

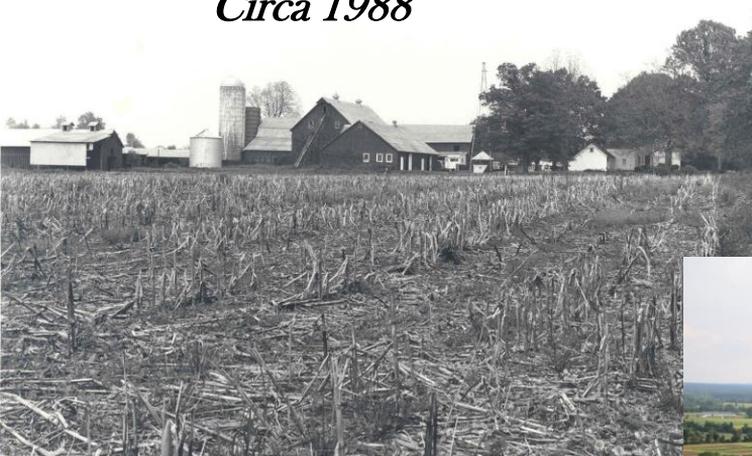
# RUTGERS

New Jersey Agricultural  
Experiment Station

## Clifford E. & Melda C. Snyder Research & Extension Farm Brochure

*“CLIFFIELDS”*

*Circa 1988*



*“SNYDER RESEARCH FARM”*

*Circa 2012*



***Realizing Clifford and Melda's vision “Cliffields” transitioned from a traditional farm into a Center for Sustainable Agriculture addressing the special needs of New Jersey farmers. As an educational facility, the Snyder Research Farm also reaches out to the non-farming public educating various stakeholder groups on a diversity of issues such as lawn and garden, natural grass sports fields, youth development and water quality.***

# HISTORY OF SNYDERS

## Clifford E. & Melda C. Snyder Agricultural and Community Leaders

In an era when farmers trusted tradition more than science, Clifford Snyder financed his college education with the profits from a borrowed potato field. He attended Massachusetts Institute of Technology and was a graduate of Cornell University. He was a Hunterdon County agricultural and community leader, a nationally known figure in agriculture and a pioneer in the founding of the Hunterdon Medical Center.

At a time when most women toiled at home, Melda Snyder was a teacher and school district administrator. Education was a defining ideal for Clifford and Melda Snyder.



The Snyders believed in hard work, honest dealings and civic service. Clifford was often the first to explore a new idea. Area farmers visited the farm called Clifffields and learned about the latest technology. He served on the Hunterdon County Board of Agriculture and was President for more than 30 years. After Clifford's death in 1967, Melda expanded that concept, hosting informational tours so people could better understand farmers and farming.



*The State Board of Agriculture, January 1982, presents Melda Snyder an award for distinguished service to Agriculture in N.J.*

Melda served on the state and county agriculture boards and she was director of the New Jersey Farm Bureau. Upon her death in 1988, Melda Snyder bequeathed Clifffields, a 390 acre farm, to Cook College and the New Jersey Agricultural Experiment Station. Renamed the Clifford E. and Melda C. Snyder Research and Extension Farm, Center for Sustainable Agriculture, it embodies these goals and stands as a testament to this forward-thinking couple.

## Mission Statement

**Rutgers Center for Sustainable Agriculture:** The Clifford E. & Melda C. Snyder Research & Extension Farm responds to the agricultural and environmental needs of New Jersey. As part of the New Jersey Agricultural Experiment Station, it shares the scientific resources of the School of Environment and Biological Sciences (SEBS) at Rutgers, The State University of New Jersey. Our mandate is to improve the quality of life through an integrated program of scientific research, public education and community outreach.

The Snyder Research Farm works at keeping New Jersey farmers profitable while maintaining environmental and community accountability. More than 75 experiments are underway developing cropping systems and business tools fitting New Jersey's unique agricultural needs. The Snyder Research Farm reaches out to all New Jersey residents disseminating agricultural/environmental expertise assisting in areas such as lawn and garden, sports fields, roadside vegetation management, water quality and youth development.

# Snyder Research Farm Project Leadership

The 390 acre Clifford E. and Melda C. Snyder Research and Extension Farm maintains over 75 experiments and demonstrations addressing a wide variety of agricultural, home and commercial horticultural and environmental issues. The Snyder Research and Extension Farm provides staff, land and equipment resources attracting a diverse group of faculty from Rutgers University, New Jersey Agricultural Experiment Station and Rutgers Cooperative Extension engaging their expertise to benefit both the farming and non-farming interests of New Jersey residents. Over the last 29 years, the Snyder Research and Extension Farm transitioned into a research facility installing infrastructure supporting the requirements of technical research projects. Clifford and Melda Snyder's gift of this outstanding farm to Rutgers University has made possible the work that follows.

## EXAMPLES OF RESEARCH PROJECTS:

**Dr. James Simon** -- Rutgers University, School of Environmental and Biological Sciences, Rutgers Cooperative Extension -- Specialist in *New-Use Agriculture* - Department of Plant Biology

### **Program Focus: New Crops For New Jersey Farmers**

New Jersey is not only the national epi-center of diversity with its population but now also with its crops and plant products. A concerted effort by the Rutgers Cooperative Service and the New Jersey Agricultural Experiment Station has given the introduction of new crops a high priority as growers seek high value niche plants to grow and new opportunities for on-farm and in-state processing. Led by Professor Simon who serves as the Director of the New Use Agriculture and Natural Plant Products Program, Rutgers University, this initiative seeks to identify new crop opportunities, new applications of bioactive and nutritious plant compounds, new products from fruits, vegetables and herbs. Working with campus faculty, extension specialists and commercial growers, the Snyder Research farm serves as a major research and testing site for all the selection, breeding and supportive field trials examining a wide range of ethnic produce including Korean and Chinese vegetables and herbs, new medicinal plants, specialty greens and culinary herbs and vegetables. At Snyder Research Farm you'll find the annual varietal evaluation of herbs and specialty crops research and development efforts plus annual taste tasting of new herbs and flavors where basic research on plant genetics, genetic diversity, plant breeding, natural products discovery and characterization are interweaved with organic production systems and new crop introduction trials.



Top Left: Professor Jim Simon, Rutgers examining one of the dozen new chilling tolerant Italian Sweet Basils hybrids they had created which exhibits the look, aroma and high yield of traditional sweet basil, but now has natural cold resistance bred into it.



Catnip does drive cats crazy due to the presence of the compound, nepetalactone, found in the essential oils. Professors Jim Simon and Qing-Li Wu examine one of their catnip selections that not only should be very exciting to your cats as these selections have significantly higher amounts of essential oils and are still rich in nepetalactones, but now the essential oils have also been reported to be a potential repellent and control of certain insect pests.

**Jennifer Fisher** -- NJAES Snyder Research Farm – *IR-4 Field Research Director*

**Program focus: The IR-4 project**



A new 2017 program area has been developed at the NJAES – Snyder Research and Extension Farm. The IR-4 project is sponsored by the United States Department of Agriculture through an act of Congress to assist specialty crop farmers in gaining EPA approval for safe and effective biological and chemical pesticides needed to grow crops. Jennifer Fisher and the Snyder Research and Extension Farm have responsibility for conducting IR-4 trials in IR-4 Region One [Northeastern United States].

Specialty crops such as vegetables, fruits, nuts, herbs and ornamentals are the primary crops serviced. IR-4 programs benefit specialty crop farmers in producing high-quality reasonably priced horticultural crops. Specialty crop farmers are generally not represented adequately in the EPA approval process of crop protection chemicals (including biologicals and conventional pesticides). Through the IR-4 program smaller acreage specialty crop farmers are able to employ pest control tools to effectively produce their crops.

**Ed Dager** -- NJAES Snyder Research Farm -- *Farm Manager*

**Program Focus: Sweet and Hot Pepper Production for New Jersey Farmers**



Sweet and hot peppers continue to be an important crop for New Jersey growers especially for the Roadside and Green Markets. Producing and marketing high-quality colored peppers is a labor-intensive and costly endeavor. Sweet and hot peppers receive a premium price and are very popular with today's health-conscious consumers. Pepper breeders are continually developing improved pepper varieties with increased resistance to devastating diseases such as Phytophthora. Pepper breeders also have developed improved color, shape and uniformity of production. Distinguishing the differences between the older varieties and recent developments benefit local farmers as they make their planting selections. Choosing the varieties with high yields, excellent color and uniformity addresses consumer tastes while enhancing farm profitability.

**Program Focus: Hops production support for local micro breweries**

Local hops production to support the New Jersey micro brew beer industry requires hops varieties perform well under New Jersey conditions to enhance farmers return on investment as well as supporting the industry. The Snyder farm is actively engaged with Dr. Jim Simon and his students evaluating hops for the New Jersey microbrew industry.





**Program Focus: Tree Fruit and Vegetable Crops for New Jersey Farmers**

New Jersey apple and peach production producing locally grown high-quality fruit for the retail market is a thriving industry. The Rutgers University Snyder research farm has an extensive planting of apples and peaches as well as cherries and Asian pears to assist the New Jersey agricultural tree fruit industry.

**Dr. Joseph Heckman** -- Rutgers University, School of Environmental and Biological Sciences, Rutgers Cooperative Extension -- *Specialist in Soil Fertility* - Department of Plant Biology

**Program Focus: Leaves from City Shade Trees Benefit Farm Soils, Organic Crop Production and Soil Fertility**



Field experiments conducted at the Snyder Research and Extension Farm over the last two decades demonstrated that New Jersey farms can benefit from leaves collected from city shade trees. Leaves have been found to be a valuable resource for building soil fertility and organic matter content. Leaves contain plant nutrients that are released slowly to crops over a period of several years after application. The material is especially rich in calcium and tends to cause a slight elevation in soil pH. The improvements in soil quality associated with the build up of soil organic matter content was found to increase soil water holding capacity and reduce drought stress in corn and soybean crops grown on land amended with shade tree leaves. Field trials with pumpkin found that when leaves are applied as surface mulch, the crop could be grown weed free without the need for herbicides. The leaf mulch was also found to increase pumpkin fruit quality and fruit size and it provides inviting field surfaces for growers with U-pick pumpkin operations. Compared to bare soil, the leaf mulch was also observed to be very effective in controlling soil erosion. The benefits of leaf mulch were exhibited in higher yields of sweet corn and rye straw several years after the initial application. Numerous farmers attended field days at the Snyder Farm to observe and learn from these research projects and many of them have adopted the best management practices that were on display.

**Program Focus: Production and Marketing of Jersey Tomatoes/Vegetables and Small Fruits**

My work at the Snyder Farm has included investigating the production of ethnic and specialty crops such as globe artichokes and calabaza. Crops such as these are important to local farmers who participate in community farmer markets. Offering a unique crop can attract consumers to a farmer's table to buy that crop as well as other produce that farmers have available. I have also examined strawberry production



practices. Strawberries can be a highly profitable crop for local growers; however, the cost of production can also be very high. Optimizing production practices is very important to ensure a maximum return per acre. Finally, my most recent work has focused on fresh market tomato production and tomato flavor. Consumers sometimes complain about the flavor of tomatoes being sold in supermarkets. I am comparing the horticultural characteristics of tomato varieties as well as cooperating on taste evaluations of the fruit. We are anticipating that the results of this work will allow local farmers to choose tomato varieties which produce well and have the excellent "New Jersey Tomato" flavor consumers desire.

*Kurt Alstede - Alstede Farm, Chester, NJ* - "The Snyder Farm provided us, for the first time as a North Jersey producer, the resources to insure that we are producing the safest, healthiest, and the most nutritious fruits and vegetables for the people of New Jersey. The Snyder Farm is an essential component to our success as North Jersey growing conditions cannot be duplicated at the research stations located in Southern New Jersey. Research at the Snyder Farm accurately replicates and represents what is actually happening on our farm."

**Dr. Christopher Obropta** -- Rutgers University, School of Environmental and Biological Sciences --  
*Specialist in Water Resources - Department of Environmental Sciences*

**Program Focus: Improving New Jersey's Water Quality**

Evaluating Storm Water Best Management Practices (BMPs) for Agricultural Land Uses -- Dr. Christopher Obropta and Robert Miskewitz. A project was initiated to quantify the removal efficiency of the existing on-site constructed wetland system. This project is being conducted by the Rutgers Cooperative Extension Water Resources Program and funded by an EPA grant.



In order to quantify the mass removal of nutrients and sediment by the system, the amount of water flowing into and out of the system needed to be quantified. As a result, a concrete swale and a V-notched weir were designed and constructed. Flow and water quality measurements are collected at these points by automated samplers during rainstorms. To date, two storm events have been captured. During these storms a large volume of water was infiltrated to the soil and suspended sediment settled out in the wetland system. Preliminary results have demonstrated almost 54% removal of total phosphorus from the runoff and very large reductions in the peak discharges of water and nutrients. The project will continue measuring storm events.

**Dr. Melvin Henninger** -- Rutgers University, School of Environmental and Biological Sciences, Rutgers Cooperative Extension -- Specialist in *Vegetable Crops* - Department of Plant Biology

**Program Focus: Growing Specialty Potatoes and Cole Crops**



New Jersey has a market window for specialty potatoes from July through November. Specialty potatoes have become extremely popular, with all combination of flesh and skin color now being desired. White skin, white flesh potato is no longer the prime item. The customer wants skin and flesh colors of red, blue, purple, and yellow. Direct, tailgate, roadside, and pick-your-own markets are a main stay in New Jersey for these kinds of potatoes. The standard in these markets is Yukon Gold. It has excellent eating quality both as a baked potato and also for boiling. Yukon Gold is medium maturity, bright smooth skin, and good yielding; however, it is very susceptible to hollow heart and silver scurf. Both defects limit its usefulness as a fresh market potato. Variety screening trials are being conducted to identify clones that have great eye appeal and taste good. Specialty potatoes demand a premium price. Wholesale white or red potatoes may be worth .20/pound, While specialty potatoes will be sold for .75 to 3.00/pound. The data is presented in the NJ White Potato Research. Cole crops -- broccoli, cauliflower and brussell sprouts are vegetables adapted to the cooler fall season and heavier soils of northern New Jersey.

There has been significant media attention regarding the nutritional and medical value of crops such as broccoli. These crops, known to be high in fiber and calcium along with significant antioxidant levels, provide healthy fresh vegetables in our diet. Home gardeners can grow these healthful vegetables well into the late fall season.



Plant breeders are continually improving varieties for both yield and quality. A more recent introduction is Broccoflower, a cross between broccoli and cauliflower. We evaluate the newer and established varieties, making data available to farmers and home gardeners addressing their planting intentions.

**William Bamka** -- Rutgers Cooperative Extension -- *County Agricultural Agent* -- Burlington County and **Stephen Komar** -- *County Agricultural Agent* -- Sussex County

**Program Focus: Farmers Feeding New Jersey Horses and Cattle**



The Rutgers University Equine Science Center published an economic impact survey in 2007. Some interesting facts from the survey include: over 42,000 equine animals housed in New Jersey, a total economic impact of \$1.1 billion including the racing industry and over 176,000 total acres utilized by equine operations. Additionally the report indicates that there are over 46,000 acres of land utilized in New Jersey to produce hay and grain for the industry.

Producing high-quality forage crops either in the form of hay production or pastures is an integral part of the horse industry.

Our studies on forage crop production at the Snyder Research and Extension Farm involve developing improved management practices to increase forage crop yield and quality to service this important New Jersey industry. Research activities include improved crop varieties that are adapted to New Jersey climatic conditions, integrated pest management practices and the impact of various fertility programs on crop yield and quality. Farmers and horse industry consumers are invited to field days held at the Snyder Research and Extension Farm.



**Dr. George Hamilton** -- Rutgers University, School of Environmental and Biological Sciences, Rutgers Cooperative Extension - *Specialist in Pest Management* -- Department of Entomology

**Program Focus: Marmorated Stink Bug - an introduced exotic insect pest - determining its impact**

Over the last several years many New Jersey residents have noticed an invasive winter insect emitting a disagreeable smell within the home. The brown marmorated stink bug (BMS) is an exotic stink bug introduced into the United States in the mid 1990's. Since its initial establishment in Allentown, PA, it spread throughout Pennsylvania, New Jersey, Delaware, Maryland and Virginia. Additional populations exist in Oregon and California.

In its native range of Korea, China and Japan, it is a significant agricultural pest in tree fruit and soybeans causing fruit and pod malformations. BMS has also been observed causing damage on apricots, peaches and plums. Since its introduction into the U.S., BMS has caused crop losses in fruit orchards. Frequently hundreds of BMS have been observed on individual fruit and ornamental trees. BMS has been found feeding on at least 20 ornamental trees and shrubs including crabapple, Norway maple, paulownia and roses. Feeding by BMS in ornamentals has been observed to cause early fruit drop reducing the aesthetic qualities of the plants attacked. This is especially true in species like American Cranberry Viburnum (ACV) fruit where ripening of fruit creates colorful displays that are valued more by the homeowner than either the flower or leaves during other times of the year. Determining when feeding actually causes fruit drop in ACV will help us develop properly timed control strategies to prevent this effect.



**Snyder Research Farm Assists Aspiring Farmers** – one example....Jeremy Compton and Meredith Peters both worked at the Snyder Research Farm for several years before starting their own farming businesses.

We asked them to share the importance of the Snyder Research Farm experiences. Jeremy states "Today, I use the skills I learned at the Snyder Research Farm to run my own production agriculture/retail operation. The cutting edge production systems that I was first exposed to, I now implement on my own operation to grow the highest quality produce. The organizational skills I developed while conducting research trials now benefit me by being able to run an organized and ever expanding business".

And Meredith tells us, "The Snyder Farm gave me the basic foundation I needed to be a successful fruit and vegetable farmer. I not only learned about research trials, but I gained valuable experience about production agriculture. As summer interns, we were expected to assist in the layout, planting, maintenance, and harvest of research plots." Meredith goes on to say "the most valuable tool I took away from the Snyder Farm was the network of people I was exposed to. I worked with many different farmers, researchers and of course other students, most of whom I still have a relationship with today."

# Snyder Research Farm Outreach to New Jersey Residents

**New Jersey Department of Transportation:** NJDOT mows 33,000 acres of roadside turfgrass equating to 200,000 acres of seasonal mowing. Roadside turfgrass management is critical to safety, appearance and preservation of road surfaces. Between 2004 and 2006 Snyder Farm Director John Grande and staff developed reduced mowing management studies along Route 206 in Bordentown, New Jersey. The studies demonstrated a 60% reduction in mowing while improving appearance addressing the NJDOT Grassland Eco Mow Zone program. Hands-on demonstration plots were utilized for a field training program of NJDOT personnel. The Assistant NJDOT Commissioner of Operations implemented a similar program statewide resulting in reduced expenses and improved appearance indicating improved turfgrass cover is important for groundwater recharge in reduced water runoff.



## Helping New Jersey Homeowners Manage Their Lawns:

Farmers grow grass to feed animals, homeowners grow grass for attractive functional lawns. Lawn care represents a significant expense for homeowners. Turfgrass breeders are continually developing low-maintenance lawn grasses requiring less water, fertilizer and mowing. The Snyder Research Farm maintains low-maintenance turfgrass demonstration studies. These plots provide a hands-on training program for homeowners and include our "lawnmower races" demonstrating mowing and turfgrass management principles. The Rutgers Cooperative Extension Master Gardener Helpline volunteers are trained and utilize this information to assist New Jersey residents in their lawn care efforts.



**Wildlife Damage to Agricultural Crops:** During the 1990's New Jersey farmers reported extensive white-tailed deer crop damage with losses appearing very significant and threatening their livelihood. The New Jersey Agricultural Experiment Station designated the Snyder Research Farm as the Center for Wildlife Damage Control.

One of the first outreach efforts was a comprehensive New Jersey farmer survey "How Are White-Tailed Deer Affecting Agriculture in New Jersey?" which was sent to 4403 New Jersey farm operators. 2142 surveys were returned elucidating extensive dollar losses to farmers from white-tailed deer. 39% of farmers responding indicated losses were intolerable, between \$5 and \$10 million in crop losses were reported in 1997. The survey data was instrumental in developing a cooperative program between the New Jersey Department of Agriculture and the New Jersey Agricultural Experiment Station. Over the last 10 years the New Jersey Department of Agriculture has cost shared with New Jersey farmers over 1,400,000 feet of deer fencing. The Snyder Research Farm provides fencing distribution and fence installation training seminars for New Jersey farmers as well as follow-up evaluations on the cost-effectiveness of the program.



# Reaching the Garden State

## County Pleads: Don't End Fight Against Gnats

By Deb Glasserow

Get ready for a seriously gnatty summer, folks. Those tiny black flies, the ones that swarm around your head, fly up your nose and dart into your eyes, not to mention biting, will hit Hunterdon hard this spring and summer, unless something drastic happens.

And there's not a lot the county Health Department, which handles black fly control, or the freeholders, can do about it.

According to Tadhg Rainey, county director of mosquito/vector surveillance and control, "if you've had problems before, imagine it being 50 times worse."

He said the state Department of Environmental Protection has informed Hunterdon, Warren and Mercer counties, Rutgers University, and the state of Pennsylvania that budget cuts will probably prevent New Jersey from contributing the roughly \$200,000 it has given annually to black fly reduction efforts here over the past few years.

Freeholder Director Frank Fuzo, sent a letter to Gov. McGreevey on March 19, requesting that he leave black fly control in place.

Mr. Fuzo wrote, "In the mid-1990s, researchers from Rutgers University identified rivers, such as the Delaware River and South Branch of the Raritan River, as breeding grounds for these insects. In recent years, Pennsylvania and New Jersey state agencies, along with county agencies, have participat-

ed in a cooperative effort to reduce black fly populations and provide relief to residents of the region."

This cooperative program was successful because multiple agencies contributed, he said. "Rutgers University has provided expertise in the areas of field surveillance and basic research. The Pennsylvania DEP has had an aerial (spraying) program in place that has targeted the major source of nuisance black flies breeding in the Delaware River. The Hunterdon County Mosquito and Vector Control Program has provided personnel to locate and treat stretches of the South Branch of the Raritan River."

He also noted that because the program was developed as a cooperative effort, "the problem has been managed with minimal dollar input from any one agency. However, the involvement of the state is crucial," he said.

Mr. Rainey sent a similar letter to the state DEP saying how important the program is. He noted that a 1995 petition submitted to the state, signed by more than 5,000 Hunterdon residents, said in essence, "Life is miserable here and we need some help."

A cooperative program between the two states was established in 1996 to deal with black flies breeding in the Delaware. Mr. Rainey explained that Pennsylvania did most of the work; New Jersey paid half of the treatment

See GNATS next page

**Black flies:** A more recent insect pest impacting hundreds of thousands of New Jersey residents has re-emerged over the last 15 years. Black flies swarm around people and have a severe impact on their ability to work and enjoy outdoor activities. Everyone from Little League baseball players to electric utility linemen can be adversely affected when black flies are a nuisance. Black flies seeking a blood meal are especially troublesome to young children. Through the original efforts of the Snyder Research Farm, outreach educational programs were developed for New Jersey residents to better understand issues surrounding black flies and the potential for a biological control solution. Funding to suppress black flies was obtained through the New Jersey Legislature at the request of thousands New Jersey residents seeking relief [Neighbors Against Gnats]. A cooperative program with Pennsylvania was initiated and is still in place providing significant relief and reduction in the use of insect repellents.

**Sports Fields Turfgrass Programs for Schools and Municipalities:** Youth sports at the municipal and school level has dramatically expanded over the last 20 years. Sports such as soccer and lacrosse are becoming so popular that almost every municipality and school in New Jersey is struggling to address the increased field requirements. New Jersey newspapers feature natural and artificial turf in headline stories. The Snyder Research Farm over the last 10 years developed training programs for schools and municipalities to better address the expansion of sports played on grass. Developing cost-effective sound programs is important to address the safety and enjoyment of sports by New Jersey's youth.



Recently, the Snyder Research Farm implemented a new outreach program bringing together stakeholder groups involved in sports fields. Rather than just involving sports fields maintenance staff and financial managers, we wanted to educate parents of young athletes about basic natural turfgrass sports field management. Not only do parents have a vested interest with their children but also as taxpayers. A 7-acre turfgrass sports field site was developed at the Snyder Research Farm based on "farming principles" compiling economic/technical data on field establishment cost.

The fields are used to host sports events bringing together parents, coaches, league officials, financial managers and maintenance staff. Educational presentations/demonstrations regarding sports field development and maintenance are presented during intermissions. The site affords stakeholder groups an opportunity to come together under the umbrella of educational outreach.

# The Melda C. Snyder Teaching Garden

Melda Snyder was trained as a teacher and school administrator although most of her life was spent at Clifffields as an integral part of a farm family business. Sixteen years ago it was decided to establish the Melda C. Snyder Teaching Garden acknowledging her accomplishments as a teacher and farmer. Tens of thousands of visitors have enjoyed and learned from visiting the Melda C. Snyder Teaching Garden. Nationally, over \$25 billion annually is spent on gardening. The program provides information to the gardening public utilizing expertise of New Jersey Agricultural Experiment Station and Rutgers Cooperative Extension personnel. The main focus of the garden is the annual **Great Tomato Tasting Event**. In 2016 over 1000 people attended the event tasting over 100 varieties of heirloom and hybrid tomato varieties from around the world.



Through the efforts of Jack Rabin Assistant Director of the New Jersey Agricultural Experiment Station was the reintroduction of the heralded Ramapo Tomato. The Ramapo Tomato was developed at Rutgers NJAES in 1968 by Dr. Bernard Pollack. Many years ago it disappeared from seed catalogues. Seed companies were favoring varieties that produced higher yields for commercial growers. Despite its disappearance, Rutgers continued to receive many requests for this tasty tomato and produced small batches throughout the years. Now, the first lot of organically grown genuine Ramapo F1 hybrid seed is available through an effort by Rutgers NJAES..



The Melda C. Snyder Teaching Garden is also used to educate the non-farming public on lawn and garden issues. The garden plantings, as well as faculty and staff, offer science-based factual information to home gardeners attending educational events providing up-to-date gardening and lawn care information. The teaching garden focuses attention on such issues as:

- deer resistant landscape plants
- training site for hundreds of Rutgers Cooperative Extension - Master Gardeners volunteers who respond to thousands of inquiries annually at County Agricultural Extension offices throughout New Jersey
- observational plantings of new and ethnic vegetable varieties including All-American Selections
- diverse array of flowering plants for landscapes
- garden mulching and composting information



# Snyder Research Farm Student Internships

## The Snyder Research Farm Provides Hands-On Career Experiences for Tomorrow's Generation -

Student internships are a recognized valuable component of a university educational experience. The Snyder Research Farm considers student career development a critical part of the Clifford and Melda Snyder's vision. Our facility provides students the opportunity to examine many different career paths in a real-world setting interacting with faculty, staff, business professionals and other students. Through supporting efforts by the Snyder Research Farm as well as the Rutgers University School Of Biological and Environmental Sciences, college students work and learn in the tradition of the Clifford and Melda Snyder. Below is a brief narrative from several college students who interned at our facility.



Dr. Stacy Bonos: New Jersey Agricultural Experiment Station plant breeder investigating switchgrass as a biofuel feedstock for New Jersey. Stacy also developed commercial disease-resistant turfgrasses.

**Dr. Stacy Bonos** - I would not be where I am today if I had not done a summer internship at the Snyder Farm. The year after I graduated college I was still undecided as to what I wanted to do with my life. Dr. Grande convinced me to do a summer internship at the Snyder Farm. While at the Snyder Farm I was exposed to many different aspects of plant biology research and education. I conducted a study on the interaction of herbicides with wear tolerance in turfgrass. I gave my first scientific presentation at the Northeastern Weed Science Society meeting that winter on the research I had conducted at the Snyder Farm. I decided from that experience to attend graduate school at Rutgers. I am now an Assistant Professor in Turfgrass Breeding at Rutgers University, School of Environmental and Biological Sciences. I love my job and would not trade it for the world. I am conducting research on breeding turfgrass for disease resistance and stress tolerance. I am also breeding tall perennial grasses for biofuel production for the Northeast US. In fact, I have some research plots at the Snyder Farm and hope to expand some of my research there. Just recently, things have come full circle. I was just asked to give the keynote address at the Northeastern Weed Science Society meeting where I gave my very first presentation!

**Robert Shortell** - Following in Dr. Stacy Bonos's footsteps, Rob was a student intern at Snyder Research Farm. Rob worked under the direction of Dr. John Grande, Snyder Research Farm Director, developing experiments on best management practices for late season turfgrass seeding addressing school football field renovations. In the office they developed clear objectives, a strong hypothesis, and a sound experimental design.

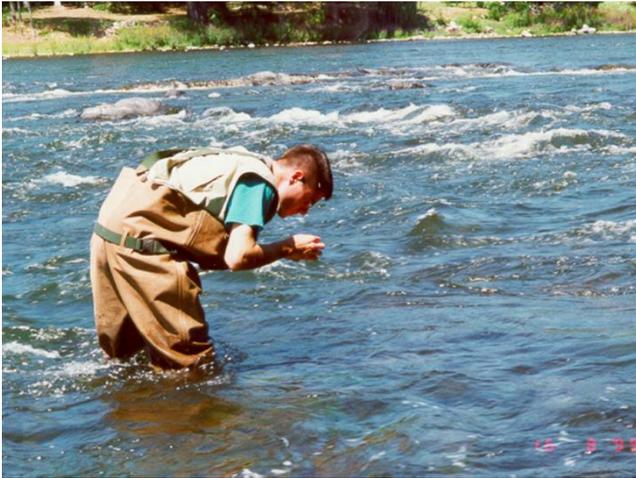


Robert Shortell – student intern at Snyder Research Farm Educating homeowners on low-maintenance turfgrass

They worked together to plant the study and carefully observed the results. “This was my first time turning plant material into statistical data and I liked it.” Rob learned to take data and turn it into management guidelines informing sports field managers the best way to plant grass in cold temperatures. “I found it rewarding to show people my plots and pass on what I had learned.” Upon graduation he was accepted into the Ph.D. Program at Rutgers Graduate School to study under Dr. Stacy Bonos in turfgrass breeding and genetics.

Rob is in the final stages of his degree and is writing his dissertation. Rob is considering a career in academia where he can one day inspire the professionals of tomorrow.

**Tadhgh Rainey - Director Mosquito and Vector Control, Hunterdon County** - The Snyder Farm afforded me an opportunity to engage directly with the residents of New Jersey to help solve an insect pest problem. Although I didn't realize it at the time, my experience at the farm led me directly to the profession where I am today. In the mid 1990's, Simuliid black flies had become a serious pest in northwestern New Jersey. Researchers at the Snyder Farm determined that the species of concern emanated from river corridors. Since their research indicated that black fly problems existed in several counties, it was unclear which river systems played a critical role in production of the adult flies.



My primary responsibility while working on the farm was to ensure that good integrated pest management practices were incorporated into our black fly project. With a team of students, we conducted larval surveys of all the major river systems in Warren, Hunterdon, Somerset and Mercer Counties. Although many rivers produced the species of interest, it became clear that the Delaware River served as the primary source of larval fly production. Nevertheless, some other rivers, particularly in the Hunterdon area, produced substantial numbers of insects. We provided a thorough surveillance component to the program and documented both areas of relief from black flies and areas where the insects were still problematic.

My experience at the Snyder Farm stimulated my interest in insects. I proceeded to pursue a master's degree from Rutgers in entomology, where I worked with mosquitoes and black flies. In the year 2000, I graduated and became employed by the Hunterdon County Department of Health as the director of the mosquito & vector control program. I am employed by the health department in this capacity to this day, and I continue to pursue some of the same initiatives that were started at the Snyder Farm. We work with the local residents of the Hunterdon community to ensure their well being from problematic insects. Most of our work involves mosquitoes, black flies and ticks. Recently, we have been experiencing a resurgence of bed bugs in our region, and we are currently assisting residents with these problems. I had the good fortune of learning the basics of applied entomology and service at the Snyder Farm. I plan to continue this work in the many years to come.

**Rob Davis – Managed Natural Grasses at Giants Stadium** - The Snyder Research Farm was very instrumental in my career. I interned at the farm for 2 summers. In '90 and '91 the farm was still relatively young and going through its early development. What influenced me the most were the challenges and the diversity of work in those early years. It seemed like we were encountering a new challenge on a daily basis. From figuring out the recently installed irrigation system to learning to operate a new implement for a tractor, I learned to expect the unexpected.



The other aspect of working at the Snyder Research Farm that I enjoyed was the diversity. There are projects on the farm that gave me experiences in horticulture, ornamental horticulture, agronomy, crop production, and even animal husbandry. This gave me the opportunity to apply the lessons I was learning in ornamental horticulture to other related industries.

My experiences as a student intern provided me with strong practical problem solving experience- helping me to go on and develop a career in athletic field turfgrass management. One of my positions involved the management of natural grass for the Meadowlands Stadium, hosting two professional football teams and World Cup soccer for several seasons.



July 2008 - Sandra La Vigne inspecting Perilla at Snyder Research Farm. Perilla, an aromatic culinary herb from Korea is being evaluated as a new ethnic green for the produce industry. With each new crop we always assess whether the plant is susceptible to any insects and diseases.

**Sandra LaVigne** - I was fortunate to come to Snyder Farm as an intern in my junior year. I am a returning college student with a background in the medical field. I have a wonderfully supportive husband and two little girls. Because of my family and especially the desire to see my girls grow up in a better world, I returned to school. Though my main focus is ornithology and conservation, as an ecology and natural resources major I have a broad range of interests related to conservation including the role that current agricultural practices play. Snyder Farm offered me a great opportunity to advance my hands-on knowledge and skills in many areas. The Snyder Farm, as a working educational farm, advanced my knowledge in areas of resource conservation and production of sustainable agricultural products. I look forward to applying my intern experiences to a career as an environmental scientist.

**Andrew Wedel – Farm Equipment Inventor** – Andrew worked at the Snyder Farm during the summers of 1990 - 1992. In 1990, he worked on corn variety trials; 1991 he worked on tomatoes and peppers; and 1992 he worked on the installation of the weather station and various fruit and vegetable research. “My time at SRF trained me to think like a researcher, which proved especially useful during my MS program at Michigan State. Not only was I trained to think like a researcher, but I learned how to run a project both operationally (data, weather, employees, deadlines, acquisition of shared resources, etc.) in the field as well as financially — that is, working within a budget.”

Following graduation with a BS in Ag Engineering from University of Delaware in 1992, he began a MS program in Ag Engineering at Michigan State (completed 1995). There a system for separating and recycling bedding sand from dairy manure was developed, for which three patents are held. The Sand-Manure Separation technology was licensed to McLanahan Corporation in Hollidaysburg, PA, for whom he now is employed.

He is the General Manager of McLanahan’s Ag Systems Division in addition to being a licensed Professional Engineer (PE) in DE, MI, PA, and WI. “I have designed systems and consulted on dairy manure handling projects throughout the U.S., Europe, Middle East, and South America on dairies as small as 60 cows and as large as 20,000 cows.” He is also a member of the American Society of Agricultural Engineers and a member of the Dairy Housing committee as well as the committee tasked with developing the Professional Engineer Exam in the Agricultural Discipline.



# Youth Development

## Clifford E. and Melda C. Snyder Student Loan Fund

### Administered by the Hunterdon County Board of Agriculture

The Clifford E. and Melda C. Snyder Loan Fund was established under the Last Will and Testament of Melda C. Snyder. The estate provided \$300,000 to support a student loan fund for high school students pursuing a college career in agricultural and related sciences. The first loan was awarded in 1998 and as of May 2008 there has been \$358,500 awarded to a total of 44 students.

Clifford and Melda, with their strong beliefs in education and hard work, believed a zero interest loan, repaid by recipients as they advanced their career, would better serve current and future recipients providing for more students to advance their educational careers.



**Michele Lavigne** – Michele received support from the Snyder Loan Fund from her freshman year of college through her first year of graduate school. The Snyder Loan Fund allowed her to pursue an undergraduate career at Hampshire College in Western Massachusetts.

“With the help of the Snyder Loan Fund, I had an excellent experience as an undergraduate at an institution that encouraged independent student research in the environmental sciences. My professors at Hampshire encouraged me to continue my education in graduate school, where I am now approaching the end of my Ph.D. in oceanography. My Ph.D. thesis is focused on the geochemistry of corals and using corals as recorders of coastal eutrophication and coral health.” Upon completion of her Ph.D., she plans to pursue a career in academia as a professor.

*Left - Michele Lavigne doing field work collecting coral samples in the Florida Keys summer 2008*

**Katie Moore** - Katie received a loan for the four years at Rutgers University's - School of Environmental and Biological Sciences (SEBS) formerly Cook College.

“I am so grateful that I have had the aid in order to complete my Bachelor's degree in Plant Science.” Katie is in her senior year and is planning to work in the field of Plant Protection. This field entails working outdoors and in the lab investigating plant diseases and symptoms and how to improve or eliminate the problem. “Without the Snyder Loan, I would not have been able to pursue my passion for plants.”



*Above - Katie Moore working in a Greenhouse*

## High School Students Gain Experience at Snyder Research Farm...



Administrators at the School of Environmental and Biological Sciences recently provided support to the Snyder Research Farm to reach out to potential agriculture/environmental science high school students who show an interest in a career in this area.

“Alex Janssen – High School Junior – “I began working at Snyder Research and Extension Farm in March of 2008. Working at the farm has given me a multitude of experiences I could not learn in public school, from learning how farms work, harvesting corn and tomatoes, pruning apple trees while they are dormant in spring, baling hay, and irrigation work. Working at Snyder Farm for the past six months has opened my eyes to a career in agriculture, from turf grass breeding to timber farming. Many options and opportunities in a field I had been unaware of prior to my work.”

## Farm Camp for City Youth



## Farm Camp Designed To Nurture City Kids

By Christopher Ruvo

Eleven teenagers from Newark traded city streets for corn fields when they attended farm camp at Rutgers University's Snyder Research & Extension Farm in Franklin Township last week.

The camp's purpose was to introduce agriculture into the lives of city kids in partnership with the Greater Newark Conservancy, a nonprofit environmental and horticultural agency, and Project Urban Suburban Environment, another nonprofit that exposes kids in those areas to rural and outdoor activities.

The teens spent two nights camping out in a field on the edge of woods on the 400-acre property. Their days combined a mixture of hard work and fun. Camp began with a hayride, but soon the campers were at work weeding and harvesting vegetables and fruits and pruning fruit trees.

The camp was also informative and forward-looking. With most campers entering their senior year of high school, they learned about horticultural and agricultural career opportunities, particularly turf grass management. And Pittstown Inn executive chef Jonas Gold taught them how to cook savory dishes with the organic veg-

etables they picked at the Ryland Inn in Whitehouse.

“We wanted to bring the kids out of the city and make them part of a team effort out here,” said PUSE counselor Liz Feldman, gesturing to the broad expanse of corn fields.

Ms. Feldman camped out with the kids and participated in activities. She said each of the campers had something they liked about camp and something they didn't; working in the hot sun or whipping rain wasn't a splash. Still, she said, learning where food comes and investigating possible career opportunities was a major plus.

John Grande, director of the Extension farm, gave an in-depth talk on turf grass management, since such jobs are available in cities where green areas are often given over to sports fields and parks.

One teen, Isa Madyun, said he'd like to go into that line of work, possibly managing golf courses or city parks. He said he's interested in attending Cook College's vaunted turf management program, with which the Extension is affiliated.

“I didn't know stuff like this was out there,” he said. “But it's good money and a good job — working outside. Learning about that was cool.”

The Rutgers Snyder Research and Extension Farm in Pittstown, NJ, hosts numerous agricultural research trials by New Jersey Agricultural Experiment Station (NJAES) faculty on the farm's 390 acres in Hunterdon County. The farm trials span an array of fruit, vegetable, herbs, and hops research that includes breeding, variety trials, insect and disease control, and cultural propagation.

By the end of the growing season, the farm has tons of produce on hand, however, unlike commercial farms, its harvests are not destined for retail markets. Under the direction of Snyder Farm director John Grande, the farm staff has organized innovative ways of distributing the fresh-picked produce to those who can use it.

## Rutgers Against Hunger Programs



For over 20 years Snyder Farm has worked with community organizations and in 2008 with Rutgers Against Hunger, harvesting and distributing tons of high-quality farm-fresh fruits and vegetables to New Jersey food banks and soup kitchens. This massive effort has been orchestrated by farm supervisor Ed Dager. For 2016, with the expansion of tree fruit donations to food banks, this year's total amounted to 195,701 pounds of produce. The produce includes peaches, apples, sweet corn, potato, peppers, tomatoes, and winter squash. By 2014, the farm had achieved the cumulative total of well over a million pounds of donated fruits and vegetables. Dager has coordinated various groups of volunteers to harvest the produce, including Rutgers Master Gardeners, Rutgers students, local schools, and even corporate sponsor volunteers such as Johnson & Johnson.



Rutgers Master Gardener Dave Johnson fills a bin with fresh-picked apples.

The farm's bounty was distributed to organizations in Somerset, Morris, Union, Middlesex, Essex, Passaic, Mercer, Hunterdon, Warren, and Sussex counties. Some of the recipient organizations include Flemington Food Pantry, Farmers Against Hunger, Mercer Street Friends Food Bank, NOR'WESCAP, and Giving Gardens. The fresh-picked produce is a welcome contribution to food bank recipients who often have limited access to fresh fruits and vegetables.

## Supporting Rutgers Dining Services



Recently, Snyder Farm implemented the distribution of fruit to Rutgers Dining Services, which reported positive feedback and enhanced fruit consumption by students in response to the apples and peaches being “Rutgers Grown and Jersey Fresh.” With each fruit delivery, the farm staff also provided the fruit varietal information to be displayed in the dining hall, so the students would know the varieties of apples they were eating.

Lisa Tenore, senior food buyer for Rutgers Dining Services loves the fruit from Snyder Farm “because it is the freshest you can get – you can’t get any fresher!” Dining Services served the peaches during the summer in their cafes and at conferences, and in the fall, apples have been served in the dining halls. Tenore appreciates the extra care Snyder Farm takes to educate the students on what they’re eating in addition to where it came from, “with each delivery they pack a card naming the variety, what it tastes like, and its growing season.”

In addition to feeding New Jersey’s hungry residents and hungry Rutgers students, the farm utilizes a third venue to use the tree fruit. As an extension research farm, Snyder Farm cannot sell its harvest in a way that would compete with sales by commercial growers. It has, however, been able to help local growers expand their produce offerings by selling the tree fruit directly to farmers to supply their roadside markets. This effort generates revenues to maintain the research farm’s orchard and is a joint effort of the New Jersey Horticultural Society and NJAES. Growers contact Snyder Farm to receive an email of inventory of fruit available for sale through direct pick-up at the farm. The revenues generated are utilized to provide labor, supplies, and maintenance for the 12 acres of orchards.

Since the retirement of the Rutgers tree fruit agent this year, on-going tree fruit research by other faculty continues, and the orchard has been managed and maintained by Snyder Farm staff through activities like pruning, thinning, spraying, and harvesting fruit from thousands of trees. These steps are critical to preserving the integrity of the orchard and maintaining the farm’s status as an agricultural showcase.

**RUTGERS COOPERATIVE EXTENSION  
N.J. AGRICULTURAL EXPERIMENT STATION  
RUTGERS, THE STATE UNIVERSITY OF NEW JERSEY  
NEW BRUNSWICK**

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