we used a backpack sprayer to apply the solution to the corn, which is much more practical and economical for commercial production.

In addition to this organic-pesticide trial, one of the challenges of organic sweet corn is finding appropriate organically-certified fertilizers that can provide enough nitrogen to this fast-growing crop. The first planting of corn (planted late May) did not

grow very well, and was very short due to insufficient soil fertility. The next planting (planted mid-June) we used an OMRI-certified powdered fertilizer from Fertrell and our composted chicken manure, with better results.

Chris checked traps for the European Corn Borer moth (males) in June and found approximately 22. He checked approximately every two weeks afterwards in July and August, and found that the numbers of moths increased each time, for example the second time there were 30, the third time approximately 35, etc. There were also bees, wasps, and grasshoppers in the traps. These traps were helpful in showing Chris that the corn borers were indeed present, and laying eggs on the corn ears, and that populations were increasing, thus the need to spray.

We monitored for tassel and ear silk as each planting of corn matured (approximately one every 3 weeks or so from late May through August). We applied oil using the procedures described above to all except the first planting, which we believed would not be subject to intense pest pressure because we had been told that early in the season the pest problem is not as bad, and this did seem to be true.

Chris Walbrecht, project leader, will learn correct oil application technique, prepare an application schedule for treatment plots, and treat accordingly, with the help of other farm workers. Control plots will also be planted and left untreated.

6. RESULTS: describe. Accomplishments. Unexpected results? What?

Approximately six 600 foot rows were planted at each of four plantings made between June and late July. Unfortunately the last planting was wiped out at the point of maturity by a hurricane that passed through our area in late September. Ideal yields for the varieties planted were listed by Johnny's seeds as 20 dozen ears/100 ft row, and we obtained approximately half of that yield (10 dozen ears/100 ft row). We also had some deer damage at the end of rows, and in some cases germination rates were lowered due to predation by crows. As a result we tried to replant seed within the rows by hand.

We harvested bicolor sweet corn intermittently as the plantings matured through July and August. We were pleasantly surprised with the taste and general appearance of the corn, which was small (due to the use of organic fertilizers) but otherwise very "normal looking."

Data on pest damage was gathered through field monitoring and notes. Early in the season, corn earworm damage was low (approximately 20%), and as mentioned above we did not even treat our first planting. In the second planting damage rose to approximately 20%, the third planting 50%, and the fourth and last planting approximately 75% of ears showed some damage.

7. CONDITIONS: describe cond specific to our farm, growing season, how affected results.

In general 2004 was a good growing season, not too hot, and Long Island missed a lot of the massive rain storms that destroyed crops in upstate NY. We had a dry spring but moderate rain throughout the summer and we also used wheel pipe irrigation.

As mentioned above, one of the challenges we faced was low organic matter and low fertility in the soil where the corn was growing. This resulted in ears that were small. Another challenge is that a lot of sweet corn is grown in our area, with heavy pesticide use. Most area farmers report spraying nearly every day during the latter part of the summer to keep their corn earworm-free. So we have much higher pest populations than other areas that have reported excellent results with oil and BT, such as Massachusetts.

8. ECONOMICS: describe. Changes in expenses or net farm income triggered by project.

Obviously we incurred extra expenses due to growing sweet corn at a commercial scale, including money spent for corn seed, labor and tractor time spent cultivating and spraying, and picking. Our Cornell Coop Extension technical advisor helped us get Entrust at a reduced price and we reimbursed him for moth traps and pheromone lures. In 2005, we are looking at purchasing mainly organic sweet-corn seed (both because NOFA organic certification requires that we use organic seed, and we hope that organically grown plants will beget offspring that are hardier and better producing under organic conditions) and this is much more expensive than conventional sweet-corn seed.

As described above, we did have significant earworm damage on the crop. However, due to the great taste (we used a super-sweet variety) and high demand for organic sweet corn, which is not available otherwise in our area, we just broke off the damaged tips of the corn and still sold the ears, or distributed them with CSA shares. So economically we definitely considered this trial a success, because it showed us that growing organic sweet corn is not as "hard" as we had imagined.

We sold the corn for \$.50 per ear, which is a high price for corn but actually about on par with what conventional super-sweet corn sells for in our area, retail (\$.35-.50/ear). It sold OK at the market, but the main value is for our CSA members who expect everything they get to be organic, and who really appreciated the corn, because it increased the variety of vegetables they received, it was something they were very familiar with and knew how to cook, their kids liked it. People familiar with CSA shares or who had been members of other CSAs knew that is is relatively uncommon to get sweet corn in an organic CSA. So we were happy that they were happy, we didn't feel that it cost that much more to produce than other crops (though we'd like to keep better records of this in 2005), and if it leads to greater member retention then it is definitely worth the money, because our farm's financial success rests on building CSA (guaranteed income, less distribution effort) and cutting down on other retail outlets.

9. ASSESSMENT: did results generate new ideas about what is needed to solve problem? Next step?

Yes, we have some new ideas for 2005 about how to modify our corn planting to maximize results. Rather than a few long rows, we plan to plant corn in blocks with sufficient distances between aisles to allow the tractor to pass through the aisle with a tractor-mounted sprayer that can spray the oil/Entrust mixture. Hand spraying, even by backpack, was very time consuming. We are also looking for some natural predators for European corn borer moths, such as bat boxes and possibly barn owl boxes. We are also

planning to start some of the corn in the greenhouse and transplant it out to reduce damage from Crows and germination problems early in the season due to cold earth.

10. ADOPTION: why will continue, or why not? Revise processes, how?

We definitely plan to continue and actually expand our growing of organic sweet corn based on what we considered the success of the program in 2004. In 2005 we plan to make more frequent sweet corn plantings (every week if possible), use more effective fertilizer (Chilean rock nitrate, and more composted chicken manure), we have purchased a Zea-later and plan to try some ear-by-ear applications to see how these work, as well as spraying more often with the tractor-mounted sprayer during critical stages. As mentioned above we will be using mainly organic seed, and will only grow bi-color varieties (in 2004 we grew a few white varieties which did not mature well or taste good).

11: OUTREACH: what you did. Send copies of articles, flyers, etc.

Information will be distributed through articles written for publications and meetings of Cornell Cooperative Extension, Long Island Farm Bureau, Northeast Organic Farming Association of New York, and New York City Greenmarket.

We were not able to have a farm field day on the North Fork, in coordination with John White of the South Fork as was planned, in 2004. However, we hope to hold one in 2005 using the funds already supplied to us by SARE. We will print approximately 300 field day flyers/fact sheets and send out approximately 100 to local NOFA members and neighboring farms. We will provide signage and fact sheets at the farm day, as well as informal refreshments.

We will also send out a press release detailing our results, and encourage local newspapers to cover the farm trial in appropriate sections of the newspaper.

12: REPORT SUMMARY: In 2004 Garden of Eve, an organic vegetable and flower farm on Long Island, tested the use of a silk application of vegetable oil with *Bacillus thuringiensis* to control corn earworm to produce a marketable quality and quantity of organic sweetcorn for commercial sale. We planted corn approximately every 3 weeks between late May and July, used pheromone moth traps to monitor earworm populations, and used a backpack sprayer to spray the oil/Bt solution on all plantings but the first one at the tassel stage. Results showed that earworm damage was lowest early in the season, even in untreated corn, and increased as the summer progressed. Treatments did help reduce earworm damage, but by the end of the summer high damage rates (approximately 75%) were still observed. However, growing sweet corn was considered an economic success for the farm due to high demand for and satisfaction with even damaged ears by CSA members. In 2005 the farm plans to expand acreage dedicated to organic sweet corn, and spray more frequently towards the end of the season to see whether it is possible to reduce pest damage rates.

Christopher Walbrecht
March 10, 2005



Naturally!
No synthetic pesticides herbicides or fertilizers
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Dale Riggs
Farmer Grants Specialist, Northeast SARE
Stone Wall Hill Farm
15370 NY 22
Stephentown, NY 12168

Dear Dale:

This cover letter outlines the materials being submitted to satisfy the final requirements of our SARE farmer-grower grant obtained for the growing season 2004, for our project **FNE04-534: Bringing Organic Sweet Corn Back to Long Island.**

We are enclosing copies of the materials produced as part of our outreach efforts. We held an "Organic Sweet Corn Field Day" on July 21 from 6-8 pm. We publicized the field day through flyers (sample enclosed) which we distributed at our farmstand (50 flyers), and which I sent to all the organic farms listed in the NOFA-NY Organic Guide. We also put out a press release to three local newspapers. One newspaper ran an article on the project (copy enclosed) and others listed our event in their calendar of events. We also publicized the day through the Cornell Master Gardener newsletter and the Long Island NOFA chapter.

Our Field Day was attended by twelve people, including our project advisor, Dan Gilrhein from Cornell Cooperative Extension, three farmers with farms of their own, and one master gardener. We felt it was very successful in publicizing the fact that it is possible to grow good organic sweet corn commercially on Long Island. I have enclosed a CD with photos from the field day. We began with Dan Gilrhein, who is an entomologist, showing examples of the European corn borer moth and other insects which infect sweet corn. Then we took a walk to our field where the corn was growing, and demonstrated the use of oil and Bt as a natural pesticide, applied with the Zea Later. Participants had a chance to try out the application of treatments, and inspected and picked some corn. Afterwards we had a grilled corn barbeque. Everyone enjoyed the event and found it very informative. The other organic farmers who do not currently grow sweet corn said they were likely to try growing it, using the recommended treatments, in the future.

We believe that we have now satisfied the requirements of the grant, and hope that you will release the final payment to us. If you have any additional questions please do not hesitate to contact us at farmer@gardenofevefarm.com or 631-523-6608. Thank you!!

Best wishes,

Eve and Chris Kaplan-Walbrecht, Garden of Eve

Food & Wine

Organic Lesson and Fests Garden of Eve Opens Gates to Education

BY EILEEN M. DUFFY

The crossroads of the North Fork and Riverhead have long been known as a place to go to get fresh produce. At the top of Route 105 lies Briermere Farms, home to some of the most famous pies on the island. Gabrielsen's farm stand, where Northville Turnpike dead-ends into Sound Avenue, has always been a reliable place for flowers and farm products even late into the winter.

A recent addition to this junction has been the Garden of Eve organic farm. The farm itself sits between Briermere and Gabrielsen's; the farm stand, into its first year in operation, is located in a barn behind Gabrielsen's.

Run by Eve and Chris Kaplan-Walbrecht, the Garden of Eve farm stand is taking ecotourism in a slightly different direction.

As a result of a grant from Sustainable Agriculture Research and Education, Garden of Eve was able to take part in a project to see if and how sweet corn could be grown organically. This is the second year they're growing the corn and though the results are diminutive, they're still tasty, said Eve Kaplan-Walbrecht.

Working with Dan Gilrein, an entomologist for Cornell Cooperative Extension of Suffolk County, Garden

of Eve confronted the organic farmer's biggest adversary when growing corn: worms. Larger farms, to produce the big sweet ears so ubiquitous in summer, have to spray daily. The organic farmer has one option: apply corn oil to the silk of an ear of corn to suffocate the worms. But it's the method of application that's the issue. The oil is either applied ear by ear, or sprayed over the whole plant in hope it gets on the silk.

"The first method is obviously very time consuming," said Kaplan-Walbrecht. "So we tried the spray method last year. We might try the other this year."

Kaplan-Walbrecht said they found the early crop of corn had the fewest worms, while later in the season the worm problem intensified and the corn was more damaged.

The corn they wound up with was small, "but it tasted really good," she said. "And it's definitely worth growing."

Until recently the received wisdom among organic farmers was that sweet corn was not a viable crop. Kaplan-Walbrecht's project, part of a larger plan by SARE, is hoping to change that.

To fulfill a requirement of the



Jacqueline M. Dubé/Traveler Watchman

Chris and Eve Kaplan-Walbrecht, with son Forest, are growing sweet corn and garlic organically.

grant, the Garden of Eve will share its trials and progress of growing sweet corn on Thursday, July 21 from 6:00 to 8:00 p.m.

"We want to encourage people to try it out," said Kaplan-Walbrecht, "and at the same time have a fun social evening where people can get together."

Combined with a potluck dinner, the Kaplan-Walbrechts will give a tour of the farm and hopefully have their first crop of corn in for sampling.

This year the farm will host its sec-

ond annual Garlic Festival on Sunday, August 7 from 10:00 a.m. to 6:00 p.m. (rain date: August 14). Based on the garlic festivals of Saugerties and California, the Garden of Eve Garlic Fest will feature the farm's varieties of organic garlic, garlic food products and crafts and a petting zoo for the kids.

For more information visit www.gardenofevefarm.com, e-mail farmer@gardenofeve.com, or call 523-6608.



Learn How to Grow Organic Sweet Corn

Join Us on

July 21st 6-8pm

*For a fun evening of learning, eating
and socializing at Garden of Eve Farm*

Everyone loves to bite into juicy sweet corn right off the grill on a warm summer evening. But no one likes worms in their corn, or the toxic chemicals used to kill them.

We will talk about our experience growing organic sweet corn on the North Fork. Learn what pest management techniques worked for us. A chance for questions and discussion. Walk the fields and enjoy a potluck dinner on the farm (beverages provided).

Meet at 6 pm at the Garden of Eve farmstand, located at the intersection of Northville Turnpike and Sound Avenue, Riverhead, NY.

For directions go to www.gardenofevefarm.com, or call Eve Kaplan-Walbrecht at 631-523-6608 or email farmer@gardenofeve.com.

Supported by Sustainable Agriculture Research and Education (SARE)