MUNNELL RUN FARM

WALK-IT-YOURSELF FARM GUIDE

Munnell Run Farm is 163 acres of what was more than 353 acres of County Farm. The farm's original purpose was to provide the foodstuffs needed by the Mercer County Home and Hospital. These needs were met by a variety of agricultural enterprises that included dairy, beef, hogs, poultry, fruit and vegetables. Crops were grown to feed the livestock. Vegetables and fruit were grown and prepared for the patients and staff of the hospital. At one time the superintendent of the hospital, the superintendent of the farm and some of the staff lived on the premises. Water needs were supplied by a spring until wells were drilled that now serve the hospital complex.

The farm no longer serves the hospital. It is farmed by a local tenant farmer who raises beef cattle and is being developed as an outdoor laboratory for agriculture and environmental education. It is valuable in showcasing conservation practices that improve or protect water quality while preserving agriculture production.

It is a work in progress, offering opportunities for students of all ages to experience agriculture and the environment firsthand. The Munnell Run Farm Foundation was created to provide financial support for the development and operation of the farm and education programs. It is designated as a 501 c (3) nonprofit organization by the IRS so that donations are tax deductible. The Foundation holds a 99-year lease and conservation easement on the farm from the Mercer County Commissioners. Mercer County Conservation District manages the farm on behalf of the Foundation. Ninety-six acres of pasture, cropland and hayland are leased to the Austin Rains family, who raise Angus beef and crops.

By using this guide and the map you can explore the farm at your own pace. Enjoy your tour.

#1 COMPOSTING AREA: This area is used to produce compost for use on the farm and to demonstrate the various methods of making compost. Compost is useful in the home garden as a nutrient supplement and soil conditioner. The use of compost in the garden or on the farm can mean that less store-bought fertilizers will be needed to produce a crop. A variety of composting containers is here to give you some ideas for your own backyard.

#2 CHILDREN'S GARDEN: Adjacent to the composting area, the raised beds are planted to a variety of edible and ornamental cultivars using organic production techniques. The garden serves as a hands-on education area for children to learn about plants, how they grow and the soil in which they grow. Adults might also find useful ideas to use in their own gardens

#3 SOLAR-POWERED WATER DISTRIBUTION SYSTEM: (1995) Spring water is piped about 1,400 feet from its source on the farm to the 500-gallon concrete holding tank. From there a pipe takes water to the trout nursery. A submersible pump, powered by the solar panels (24 volts), pumps water to another holding tank about 900 feet to the north and about 14 feet higher in elevation. From there, water flows by gravity through underground pipes to various points in the rotational grazing system. If you are walking to the woodlot, the small red building setting in the pasture field to the left of the lane is the springhouse and source of the water. More information is available near the small white building which houses the 500-gallon holding tank.

#4 GIRL SCOUT GARDENS: (2002) Located in front of the trout nursery, the raised beds are maintained by scouts from the Mercer Service Unit. Surrounding the beds are "railroad ties" that are made from recycled automobile parts. Fruits and vegetables harvested from the beds are donated to local food pantries.

#5 TROUT NURSERY: (1997) The Neshannock Chapter of Trout Unlimited in cooperation with the Pa. Fish and Boat Commission raise trout to stock in area streams open to the public. The nursery takes advantage of the good supply of cold water from the spring. The near steady water temperature encourages the fish to grow at a relatively fast rate during their 10 months stay at the nursery.

#6 BANK BARN: The bank barn was originally built in the mid to late 1800's and has been in continuous use. The severe storms that rolled through the Mercer and Jackson Center areas in April 2002 caused major damage to the structure, moving the south ell off its foundation. With funding from Mercer County and its insurance carrier the barn has been made structurally sound. Further restoration work and painting are planned for the future as funds become available. Once completed, the upper floor will be used as a museum and as additional education space. The lower floor will continue to house livestock.

#7 BARNYARD RUNOFF CONTROL: Several projects are included in this. They either redirect stormwater from upslope areas that would flow through the barnyard or treat the runoff emanating from the barnyard itself. Construction began in the summer of 2000 with a **diversion terrace (7a)** that collects runoff from the barnyard and feedlot and conveys it to a wetland constructed in August 2001. A **grassed filter area (7b)** between the barnyard and the diversion removes nutrients and sediment from the runoff. Spouting on the barn conveys rainwater to an underground drain that carries it safely to the riparian area. A second diversion collects stormwater from the parking area and lane, conveying it to a **storage terrace (7c)**. From there, stormwater is conveyed to an underground drain line that carries the stormwater to the riparian area. An underground tile system collects the clean roof water from the barn and conveys it to the riparian area. The **constructed wetland (7d)** also receives the effluent from the trout nursery where the water quality will be improved prior to discharging to the riparian wetland.

#8 PIG BARN ACTIVITY BUILDING: Formerly the site of a hog barn, a 24' x 48' pavilion was built in 1999 by the Pennsylvania Conservation Corps, a program funded by the PA Department of Labor and Industry. It provided funds and workers for the project. In 2002 the PCC crew enclosed it, added insulation and electricity, applied barn siding to the outside walls and added a 24'x30' pavilion on the rear. It approximates the look of the original hog barn. It is used for workshops, day camps and other events throughout the seasons. Restroom facilities are planned for the near future as funds become available.

#9 ROTATIONAL GRAZING SYSTEM: (1992) 20 acres of high tensile fence and a water distribution system allow for efficient movement of cattle through the several paddocks. This prevents overgrazing by allowing grass to re-grow between grazings. A higher quality of forage can be maintained in this way.

#10 MUNNELL RUN: The farm's namesake, this stream is part of the Shenango River Watershed. The quality of the water in Munnell Run affects that of Otter Creek and Neshannock Creek, which joins the Shenango in the City of New Castle. It has been the site of monitoring workshops that teach students and adults about the relationship of aquatic life to water quality.

#11 RIPARIAN FOREST BUFFER AND WETLAND: (1992, 1994, 1995) Our own research confirms that of worldwide research in showing that a forested buffer area along streams filters pollutants and nutrients from water runoff before it can get into the stream. This buffer was established in 1992 and has been planted to European alder, green ash, red oak, swamp white oak, river birch, aspen, sycamore and several species of viburnum native to riparian zones. Phosphorus and fecal coliform bacteria were reduced 40% and 60% respectively within 14 months of the buffer's establishment. The tree canopy has reduced the summer water temperature as evidenced by the number of coldwater species of minnows that have taken up residence in the stream. Livestock access is limited to a 20 feet long section of Munnell Run to allow for crossing to and from the paddock on the west side of the stream and for drinking.

#12 RIPARIAN BUFFER: This project was completed in the summer 2000. It compliments the barnyard runoff control project in removing nutrients from the stormwater runoff emanating from the barnyard and feedlot. Like the buffer upstream of the lane it has been planted to trees and shrubs commonly found along streams. Additional planting will be done in future years. A livestock crossing installed downstream of the pool below the culvert permits the cattle to cross to the pasture on the west side of Munnell Run at a place that protects the stream banks from the cattle's hooves.

#13 SPRING HOUSE: (1997) The source of the water for the rotational grazing system and the trout nursery. The building protects the water from animals and sunlight that would lead to an excess of algae in the system.

 # 14 DIVERSION TERRACE: (1994) The terrace is a combination of a shallow channel and a low berm that captures runoff from the field and lane above it, and conveys it to the grassed waterway at a non-erosive velocity. It protects the field and the lane below it from erosion during rainstorms. It's about 600 feet long.

#15 GRASSED WATERWAY: (1993) It's located along the woods from the pasture fence 550 feet to the west. Its purpose is to convey stormwater collected by the diversion terrace to the pasture without causing erosion. It's part of a system to prevent soil erosion in the crop fields and on the lane.

#16 CONTOUR STRIP CROPPING SYSTEM (1994) Plowing along the contour of the ground helps to prevent soil erosion as each horizontal furrow made by the tillage and planting equipment acts like a little dam to hold back surface water runoff and give it a better chance to percolate into the ground. Strip cropping alternates row crops like corn with a sod forming hay to further aid in soil erosion control. A system of crop rotations helps further by breaking up the pest and weed cycles, slowing the loss of fertility, and building tilth into the soil. Winter rye, oats and spelts are planted into the corn stubble to provide winter cover that will use any excess nutrients remaining in the soil from the corn crop and protect the soil from erosion over winter. By using the nutrients they will not be able to leech into the groundwater and eventually reach the stream system.

#17 WOODLOT: 10 acres of woods are under the management of a forester for the long-term goals of timber production and wildlife habitat. A timber sale was held in 1997 as part of the management plan. Some inter-planting of Eastern Hemlock, Pennsylvania's state tree has been carried out. An experimental deer exclusion fence, 20 feet wide by 100 feet long was established in 1998 to determine if deer are detrimental to the tree seedling re-growth. A freak windstorm in May 2000 felled 15 crop trees that would have been harvested in about eight years. A **composting toilet** was installed at the entrance to the trail in 2002 that will be used during workshops in that area of the farm. An amphitheater that can seat 50 people is planned for construction in 2009.

#18 TREE PLANTATION: (1995) 32 acres of the farm had been lying idle for many years. Crabapples and brush had been predominant. The goal here is to turn the area into a long-term investment of high quality trees for the timber market. Red oak, black cherry, ash, tulip poplar and sugar maple have been planted on about 15 acres to date. The white tubes are tree shelters that protect the young seedlings from wind and animal damage and they actually help them to grow faster.

#19 PASTURE: Eighteen acres of pasture land is located to the left of the lane as you walk past the riparian buffer area. The springhouse is located here. An additional ten acres of pasture lies adjacent to the tree plantation.

#20 WIND TURBINE: The 10 kW Bergey wind generator, which is attached to a 140-foot guyed lattice tower, is a grid-connected system that provides electrical service to a Welcome Center, a century-old bank barn, an educational facility, and a Rural Life Museum. It was made possible by an Energy Harvest Grant from the Pennsylvania Department of Environmental Protection. The annual production is approximately 3,500 kilowatts per year.

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