University Farm
Squire Valleevue and
Valley Ridge Farms

Annual Report 2010

Nourishing Sustainability

Case Western Reserve University EST. 1826
think beyond the possible

THE CASE WESTERN RESERVE UNIVERSITY FARM, located on Fairmount Boulevard in the Village of Hunting Valley, is a 389-acre property that includes within its boundaries forests, ravines, waterfalls, meadows, ponds, a self-contained natural watershed, seven residences, many other structures, and several miles of roads and trails. The farm came to the university as the result of four gifts. The late Andrew Squire gave 277 acres (Squire Valleevue Farm) in the late 1930s; in 1977, the heirs of Jeptha Wade II gave Case Western Reserve 104 adjoining acres (Valley Ridge Farm); in 1984, John and Elizabeth Hollister deeded five acres to Case Western Reserve and in 1995, the Hollisters donated another five acres to the university.

In his will Squire stated, "Valleevue Farm should be held in perpetuity for the use and benefit of the teachers and students of the women's college of the Western Reserve University…I desire it cultivated and preserved as a farm for educational purposes, and to be a place where the practical duties of life may be taught; where the teachers and students can come in close contact with Mother Earth."

The Wade gift was made with the intent that "the Premises…be preserved in an open and undeveloped state subject to reasonable provisions for access…and the Premises may be used for investigation, research and teaching in all fields relating to the natural sciences and the ecology of natural systems, including man's use of said systems through agriculture, aquaculture and otherwise." As a condition of this gift, the university officers report annually to the Board of Trustees of the university and to the trustees of the Cleveland Museum of Natural History "with respect to the operation of the donated property during the prior year."

The farm is a magnificent asset for Case Western Reserve University and serves the total university community extraordinarily well in a wide variety of educational, research, community service and recreational formats described in the annual report.

Herbs and fresh vegetables from Farm Food Program

HOMEGROWN

Case Western Reserve University students and staff don't have to look far to find where their food comes from. Thanks to the Farm Food Program, thousands of pounds of fresh produce are being supplied to campus dining facilities by the University Farm, just 10 miles away from campus.

A joint effort between the University Farm, campus food provider Bon Appétit and the SAGES undergraduate seminar program, the program has delivered more than 6,000 pounds of fresh vegetables and herbs to dining facilities across campus since the first harvest in March 2010.

In addition to pumping out fresh produce, the program also offers students, faculty and the Greater Cleveland community a chance to see sustainable food production in action.

Summer Student Natalia Cabrera harvesting basil at the greenhouse

FARM FOOD BASICS

The farm has dedicated 1,700 square feet at the Debra Ann November Research Greenhouse, 6,000 square feet at the Squire Valleevue Farm Community Gardens and a 10,000-square-foot area at the Valley Ridge Farm to the Farm Food Program.

Seed planting started in January 2010 and by the end of October, the program had produced more than 6,000 pounds of food, double the expected yield, giving campus dining facilities a fresh supply of 20 locally grown products, including tomatoes, zucchini, squash, grapes, salad greens, pumpkins, cabbages, radishes, basil and mint.

The farm is dedicated to sustainable agriculture—delivering fresh produce without degrading the systems and resources the farm relies on to grow its crops. The farm uses organic methods of food production where possible, including using environmentally friendly means of pest control like biological controls, temperature control and leaf crop vacuums instead of harmful chemicals.

Salvia hispanica Chia plant

ACADEMICS AND RESEARCH

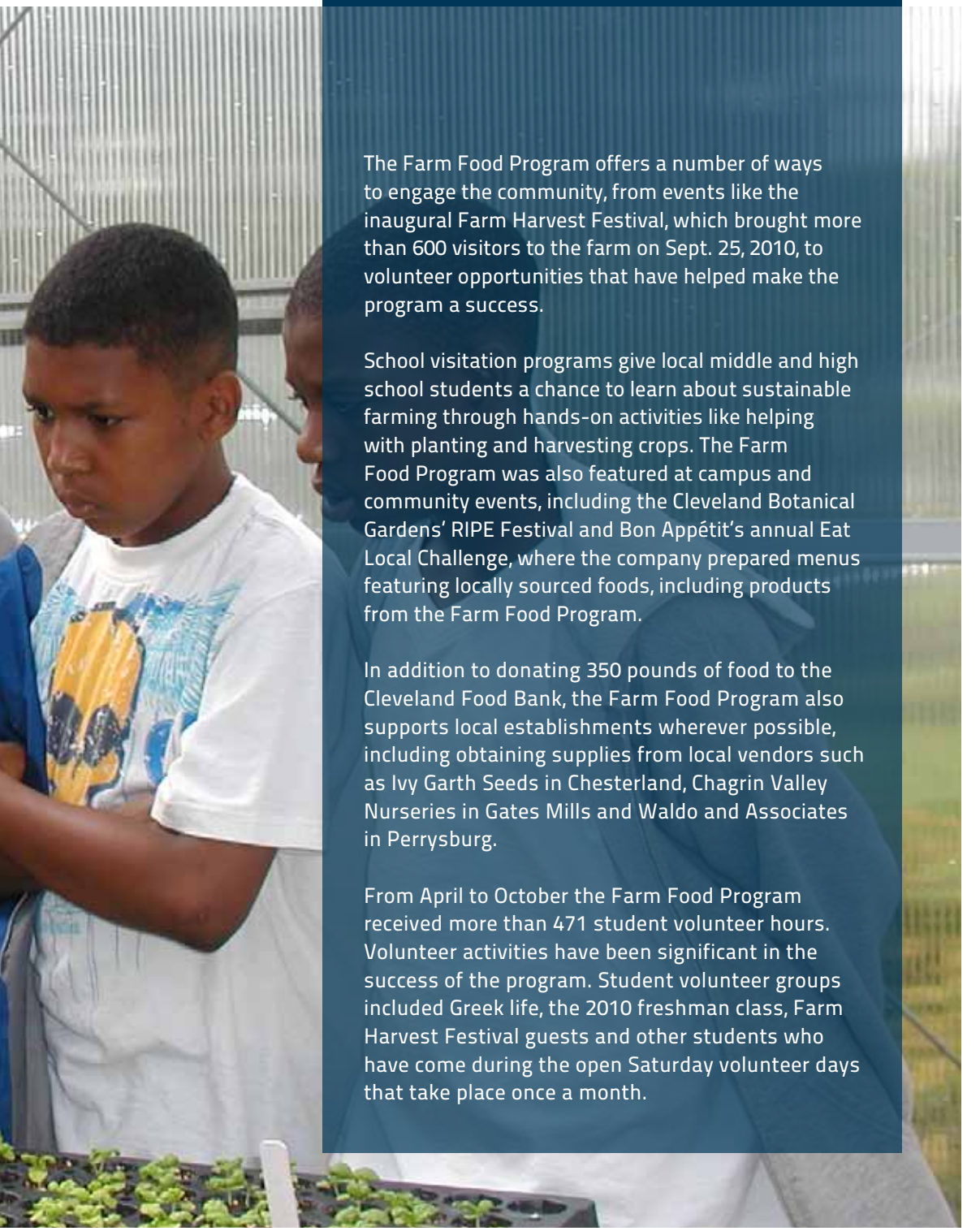
The program does more than put fresh local produce on plates across campus—it provides a local opportunity for Case Western Reserve faculty and students to study sustainable methods of food production. More than 400 students have visited the farm and toured the facilities to learn about the program as part of SAGES courses, research and special seminars.

The farm is a popular resource for faculty and student research, and the Farm Food Program is linked to a number of studies:

- Farm Director Ana Locci is analyzing the implementation of the Farm Food Program with the help of farm summer student Aaron Hickman, and biology professor Joseph Koonce is leading a comprehensive soil chemistry study to ensure the program's sustainability as planting areas increase.
- In addition to nearly 20 different vegetables and herbs the program is growing for distribution on campus, it is also testing *Salvia hispanica*—the plant commonly known as chia—as part of a joint study with the U.S. Department of Agriculture to see if the mint-like plant makes for a suitable cover crop and pollinator.
- Other research initiatives include a study of biocontrols as effective pest controls, the design of a rail system for the high tunnel house and a study of grade-school nutrition education that explores how using gardens as an educational tool can lead to healthier diet.

Chris Bond with students from the Marion Sterling School

CAMPUS AND COMMUNITY



The Farm Food Program offers a number of ways to engage the community, from events like the inaugural Farm Harvest Festival, which brought more than 600 visitors to the farm on Sept. 25, 2010, to volunteer opportunities that have helped make the program a success.

School visitation programs give local middle and high school students a chance to learn about sustainable farming through hands-on activities like helping with planting and harvesting crops. The Farm Food Program was also featured at campus and community events, including the Cleveland Botanical Gardens' RIPE Festival and Bon Appétit's annual Eat Local Challenge, where the company prepared menus featuring locally sourced foods, including products from the Farm Food Program.

In addition to donating 350 pounds of food to the Cleveland Food Bank, the Farm Food Program also supports local establishments wherever possible, including obtaining supplies from local vendors such as Ivy Garth Seeds in Chesterland, Chagrin Valley Nurseries in Gates Mills and Waldo and Associates in Perrysburg.

From April to October the Farm Food Program received more than 471 student volunteer hours. Volunteer activities have been significant in the success of the program. Student volunteer groups included Greek life, the 2010 freshman class, Farm Harvest Festival guests and other students who have come during the open Saturday volunteer days that take place once a month.

OPERATIONS AND FINANCES

Engineers Without Borders working at the community gardens

The Farm Management Committee Chair is **GLENN NICHOLLS**, vice president for student affairs. He reports to the provost regarding the overall management of the farm. The Farm Management Committee provides policy and long range planning guidance.

A portion of the income from the Andrew Squire Endowment supports the operation of the farm. The operating budget allocation for the 2010-2011 academic year is $378,917 and the major maintenance budget is $136,417. A farm capital reserve, funded from gifts and savings from the annual operating budget, is maintained for investments in major farm maintenance projects, capital improvements, vehicle replacement and initiation of new programs.

The Farm Management Committee also identifies improvements that can be implemented at the farm within the available budget and personnel that will maximize its positive impact on the university's strategic priorities.

ANA LOCCI, farm director and adjunct assistant professor in the Department of Biology, manages the farm operations, staff and finances. She provides leadership in cooperation with the Farm Management Committee to expand the use of the farm's resources in accordance with the strategic plans of the university. Her essential functions include:

- Develop and maintain liaisons with the academic, athletic and student leadership of the university to maximize benefits of the farm's unique resources relative to the university's mission.
- Facilitate the development of education and research programs by working with appropriate faculty, department chairs and deans to catalyze expanded academic use of the farm.
- Prepare a five-year operating and capital financial plan, plus annual budgets.
- Assure that income and expenses are monitored to achieve balanced budgets.
- With the Farm Management Committee and appropriate university officers, seek out sources to acquire new funding in the form of gifts and grants, and prepare necessary grant applications and presentations.
- Supervise the farm foreman, horticulturist and a full-time staff of three.
- Prepare an annual report on farm operations, plans and finances for the Farm Management Committee and the trustees of the university.
- Manage liaisons with neighbors and the Village of Hunting Valley officials to maintain constructive and mutually beneficial relationships.

Locci reports to Glenn Nicholls and the Farm Management Committee. **MARK MCGEE**, foreman, is responsible for the daily on-site supervision of the farm. **CHRIS BOND**, horticulturist, is responsible for food production and landscaping activities. **PATTY GREGORY** is the department assistant and Manor House program administrator.

ACADEMIC AND RESEARCH PROGRAMS

Genes and Evolution (BIOL 214) students working in the Mather Teaching lab

Academic and research programs at the farm have greatly expanded during the last three years. In 2010, 19 undergraduate and graduate courses used the indoor and outdoor facilities, including courses in ecology, geology, entomology, herpetology, engineering and visual arts, as well as training courses for the nursing program, language immersion programs and three SAGES classes. More than 1,700 students and faculty visited the farm to take classes. The approved fund for transportation for all students and faculty taking credit courses has been key to expanding the academic activities. The greatest increase in academic activities was the on-site research projects. The number of faculty and students actively doing research at the farm increased threefold from 10 to 40 researchers in the areas of ecology, environmental studies, engineering, conservation and carbon sequestration. Projects included undergraduate research, senior projects, capstone projects and graduate research.

Undergraduate and Graduate Courses

Twelve lab sections with more than 300 students enrolled in the Genes and Evolution (BIOL 214) course came to the farm for their biodiversity lab during the month of April. Each section with 24 students came for a two-week period. During their lab sections, they collected insects from the fields and analyzed the diversity and species richness in various microhabitats within the maple-beech forest.

SHERYL PETERSEN offered Principles of Ecology Lab (BIOL 351L/451L) during the fall semester. Sixteen undergraduate students were enrolled. The course focused on spatial and temporal relationships involving organisms and the environment at individual, population and community levels. An underlying theme was Darwinian evolution through natural selection with an emphasis on organism adaptations to biotic and abiotic environments. Case studies and models illustrated ecological principles on their applicability to ecosystem conservation. The laboratory portion of the class complemented the lecture material and involved hypotheses-driven investigations in field and greenhouse settings at the farm.

MICHAEL BENARD offered a herpetology class at the farm during fall 2010. Herpetology (BIOL 305) met on Monday afternoons. Class activities included quantitative sampling of ponds to test for ecological differences between bullfrog and green frog tadpoles. Salamander home range was estimated by capturing stream-dwelling salamanders (either dusky salamanders or two-lined salamanders), marking them with visible implant elastomer and releasing them. The marked salamanders were recaptured later to estimate movement rate.

During the summer, 17 students enrolled in Genes and Evolution (BIOL 214) made three field trips to the farm. During their visits, they studied the farm aquatic and terrestrial ecosystem

instructed by **JAMES BADER**, instructor of biology and director of the Case Western Reserve University Center for Science and Mathematics Education.

During the fall semester, James Bader also taught the Aquatic Ecology Laboratory (BIOL 339) to 16 undergraduate Case Western Reserve biology majors. The course investigated the physical, chemical and biological limnology of freshwater ecosystems. Emphasis was placed on the identification of the organisms inhabiting these systems and their ecological interactions. This course combined both field and laboratory analyses to characterize and compare the major components of the research ponds at the farm.

MARK WILLIS, Department of Biology associate professor, offered Introductory Entomology (BIOL 318L) during the fall semester. The class of 16 students visited the farm five times to collect insects during the months of August and September. Class meetings alternated with some structured lectures and laboratory exercises. Students were required to make a small but comprehensive insect collection. Early in the semester, they focused on collecting the insects, and later, when insects were gone for the winter, they worked to identify the specimens collected.

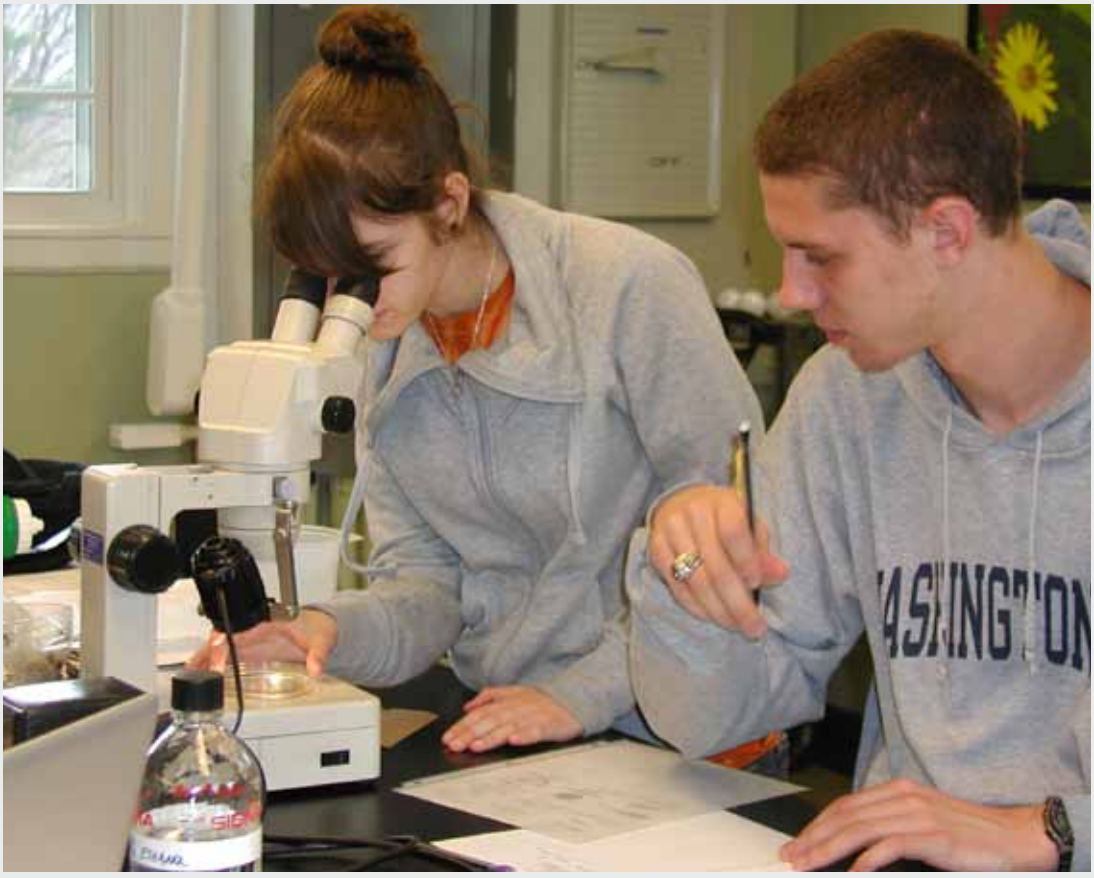
For two weeks, June 15-19 and June 22-26, nine Case Western Reserve students took a course in Raku ceramics. Two students from ARTS 399 and seven students from ARTS 497 enrolled in the Graduate Art Education program, taught by instructor **TIM SHUCKEROW**, art education and art studio director. The classes used the ceramic studio at Valley Ridge Farm.

The Art Studio Program offered Introduction to Photography Studio I (ARTS 220). Instructor **ALEXANDER AITKEN** visited the farm on July 11. There were four students in the class and they spent the time taking photographs for their assigned projects. During the course assignment, students worked on the transfiguration of the common space, personification and multiple figure-ground relationships.

In spring and fall, **MARTHA LOIS**, art studio/art education lecturer, held one-day Raku ceramic sessions for 47 students in her ceramics courses (ARTS 214/314) at Valley Ridge Farm. The sessions focused on hand building techniques and the development of sensitivity to design and form. Farm transportation funds were used to provide student transportation.

The National Flight Nursing Academy at Case Western Reserve University held its seventh annual summer camp in 2010 for acute care nurse practitioners, flight nurses and emergency service personnel in emergency response. The camp, the only one of its kind in the country, took place Aug. 2-6 at the farm and the Mt. Sinai Skills and Simulation Center in Cleveland. This year's mass casualty response drill was held at the farm at noon on Friday, Aug. 6 with more than 100 volunteers and staff participating. Students were able to use their advanced clinical decision-making skills as they attended to the "victims" of a violent event. Open to nurses, physicians, pilots, firefighters and paramedics, the camp provided training exercises to prepare teams for treating critical patients in unstructured environments, such as those following natural disasters. The week long, 40-hour, hands-on training course included mass casualty scene response; pediatric trauma and obstetric emergencies; advanced airway and extrication; chest tube and central line placement and suturing labs using high-tech simulated patients; hazardous materials response; flight safety; preparing landing zones and helicopter simulation.

Principles of Ecology (BIOL 315L) students at the farm



As an integral part of studying foreign languages at Case Western Reserve, a weekend immersion is a required element and takes place at the Pink Pig. Students hike the trails, cook, converse, and play sports and games, all while practicing the language they study. Participating this year were students enrolled in German, Spanish, and Japanese classes.

Continuing Education

Summer in the Country, a program sponsored by the College of Arts and Sciences Office of Continuing Education, offered seven courses: painting in the outdoors, writing poetry, journal writing, university farm history, writing nonfiction, walking through nature, and birds and breakfast. Each class had between 10 and 22 participants resulting in 715 person-visits to the farm during the months of May to July. The majority of the classes met twice a week at the Pink Pig or Kutina Classroom facilities. The outdoor painting class met at the Sheep Barn and used both Squire Valleevue and Valley Ridge Farms for their sessions.

A new endeavor this year was the Autumn in the Country Program. Three classes were offered for continuing education, including outdoor painting, food foraging at the farm and nature walk. Twenty-four participants took the courses with 88 person-visits to the farm.

Research

During early spring, **MICHAEL BENARD**, Department of Biology assistant professor, research assistant **KATHERINE KRYNAK** and summer research assistants **ANDREW ZAJAC** (CWR '10), first-year biology student **JEREMY RAYL** and **LETITIA JACQUES**, investigated how frog species adapt to changing environments. In a protected area at the farm, Benard and his colleagues set up 100 artificial ponds, each of which held up to 300 gallons of water. These artificial ponds allowed Benard and his colleagues to experimentally manipulate specific characteristics of natural ponds like the genetic diversity within wood frog populations or the presence or absence of predatory insects, while holding other environmental characteristics constant. The data gathered from these experiments were incorporated into population models to predict how changes in environmental conditions like reduced genetic diversity and increased predation risk affect overall population extinction risk. The laboratory facilities at the farm provide an important place for Benard and his colleagues to sort, measure and preserve samples taken from the artificial ponds. The farm also provides another benefit to Benard's research: the wooded areas and vernal pond on the property are home to a population of wood frogs. By taking data on the number of wood frogs living on site and comparing it to similar population size estimates from other sites in Ohio, Benard was able to test the predictions generated by his artificial pond and modeling studies. Several high school students also worked with Bernard during the month of May, including **DIEGO AXON-SANCHEZ** and **JONRYAN FINLEY** from University School and **STU DAVIS** from Orange High School.

CHRISTOPHER CULLIS, Department of Biology professor and chair, along with graduate students **CORY JOHNSON**, **TIFFANIE MOSS**, **CONG LIU**, **CHRISTINA CAJIGAS** and **ANDREA**

⌞ Frog sampled at the farm creeks. *Photo provided by Dr. Ron Oldfield*

⌟ Katherine Krynak from Dr. Michael Benard's lab working at the Farm

FISCHIONE, an undergraduate student doing independent research, are working at the Debra Ann November Research Greenhouse growing flax plants to study the mechanisms by which DNA within the cell can change rapidly, particularly in response to external stimuli. The model systems, all plant based, that are the basis for these investigations are the heritable mutations in flax in response to the external environment and the appearance somaclonal mutations after plants have been taken through a cycle of tissue culture and regeneration. Flax has been shown to be especially prone to genomic destabilization by the external growing environment. Cullis and his students are interested in developing a flax genome project to elucidate these global genomic changes.

JOSEPH KOONCE, Department of Biology professor, has used farm resources for two projects during the past year. Through an NSF funded incubator grant, he is leading a project to create a research and education network addressing critical problems linking watershed processes and the ecological balance of the Lake Erie ecosystem. The purpose of the research collaboration network (RCN), which involves 10 colleges and universities in Northeast Ohio, is to develop a distributed hydrologic monitoring infrastructure, high resolution geographical information system databases for the watersheds and nearshore areas of Lake Erie, and a modeling framework to analyze the effects of land use changes on the ecological balance of the Lake Erie ecosystem. A key component of the RCN is the creation of a web portal for sharing environmental monitoring data. Koonce has incorporated farm weather station data and data from water level data loggers into this web portal (biol-server.case.edu/neorcn/) and transformed the data into common data formats to facilitate data sharing.

Koonce is collaborating on a second project

with **DENNY FERNANDEZ** of the University of Puerto Rico and Ana Locci of Case Western Reserve that seeks to compare the effects of environmental variability on success of invasive forb species in tropical and temperate ecosystems. During the summer of 2010, undergraduate students (**DAISY RAMIREZ**, **ANDREW LUND** and **EMILY HAINES**) from the University of Puerto Rico and Case Western Reserve University developed fine-scale maps of key environmental factors (light, temperature, soil moisture and soil composition) at the university farms and selected study sites in Puerto Rico. They then used these maps of environmental mosaics to determine the relative contribution of environmental factors to the distribution patterns of invasive species at both locations in conjunction with studies of the physiology of these species and associated native species.

DAVID BURKE and **KURT SMEMO**, assistant scientists at the Holden Arboretum and adjunct assistant professors in the Department of Biology, continue studying phosphorus limitation and soil microbial community composition in hardwood forests of the farm. In 2009, they established 72 experimental plots throughout northern and southern Ohio, divided into six blocks consisting of 12 plots each. Two blocks (24 plots) were established at the farm property within the mature oak-maple forest along Cedar Road. The study is being funded by a National Science Foundation (NSF) grant.

RONALD OLDFIELD, Department of Biology lecturer, currently uses the farm for two primary areas of research involving the biology of fishes: first, as a base of operations for a study on habitat use in native Ohio brook trout and second for a laboratory study of growth and development of fish. The brook trout research aims to study stream characteristics that allow brook trout to establish new populations. In 2009, his research team mapped three trout streams to identify sections of riffles, runs and pools. Undergraduate student **BOB SZATKOWSKI** is studying how brook trout are using these different microhabitats. This information helps the research team to better understand why some seemingly appropriate streams have failed to support brook trout and helps in the design of additional streams that may be restored in the future. The farm's location in the Chagrin River drainage provides an

Dr. Oldfield and student sampling the north farm creek. *Photo provided by Dr. Ron Oldfield*

ideal base of operation for this research. The farm also maintains various ecological equipment such as waders, measuring tapes, flow meters, fishnets, etc., used to conduct the research. Oldfield's second area of research is studying the response of fish growth and development to social behavior in Midas cichlids. In lab conditions, fish were raised either alone or in pairs, and were sampled regularly over a two-month period. Primarily, the team is interested in finding out if a self-induced growth reduction is the mechanism responsible for growth inhibition in non-group-living fishes as it is in group-living fishes. **LAURA GIBBONS**, undergraduate student, and **KAREN HOANG**, research assistant, are currently using the histology laboratory in the Main Barn to analyze the gonads of the fish used in the experiment to identify the sex and assess the stage of reproductive development of each individual.

JANE BURNS was hired during August 2010 as a new assistant professor in the Department of Biology. Burns is working at the farm with plant invasive species and her experimental gardens are located at the Valley Ridge Farm property.

Ana Locci and **AARON HICKMAN**, a farm summer student supported by the SURES program, analyzed the carbon footprints at the farm facilities and the implementation of the Farm Food Program. The study consisted of analysis and quantification of all sources of energy usage in the program including gas, electricity, water and fuel consumption.

The Cleveland Botanical Gardens used the Debra Ann November Greenhouse to grow plant material for the Green Corps program from March to June 2010.

Surveys of wildlife populations at the farm took place during spring and summer. One group was led by **LISA RAINSONG,** who surveyed bird-nesting activity at the property for the Ohio Breeding Bird Atlas II. This atlas is a grid-based survey used to document the status and distribution of all bird species that breed within a given country, state or county. The Ohio Breeding Bird Atlas II is a joint project of the Ohio State University School of Environment and Natural Resources and the Ohio Department of Natural Resources-Division of Wildlife.

KENNETH KUTINA, vice president emeritus for Institutional Planning, uses one of the Main Barn faculty offices. Kutina chaired the Farm Management Committee for 11 years and continues to provide support and advice to the farm administration, including grant writing and assistance with several sustainability initiatives. Kutina has been key in the development of green farm campus initiatives including the feasibility study and permit process to install a wind turbine and solar panel array. During 2010, he played a key role in obtaining funding for a 33-kilowatt turbine at the farm.

More than 100 tobacco and datura plants are being supplied by the farm greenhouse for Mark Willis' lab. Willis studies the flight patterns of moths in the neurobiology area, and his lab uses the plants for female moths to lay their eggs to maintain their moth colony.

2010 marked the final year the farm produced fertilized eggs for research laboratories—concluding 30 years of production because of declining demand.

CONSERVATION PROGRAMS AND GREEN INITIATIVES

< Freshman 2014 service day

⌙ Prairie restoration

The conservation programs continue to expand at the farm. The programs are focused on the expansion of the teaching opportunities at the farm while increasing habitat for wildlife and reducing the energy consumption.

In 2010, the Farm Food Program was created to provide new teaching and learning opportunities in the area of local food while supplying fresh food to the campus dining halls. In October 2009, the Case Western Reserve University Farm administration, Bon Appétit and SAGES faculty met to discuss this new initiative. The goals of this initiative are to provide new educational opportunities to faculty and students to study local food production in a sustainable way using mostly organic methods and to deliver fresh food and herbs to the main campus. **CHRIS BOND**, farm horticulturist, worked to design this pilot project to start food production in February 2010. Bond was assisted by **ALAN ALLDRIDGE**, farm staff. Bon Appétit gave two gifts to the farm to help with the initial costs associated with acquisition of materials such as growing media, containers, appropriate fertilizers, seeds and plants, and to install a high tunnel house. During the spring and summer, labor was provided by farm staff, student volunteers and two summer full time students, **NATALIA CABRERA** and **JILLIAN JOHNSON**. A grant from the VISTA program allowed for sharing of another summer student, **MICHAEL LALICH**, who worked at the farm two days per week. By fall, student volunteer hours accounted for 20 percent of the total labor. During the fall semester, students **RACHAEL WAGNER** and **KELSEY CORNELIUS** worked at the food program. By October 2010, the farm had delivered more than 6,000 pounds of fresh food to the campus dining halls and donated more than 350 pounds to the Cleveland Food Bank. Teaching opportunities included visits by three SAGES courses, five student projects on energy usage, soil, biocontrols and nutrition education, a research project with the USDA on cover crops and several local schools field trips.

During the last week of April, four acres were burned in the prairie restoration area assisted by the Geauga Park District staff. A permit for open burn was obtained from the Ohio EPA office by farm horticulturist Chris Bond. **JOHN OROS**, a certified prescribed fire manager through the Ohio Department of Natural Resources Division of Forestry, supervised the burning. He has been overseeing prescribed burns on the park properties since 2001. The typical burning window in Northeast Ohio begins the last week of March to the third week of April. Farm staff rototilled the area surrounding the prairie to create a firebreak as instructed by Oros. Three farm staff and three park staff assisted during the burning.

During spring and summer 2010, 17 wildflowers and grasses were observed in the prairie restoration area. Species include *Bouteloua curtipendula* (Wideoats Grama), *Elymus canadensis* (Nodding Wild Rye), *Sorghastrum nutans* (Indian Grass), *Andropogon gerardii* (Big Bluestem), *Echinacea purpurea* (Purple Coneflower), *Heliopsis*

helianthoides (Ox-eye Sunflower), *Ratibida pinnata* (Grey-Headed Coneflower), *Aster novae-angliae* (New England Aster), *Coreopsis tripteris* (Tall Coreopsis), *Monarda fistulosa* (Wild Bergamot), *Silphium trifoliatum* (Whorled Rosinweed), *Verbena hastata* (Blue Vervain), *Helianthus grosseserratus* (Sawtooth Sunflower), *Lespedeza capitata* (Roundheaded Bushclover), *Rudbeckia subtomentosa* (Sweet Black-eyed Susan), *Rudbeckia triloba* (Brown-eyed Susan), *Rudbeckia hirta* (Black-eyed Susan) and *Lobelia siphilitica* (Great Lobelia). One of the most noticeable vegetation changes after the burning was observed during the month of September with a high density of Big Bluestem grasses dominating the prairie area. The project is being done in collaboration with the Cleveland Museum of Natural History and the Ohio Prairie Nursery Ltd. The program aims to restore four acres of old pasture area into a native prairie containing several Ohio indigenous grasses and 20 forbs species. The prairie restoration is enhancing the farm's rich wildlife, and becoming another teaching and research tool to complement our expanding academic programs. The prairie site also serves as a great educational tool for farm visitors. The project was supported with funds provided by **BRIAN** and **CINDY MURPHY**.

v Alumnus Bill Jirousek and university staff member Betsy Banks checking the bluebird houses

The Bluebird Trail, in its ninth season, includes 52 Peterson houses located around the research ponds and nearby fields. Alumnus **BILL JIROUSEK** (SAS '01) and university staff member **BETSY BANKS**, both farm volunteers, checked the houses regularly during the breeding season (April-September), recorded data and banded hatchlings. Many of the farm's bluebirds wintered over, and the first bluebird egg was laid on April 14. The last bluebird fledged on Sept. 6. A total of 158 birds fledged (compared to 154 in 2009), including 75 eastern bluebirds (44 in 2009), 47 tree swallows (32), and 36 house wrens (78)—record years for eastern bluebirds and tree swallows. Trail data, recorded and analyzed at the farm as part of a long-term study, continues to be included in the Holden Arboretum's and Cornell University's (national database) totals. Six new Peterson houses were added at the Valley Ridge Farm property during summer 2010.

In October 2010, a third-party ownership contract was signed with Ventus Delecto to install a 33-kilowatt wind turbine on the farm property. The turbine is estimated to produce 70 percent of the electricity consumed at the teaching and research buildings. The six-year contract will allow the farm administration to purchase electricity from a clean energy source at a discount rate. The installation of a wind turbine will be a pioneering effort and will serve as a showcase for this environmentally friendly technology to supply electricity. During March 2009, a construction permit to erect the wind turbine was obtained from the Village of Hunting Valley for a 130-foot tower located near the farm research areas. This source of renewable energy will be used as a demonstration project and operation for Case Western Reserve students and the hundreds of grade school children and teachers who come to the farm each year for environmental programs. The facility will be featured on the farm's website, and the farm will offer tours and information sessions on this state-of-the-art clean energy source.

STUDENT LIFE

< Tomatoes harvest from the farm

∠ Students harvesting during the Farm Harvest Festival

Student-initiated scheduled use of the farm facilities has increased greatly. Sixty-six student groups reserved the facilities in 2010. The student reservations included groups using the Pink Pig, Sheep Barn, Manor House, Kutina Classroom and picnic areas. Among the student groups using the facilities were:

Academic Integrity Board
Aikido Club
Alpha Phi Omega Sorority
Alpha Kappa Psi
ASHA Indian Students Association
American Medical Student Association
Beta Nu of Theta Chi
Biology graduate students
Bioethics graduate students
Biomedical Engineering Graduate Student Association
Campus Crusade for Christ
Case Baja SAE
Case Alliance Dental Association (CADA)
Case Campus Girl Scouts
Chi Alpha Christian Fellowship
Case Western Reserve University Fellowship of Christian Athletes
Case Western Reserve University Film Society
Case Western Reserve University Go Club
Case Western Reserve University School of Medicine Student Groups
Case Western Reserve University Women's Soccer Team
Case Western Reserve University Archery Club
Case Western Reserve University Women and Men's Cross Country teams
Case Western Reserve University Track Team
Catalyst Social Interest Group
Case Western Reserve University Cycling Club
College Scholars Program
Delta Sigma Theta
Delta Upsilon Fraternity
Dental Si Omega
Electrochemical Society/Case Western Reserve University Student Chapter
Engineers Without Borders
French Students Immersion
German Students Immersion
Graduate Student Senate
Institute of Electrical and Electronic Engineers Case Student Chapter
Inter Society Council Group
Inter-Varsity Christian Fellowship
Inter-Varsity Graduate Christian Fellowship
Japanese Students Immersion
Korean Graduate Students Association
Lambda Chi Alpha Fraternity
Mather Dance Center
Material Science graduate students
Muslim Students Association
Newman Catholic Students Association
Phi Kappa Tau
Phi Gamma Delta
Phi Sigma Rho
Phi Mu
Psi Omega Dental Honorary Society
Residence Hall Association
Russian Students Immersion
Second Year Institute
Sigma Phi Epsilon Fraternity
Sigma Psi Sorority
Solstice Women's A Cappella
Spanish Student Immersion
Student Turning Point Society (WSOM)
Student Bar Association
Tau Bet Pi
Theta Chi Fraternity
Turkish Student Association (UTurk)
Undergraduate Student Government
University Program Board
UPCaM
Zeta Beta Tau Fraternity

On Sept. 25, 2010, the first "Farm Harvest Festival" event took place at the University Farm: Squire Valleevue Farm. The event was cosponsored by the Case Western Reserve University Student Sustainability Council (SSC) and the University Farm. The festival was intended to expose students to activities at the farm and to raise awareness of the Farm Food Program. The event guest list included alumni, staff, graduate and undergraduate students and their families. The attendance was estimated to be around 600 visitors with approximately 400 undergraduate and graduate students and 200 staff, faculty, alumni and their families. SSC members made an excellent effort to reach out to all university friends by making class announcements, creating a website, sending emails, posting event fliers and promoting by word-of-mouth. **ERIC HAMILTON** led the fund raising efforts to support the event. Eric is a third-year SSC member who started working on the event in July. He has volunteered at the farm since last spring and was the SSC student leader of this event. Twelve SSC members helped at the event welcoming visitors, parking cars, serving food and with the many indoor and outdoor activities. Activities included decorating cookies, cooking demonstration, and a beekeeping and honey production exhibition. Several outdoor hands-on activities planned by farm horticulturist **CHRIS BOND** and assisted by undergraduate students **RACHAEL WAGNER**, **KELSEY CORNELIUS** and **AARON HICKMAN** included planting fall crops in the new high tunnel house, harvesting produce, and potting up and taking home herb plants. More than 300 plants were planted in the high tunnel house and more than seven pounds of basil was harvested during the event.

Orientations for the School of Medicine, School of Dental Medicine and Case Western Reserve University new faculty took place at the farm.

↳ Farm Harvest Festival food preparation demonstration by Bon Appétit staff

During 2010, several student groups used the farm for special projects as part of their extra curricular activities. The farm provides unique space and opportunities for outdoor projects.

Case Western Reserve University's Engineers Without Borders chapter (EWB-Case) continued conducting its water project at the farm both to act as a test bed for current and future international projects and to improve the farm community gardens' irrigation system. EWB-Case is a humanitarian student organization committed to partnering with developing communities to improve quality of life. This partnership involves the implementation of sustainable engineering projects by internationally responsible engineering students collaborating with professional engineers. EWB-Case's partnership consists of Case Western Reserve University undergraduate students, faculty and professional advisors. The rainwater collection system is designed to use the roof of the chicken coop to supply the nearby garden plots with water. Construction of the collection system involves modification of the drainage gutters and offshoots. The project consists of the design and construction of two ferrocement water tanks and the installation of a small vertical windmill to pump the water. The irrigation system will offer gardeners the option of a drip irrigation system. Both water holding tanks are designed and constructed of appropriate size for their use and will have drainage systems for excess water to prevent erosion and damage to the tanks and surrounding structures in the event of extreme rainfall or periods of non-use. This project is promoted as a sustainable approach to water sourcing in both the local and the university communities.

The Case Alumni Association (CAA) hosted its second Day at the Farm picnic and open house on Saturday, Aug. 14. The event brought 150 alumni and their families to the farm, and included hiking along the beautiful wooded trails, a walk through the Debra Ann November Research Greenhouse to learn about the Farm Food Program, tours of farm historical buildings and teaching facilities, and games and activities for the whole family.

Athletics and Recreation

Three Case Western Reserve Cross Country meets took place in September and October. Ten colleges participated in the Sudeck Classic Invitational on Sept. 4, with approximately 400 visitors and 300 athletes and coaches. The alumni race took place on Sept. 11 and brought more than 60 visitors to the farm.

For the third year, the farm hosted the North Coast League High School tournament held this year on Oct. 16, 2010. Ten local high schools participated bringing more than 600 runners and guests to the farm.

The Case Western Reserve University Archery Club hosted its annual conference May 1 at the farm. Ten students participated in the one-day event.

The Community Garden program had another busy season. University staff, faculty members, emeritus faculty and students reserved 15 garden plots from May to October 2010. The farm administration provided water, hoses, a garden shed for tool storage and a compost pile.

FACILITIES USAGE

< Root cellar

⌞ English Barn

Farm facilities continue to be popular destinations for university classes, university department events and meetings, student group meetings and retreats, and outreach programs. Events hosted range from international conferences and training programs to small weekend retreats. The historic facilities hold many memories for university alumni and many are known by name: the Sheep Barn; Pink Pig, our "rustic cottage;" several picnic areas; the Main Barn and Kutina Classroom; and Squire's own country estate, the Manor House. Patty Gregory oversees the reservation process for all the farm facilities.

During the year, 125 groups booked the various picnic areas, generating 6,063 person-visits. Of these groups, 14 percent were student events, 33 percent were university departments, 40 percent were university-affiliated private events, and 14 percent were nonprofit groups.

The Sheep Barn hosted 95 groups, generating 7,311 person-visits. Groups using the Sheep Barn constituted 26 percent student events, 61 percent university academic meetings and retreats, 20 percent university social events and 8 percent nonprofit groups.

The Pink Pig accommodated 89 groups, generating 1,607 person-visits. Groups using the Pink Pig consisted of 40 percent student events, 26 percent Case Western Reserve University continuing education classes, 24 percent other university academic and social meetings and retreats, and 11 percent nonprofit groups.

The Kutina Classroom provided space for 73 groups generating 1,209 person-visits. The classroom hosted 88 percent academic meetings and retreats and 12 percent nonprofit group meetings. The classroom is equipped with audio/visual equipment and can accommodate up to 25 users per visit.

The Manor House provides a special venue for meetings and reached a wide audience this year. The facility hosted 43 events comprised of 17 university departments, nine student groups, four nonprofit groups, 13 university-affiliated private events. Among the university academic events hosted at the Manor House were the Department of Biology Graduate Students and Faculty retreat, Department of Surgery Planning retreat and the Cardiovascular Research Institute Retreat. University staff retreats held at the house included the Office of Inclusion, Diversity and Equal Opportunity, University Marketing and Communications and the Office of Residence Life. Several university departments use the Manor House yearly for their social events, including the Frances Payne Bolton School of Nursing Thanksgiving Brunch in honor of their donors and the Law School LLM Graduation Dinner. In December, the Manor House hosted a two-day Cleveland VA Spinal Cord Injury Unit retreat. The Manor House also serves the Cleveland community's nonprofit and corporate groups hosting board meetings and training programs. Student groups using the Manor House tripled in 2010.

COMMUNITY SERVICE

ל School visitation program participants

ל Cleveland Museum of Natural History Christmas bird count

The farm also contributes valuable community service. University administration encourages other organizations, including area museums, academic institutions, local schools and community service groups to use the farm's facilities, property and research areas for academic purposes.

The School Visitation Program is a hands-on program designed to reinforce concepts and field methods in the areas of environmental science and ecology for local middle and high school students. During the 2009-2010 academic year, the farm hosted eight school visits: 192 students, 14 teachers and 17 chaperones visited the farm. The schools participating were Shaker Heights Middle School, Padua Franciscan High School, Saint Christopher School, Charles F. Brush High School, Beaumont High School, Montessori High School, Marion Sterling Elementary School and Hathaway Brown. During the summer, Case Western Reserve student Natalia Cabrera and Chris Bond helped facilitate the Marion Sterling School visit and added the Farm Food Program unit as part of their visit.

Hathaway Brown School and the university continued their collaboration and usage of the farm facilities. During the 2009-2010 academic year, the usage of farm facilities exceeded 672 students and staff. Their use of the farm facilities included the Sheep Barn, Pink Pig, Manor House and picnic areas. Visits included environmental programs for second, fourth and fifth graders, Spanish immersion programs, middle school Aquatic Education, several faculty and staff professional meetings and several social events.

The Audubon Society uses the farm facilities for its meetings. The group meets in the Kutina Classroom five times per year.

GRANTS AND GIFTS

< Silo Theater opening, June 6, 2010

⌙ Silo Theater courtyard

During spring 2009, the farm received an annuity gift from **MORT** and **IRIS NOVEMBER** to convert the main room of the Dairy Barn (silo room) into an assembly area. The renovation consisted of repairs in the staging room, opening of the front entrance, hard surface on the courtyard area, building alarm system, electrical updates, restoration of back doors and a new egress access to the main room. The new space remodeling started in June 2009, and after getting the final permits from the State of Ohio, the renovations were resumed in October 2009. The new room will be a venue for academic programs sponsored by the Case Western Reserve University Music, English and Biology departments. Opened June 6, 2010, this three-season space will provide a home for various educational programs.

In March 2010, the farm received a $25,000 grant from the **HERSHEY FOUNDATION** to purchase a stage, 80 audience chairs and 20 musician chairs and stands for farm musical programs.

BON APPÉTIT donated $2,000 to start the Farm Food Program in March 2010. In May 2010, a second gift by Bon Appétit for $4,000 allowed the installation of a High Tunnel House. The installation will allow expanding the food production season to 10 months.

THE GEORGE WADE GARRESON FOUNDATION gave a $5,000 gift to the farm to continue updating the farm facilities into teaching spaces. The gift was used to install a stone floor at the newly remodeled assembly area at the Valley Ridge Farm property.

In June 2010, the **GARDEN CLUB OF CLEVELAND** gave a generous gift of $750 to help with the restoration of the grape arbor at the Valley Ridge Farm.

In August 2010, the farm received two generous gifts from a private donor: A $25,000 gift to publish the Farm History Book, which will contain more than 150 photos from 1920s to the present; and a $19,000 gift to restore the historical grape arbors designed by landscape architect Warren Manning. This historical garden is located at the Valley Ridge Farm. This generous gift will greatly advance the farm administration efforts to restore the farm historical gardens.

The **UNIVERSITY FARM ENDOWMENT FUND** was established in 2007 by **DARHL FOREMAN** to help maintain the property with more than 20 structures, including historic barns, conference and classroom facilities, a research greenhouse, private homes, garage and acres of green space. In December 2009, **JANET CRUDEN CHRISTENSEN** donated $10,000 toward the fund. The fund started with $10,000 and it has grown to $29,095 thanks to the generosity of alumni and farm supporters.

A **FARM ANNUAL FUND** to raise funds to support new farm initiatives and programs was initiated in 2005. By means of this fund, individuals can now contribute directly to the farm during the university's annual fund drive. To date, $24,000 has been raised thanks to the generosity of farm friends and neighbors. This fund is already being used for new initiatives such as trails brochures, green initiatives and supporting the Farm Visitation Program.

A new gift program was created this year: The **TREE PLANTING DEDICATION PROGRAM**. Farm donors will have the opportunity to select a tree among several choices for planting at the Squire Valleevue Farm to commemorate a lost loved one, honor someone or commemorate an occasion such as a wedding or anniversary. For a $600 gift to the farm, donors will be able to choose among an evergreen tree, a shade tree or an ornamental tree from a list of suitable trees prepared by the farm horticulturist. The tree will then be selected by the horticulturist and planted in an area designated as the Memorial Arboretum located at Squire Valleevue Farm. The donated sum will cover the cost of the tree, labor to procure it and properly plant it, cultural considerations such as fertilizer and mulch, a memorial plaque stating the honoree's name, from whom it was given and the university's name. The cost will also cover the potential replacement cost should it not survive during its first year. Trees that fail to thrive after a period of one year will be replaced only at the discretion of the farm administration, and no tree will be replaced after two years. The first donation of $1,000 was given by **MARJORIE REED** in June 2010 to start the program.

- High Tunnel Hoop House
- Restoration of the Wade Gardens grape arbor

MAJOR IMPROVEMENTS AND REPAIRS

< May house

⌜ Squire Pond

⌟ Farm wild flower

The farm property facilities continue undergoing extensive improvements and major repairs. The farm administration is committed to increasing the sustainability of the farm operations by reducing energy consumption. Purchases, improvements and repairs are aimed at reducing utility bills and saving on fuel consumption while lowering maintenance time and costs. Construction and repair projects are under the direct supervision of Mark McGee, on-site farm foreman since 2000. From May to August, Case Western Reserve University student **OWEN MAYER** was hired to assist farm staff with general farm maintenance. His hard work and dedication made it possible to complete several of the painting and landscape jobs scheduled during spring and summer.

Several large painting jobs completed by farm staff took place during the spring, summer and fall, including exterior painting of the Main Barn south end and the chicken coop.

The Main Barn entrance patio and sidewalks were replaced in August 2010. The new patio is made out of porous concrete. Other repairs at the Main Barn include new windows in the front classroom, new concrete steps and door for the administration office.

The Greenhouse lab basement underwent waterproofing during the month of September 2010.

During the month of October repairs of the outflow area at Squire research pond took place to allow water level control. Repairs were supervised by Mark McGee and funded by the Department of Biology's Oglebay Trust.

An engineering study is underway to survey the walking trails that connect the Squire Valleevue Farm and the Valley Ridge Farm. The study will provide information for the construction of a new gravel driveway to connect the two properties.

The farm's six private residences continue getting updates including indoor and outdoor painting, new energy-efficient windows, new energy-efficient appliances, new tile floors and carpets.

SUPPORT THE FARM

Your continuous support has allowed us to develop new academic programs and to update our teaching and research facilities. Thanks again for your generosity.

There are a variety of ways to support the farm, including:

- **FARM ANNUAL FUND** Gifts received in any amount to provide unrestricted income to develop new academic and conservation initiatives, as well as small facilities improvements.
- **FARM BENCH DEDICATION PROGRAM** A $2,000 bench donation would help to update art teaching facilities and to improve outdoor areas at the farm. Visit studentaffairs.case.edu/farm/support/bench.html for more information.
- **UNIVERSITY FARM ENDOWMENT** This fund was established in 2007 to help improve and maintain the property with more than 20 structures and 389 acres of green space. Many of the university farm buildings are more than 100 years old and require extensive upkeep to preserve their rich history.
- **PLANNED GIVING** A planned gift to the farm would provide a benefit to you and your family by bringing immediate and deferred tax advantages to both you and your heirs.
- **FARM TREE PLANTING DEDICATION PROGRAM** For a $600 gift, farm donors would be able to select an evergreen, shade or ornamental tree to be planted at the Squire Valleevue Farm

Call 216 368-0274 or visit studentaffairs.case.edu/farm/support to learn more about giving to the university farm.

STATISTICS

Table 1. Farm Usage by Facilities
Nov. 1, 2009 to Oct. 31, 2010

Facilities	# Groups	# Visits
Picnic Areas	125	6,036
Sheep Barn	95	7,311
Pink Pig	89	1,607
Manor House	43	1,912
Main Barn Kutina Classroom	106	1,680
Mather Teaching Lab	23	1,051
Main Barn Faculty Offices	8	960
Greenhouse Lab	9	657
Debra Ann November Greenhouse	13	982
Ceramic Studio	5	168
Cross Country Trail	30	2,800
Community Garden Plots	14	900
Silo Theater	1	150
Total Farm Users by Facilities	**561**	**26,214**
Estimated Casual Visitors		**5,250**

Table 2. Farm Usage by Program
Nov. 1, 2009 to Oct. 31, 2010

Programs and Events	# Groups	# Visits
UNDERGRADUATE AND GRADUATE COURSES		
Genes and Evolution (BIOL 214) (Spring)	12	360
Genes and Evolution (BIOL 214) (Summer)	1	75
Aquatic Lab (BIOL 339)	1	192
Principles of Ecology Lab (BIOL 351L/451L)	1	240
Introduction to Entomology (BIOL 318L)	1	55
Hydrogeology (GEOL 321/421)	1	16
Herpetology (BIOL 305L)	1	96
Geophysical Field Methods and Lab (GEOL 330/430)	3	27
ACNP Flight Nursing Summer Camp	1	300
Raku Ceramics (ARTS 399)	1	14
Raku Ceramics (ARTS 497)	1	77
Raku Ceramics (ARTS 214, 314 and 365)	1	32
Photography Studio I (ARTS 220)	1	7
Ceramic (ARTS 330) Spring	1	14
Ceramic (ARTS 330) Fall	1	31
Modern Languages and Literature Immersion Programs	2	60
SAGES The Future of Food (USNA 252)	1	19
SAGES Challenge of Sustainability (USNA 124)	1	18
SAGES Life of the Mind (FSCC 100-100)	1	7
Weatherhead Sustainability Seminar	1	70
CONTINUING EDUCATION		
Summer in the Country	10	715
Non-fiction Fall - Winter course	2	252
Autum in the Country	3	88
ONSITE RESEARCH		
Undergraduate Research	9	182
Graduate Research	5	280
Holdem Arboretum	2	70
Cleveland Museum of Natural History/Cleveland State	1	15
John Carrol University Research	2	50
Cleveland Botanical Gardens	1	84
Cleveland Metroparks	2	10
FARM FOOD PROGRAM		
Volunteers	20	166
Farm Harvest Festival	10	600

Programs and Events (continued)	**# Groups**	**# Visits**
STUDENT LIFE		
Engineers Without Borders	1	60
Case Western Reserve Cross Country Meets		
Case Alumni	1	60
Case Sudeck Invitational	15	700
ORIENTATIONS		
New Faculty	1	90
School of Medicine	1	120
School of Dentristry	1	300
Archery Conference	1	10
Fraternities/Sororities	18	648
Case Alumni Association Open House	1	150
COMMUNITY SERVICES		
Local Schools, Grades K-12	8	225
North Coast League Cross Country Meet	10	600
Gilmour Academy and University School CC Practices	2	1,440
Cleveland Audubon Society	1	105
Cleveland Museum of Natural History (CMNH)	3	32
Other Non-profit Organizations	27	1,309
Hawthaway Brown School	16	773
John Carrol University Biology Courses	5	106
MC^2 STEM High School	8	120
Garden Clubs lectures	1	30
Total Farm Users by Programs	**222**	**11,100**

Farm Management Committee
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Professor, Physical Education and Athletics

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Vice President Emeritus for Institutional Planning

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Foreman

John Schwartz
Group Leader

Alan Alldridge
Utility Worker

Christopher Bond
Horticulturist

Patty Gregory
Department Assistant

Kimberly Deininger
Manor House Events Coordinator

Report submitted by:
Glenn Nicholls, Chair of the Farm Management Committee
Ana B. Locci, Director of University Farm

December 2010

Historical Farm Chicken Coop

University Farms
Squire Valleevue Farm and
Valley Ridge Farm
37125 Fairmount Blvd.
Hunting Valley, Ohio 44022

CASE WESTERN RESERVE UNIVERSITY EST. 1826