

**Final Report to Northeast SARE**  
**Grant Project #FNE00-343**  
**“Integrating Sustainable Agriculture into School Curriculum”**  
**Phillies Bridge Farm Project, Inc.**  
**December 28, 2000**

The Phillies Bridge Farm is a 5 acre CSA that produces a diverse array of vegetables and berries to provide 130 shares for approximately 200 families weekly from June through November each year. The farm follows NOFA (Natural Organic Farming Association) New York methods. The farm also utilizes resource conservation practices such as drip irrigation, solar energy, and cover crops. The farm is operated by the Phillies Bridge Farm Project, Inc., a not-for-profit organization whose mission is to promote sustainable agriculture, support family farms, and enhance food security in the Hudson Valley, New York. This means that in addition to growing food and educating people on our farm, we conduct outreach and education in the greater community.

Thanks to a grant from Northeast SARE, the Phillies Bridge Farm Project has enriched its on-farm education program so it more directly teaches children about sustainable agriculture and farming practices that reduce health risks, prevent pollution and threats to water quality, build soil fertility, and conserve water, energy and soil. The program reaches all the 4<sup>th</sup> grade students from the local New Paltz School District, who visit the Phillies Bridge Farm twice a year, in the fall and spring. We added discussion topics and hands-on activities so children now leave the farm with a clearer understanding of sustainable agriculture, organic farming, and how CSAs connect people directly to the source of their food.

The following are activities developed to integrate sustainable agriculture concepts into our on-farm education program:

**Station: Pest Control**

We developed an activity in which students hunt for pests and beneficial insects. They discover insects in different stages of their life cycles, learn about predator-prey relationships and how pesticides may kill beneficial insects. They examine plant damage from different kinds of pests, participate in hand-picking pests from crops, and compare the benefits and drawbacks of commercial pesticides versus organic pest control methods. The commercial apple orchard, which is in clear view of our fields, helps students better understand discussions about why farmers use pesticides, and what their potential risks are to the environment and human health. We deliver a balanced message about pesticides that includes their potential risks but also the reasons why commercial farmers feel they need to use them, including the role that consumers play in providing pressure to farmers to produce pest-free food. We also discuss with students the role of soil fertility, crop rotation and crop diversity in managing pests. These last two concepts are related to other stations described below.

**Station: Soil Fertility and Conservation**

We developed an activity in which students build a compost pile in the fall and use the finished product to fertilize seedlings in the spring. Students also learn about decomposition and the importance of a healthy soil microbial community by measuring the temperature in a steaming compost pile. Students also learn about cover crops, examining sprouting rye grass and bacterial root nodules of legume cover crops. We show students examples of synthetic fertilizers so they can compare them to organic methods of building soil fertility.

### **Station: Tasting Tour**

In this previously existing station, students tour through the fields tasting different crops, learning about plant anatomy and plant part functions, which are prominent aspects of the fourth grade curriculum in New York. We added to this tasting tour station a discussion of crop rotation and crop diversity, and how they help us manage pests. We discuss why today's economy leads many U.S. farmers to grow only one crop (monoculture) and how a small-scale CSA farm model allows us to grow many different types of vegetables on one farm. As they taste crops picked fresh from the earth, students also learn about the benefits of freshness (i.e. eating local produce) to taste and nutrition.

### **Station: From Farm to Consumer**

We developed an activity in which students visit our distribution room and learn about how a CSA operates. Students are challenged to put together a puzzle entitled "How Far Does Food Travel – Then and Now." Each puzzle piece depicts how far food traveled in different time periods from the 18<sup>th</sup> century to present, as well as the primary mode of transportation. For example, the piece that matched the 18<sup>th</sup> Century was a horse-drawn wagon with an historic map of the New Paltz area and the statement "food traveled an average of 5 miles from farm to kitchen," and the piece that depicted the present was a tractor-trailer refrigerator truck on a highway with a picture of the world and the statement "food travels an average of 1300 miles from farm to kitchen." After students put together the puzzle, we discuss how a CSA reverses the trend depicted by the puzzle, where consumers purchase direct from a local farm, and we discuss the costs and benefits of a global food economy.

### **Station: Apple Cider Pressing**

In this previously existing station, students use an "old fashioned" apple cider press to make apple cider by hand. We added to this station a taste test of apples from a local orchard and apples from New Zealand and Washington State bought at a supermarket. Students use a globe to estimate the number of miles each apple traveled to get to the Phillies Bridge Farm as we discuss the benefits and disadvantages of the global food economy (able to eat apples out of season and different varieties perhaps not available locally, but apples from far away are less fresh and more fossil fuels are used in their transport). We also discussed how our local apple farmers are struggling financially and how our food consumption choices impact the local economy. We also challenge students in this station to guess the answers to questions written on cue cards about the history of apple cultivation, such as how many varieties of apples were available to farmers 100 years ago versus the present. Students are always surprised that much fewer varieties are available today, and we discuss that the technology of modern agriculture has increased efficiency of production, but decreased genetic diversity of crops.

### **Integrating into Classroom Activities:**

We developed a curriculum guide of activities that teachers use in the classroom to prepare for and follow up the farm visits. Curriculum guide activities help reinforce what students saw, did and learned on the farm. The curriculum guide includes activities where students:

- Learn about soil fertility and nutrient cycles by building and tending a worm compost box; plant seeds and use the compost to fertilize seedlings.
- Learn about crop diversity through categorizing different types of seeds and conducting an experiment to compare germination and growth rates.
- Learn about current trends in local agriculture and how various aspects of farming have changed over time, such as farming methods, food processing, packaging, and storage, the number and size of Ulster County farms, how far food travels, and stories of farm life.

- Learn about plants and photosynthesis through an experiment to study how plants respond to different light conditions.

In addition to the New Paltz 4<sup>th</sup> grade students at Lenape Elementary School, students from the following schools and youth groups participated in the Phillie Bridge Farm Project's on-farm education program in the 2000 school year: Duzine Elementary School and the Agribusiness Child Development Center (migrant farm worker children) in New Paltz, Children's Country Day School in New Windsor, Wallkill High School, Brookside School in High Falls, and Saint Patrick's Church in Newburgh. Teachers were overwhelmingly satisfied with the program this year. As one teacher stated, the program "fits right into our plant curriculum, our local history curriculum, and meets the standards on so many levels." But perhaps the most valuable aspect of a visit to Phillie Bridge Farm is "the excitement, enthusiasm of children, the total learning experience that some may never had had, to make the connection between farming and food."

We have begun to share our results of this project with other farmers and educators. We hosted an "Educational Farm Tour and Workshop" in Summer of 2000 for other farmers and educators to give them an opportunity to experience first-hand the activities we conduct on the farm with children. We will present a workshop on our education program for the Regional Farm and Food Project's "Connecting Children with Agriculture" Conference in Albany, NY this winter. We will also continue to share the program results within our various networks, including: NOFA-NY, Northeast Sustainable Agriculture Working Group, Farm Bureau, Hudson Valley Harvest Association, Ulster County CSA Coalition, and Cornell Cooperative Extensions and Soil and Water Conservation Districts in Ulster, Orange, and Dutchess Counties, New York.