

# A Proposal for a Bucknell University Farm

Prepared by the Bucknell Farm *Ad Hoc* Committee

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## **I. Overview:**

Over the past several years there has been a growing interest in local food systems at Bucknell and in the Lewisburg community that has led to an interest in establishing a Bucknell University Farm (BUF) on campus. Several courses and programs across campus address social, economic and environmental issues of food production, distribution and access. The Food Systems minor was created two years ago as an interdisciplinary program to cover all aspects of food from “field to fork”. Currently 28 courses are listed within the food systems minor addressing global cultural and applied topics; several of these courses were created in just the past academic year. The Lewisburg Community Garden (LCG) was established in 2012 by the Office of Civic Engagement to promote student engagement in addressing local food insecurity. Over the past six growing seasons the LCG has provided space, resources and workshops to help local families grow their own produce. Furthermore, each year the LCG has generated thousands of pounds of fresh fruits and vegetables to support the Community Harvest program in Milton that is run by Bucknell and serves meals to approximately 100 patrons weekly (see appendix 3). The LCG has become a valuable academic resource for Bucknell courses and research projects, successfully engaging students, faculty and staff in workshops, summer camps and food access projects. The success of the LCG demonstrates the growing interest among the Bucknell community in gaining hands on experience in food production and its value as a means of community engagement. However, the LCG is limited by its physical size, off-campus location and restriction from building permanent structures.

As a result of the success of the LCG there have been many conversations among faculty, students and staff in establishing a Bucknell University Farm. In December 2015 a survey was sent out to all faculty and staff to gauge the interest and identify specific connections to such a project. We received feedback from 47 faculty and staff across campus indicating a broad and enthusiastic endorsement of the creation of a university farm (Please see appendix 1 for summary of these responses). In the spring of 2016 an *ad hoc* committee was established to refine and prioritize the objectives and craft this proposal (Please see appendix 2 for the membership of the *ad hoc* committee).

This proposal describes areas of interest among faculty and staff in creating a farm on campus within the areas of 1) Academics 2) Community Outreach and Civic Engagement 3) Environmental Sustainability and 4) Residential Life. It identifies questions that will need to be addressed in order to move forward in the establishment of a Bucknell University Farm. We provide a description of the history and scope of the Lewisburg Community Garden and a study of comparable colleges and universities that have integrated farms or gardens into their core mission. We provide a detailed study of Dickinson College Farm and Middlebury College Organic Farm, which were the focus of an on-site benchmark study.

This proposal concludes with a request for the development of a Bucknell University farm with the following **parameters**.

- The farm will encompass an approximately 5-acre plot that is located in the southwest corner of campus (to the south of the water towers) and will integrate organic year-round vegetable, fruit and limited poultry production, with agroecological techniques that employ native plants and encourage beneficial organisms. The farm will have

opportunities for recreation and nature study including a walking path, a meditation garden and an outdoor amphitheater classroom.

- The BUF should employ a full-time farmer/educator with expertise in vegetable production and experience in education / outreach. This farmer would have responsibility for the horticultural operations at the farm and at the LCG.
- **A half-time academic assistant**
- The BUF will require assistance from Bucknell University Facilities. We will need a formal arrangement with this office and a budget to pay for these services.
- BUF staff will report to the Assistant Director of Service-Learning in the Office of Civic Engagement.
- A BUF Faculty Director to promote and facilitate the use of the farm in courses and research, to coordinate with partnering campus organizations OCE, BCSE, the Bucknell Arboretum and residential life and to pursue grants from foundations and agencies (see appendix 4 for list of possible grant sources).
- The operation of the farm will be overseen by a BUF advisory board, consisting of faculty, staff and students and chaired by the Bucknell University Farm Faculty Director.
- **Permanent structures to be used for production and teaching including an outdoor classroom, a certified kitchen / packing house, an unheated and a heated greenhouse.**
- Space should be allocated for use by individual classes, student groups or as part of a student research project as coordinated by the farmer and faculty director.
- **The majority of the produce generated from the farm should be sold to Parkhurst Dining to be used in Bostwick Marketplace.**
- The BUF should integrate natural areas in collaboration with the Bucknell Arboretum to promote opportunities for courses and research in conservation and ecology.
- The BUF should contain a garden devoted to spiritual reflection and meditation.
- **Food waste from the dining halls should be composted to produce soil amendments for use on the BUF.**
- Renewable sources should be used to generate as large a proportion as possible of the energy used at the BUF.

## **II. Goals Identified by Faculty and Staff for a Bucknell University Farm**

Faculty and staff have expressed a serious interest in developing a farm that is accessible to campus and could be integrated into teaching, research, service learning, and student and residential life. Additionally, support for a farm has been advocated for its ability to promote environmental sustainability on Bucknell's campus. The following is a list of ideas generated from the survey in December 2015 as well as those generated through discussion by members of the *ad-hoc* committee. The goals are organized into four categories, although there are significant overlaps between these categories.

**Academic mission:** Nearly all of the 41 faculty who provided feedback in our initial survey, from all three colleges and all divisions of the College of Arts and Sciences, indicated that a farm would be integral in helping to convey learning objectives in their courses; some faculty listed more than one class in which they would make use of the farm. Faculty described the farm from disciplinary perspectives. For example, management faculty have proposed student involvement in managing the farm as an organization, while engineering faculty see systems that can be measured and optimized, the natural scientists see ecological processes that affect human health

and the environment, and humanists described the aesthetics of a farm and the valuable experience gained when students work with their hands. Several faculty members also described student research projects that could make use of a university farm.

- Many comments from faculty indicate that proximity of the farm to campus would be critical to integration of the farm in their courses.
- Management students could gain experience growing food for dining services using a business model.
- There should be space devoted to individual classes or student research projects
- A portion of the space devoted to a natural area with native plants would encourage biodiversity and allow for a living laboratory for many courses in biology and environmental studies.

### **Civic engagement and community outreach:**

While the Bucknell University Farm has many goals that are distinct from the LCG, there are also many goals that are complementary. Both Kyle Bray, Assistant Director of Civic Engagement and LCG Manager and Mark Spiro, Faculty in Residence at the LCG, are on the Bucknell University Farm *ad hoc* committee and are involved in conversations to make sure that the goals of the LCG would not be compromised by the development of the BUF.

- While most of the food grown at the BUF would be destined for Bucknell's Dining services the farm would allow for an increase in the amount and diversity of produce donated to local meal programs. In particular, the BUF would allow for produce to be harvested 12 months per year compared to the current 8-month harvest at the LCG. While the LCG generated over 3,600 pounds of vegetables for donation in support of local food security in 2016, the garden is a constrained physical space that doesn't allow for proper rotation of crops or efficient horticultural practices including season extension techniques.
- A farm and garden manager, shared between the LCG and the BUF, would greatly increase efficiency of both operations by providing training to student volunteers and interns and bringing the best horticultural techniques.
- The Bucknell University Farm would help the LCG in its nascent outreach efforts to provide technical and logistical support through a network of local community and university gardens by modelling best horticultural practices.
- **Additionally, the BUF would be a wonderful venue for camps and educational experiences for local youth to learn about natural systems, horticulture and nutrition.**

### **Environmental sustainability:**

The Bucknell University Farm would help Bucknell work towards a greater degree of environmental sustainability, to help meet our goals in reducing our carbon footprint and would help to attract environmentally-minded students and faculty. The specific goals that have been identified so far include...

- The BUF would also help to model effective sustainable horticultural practices such as cover cropping and biological insect control
- **Composting of food and packaging waste from dining services that can be turned into compost soil amendment to reduce landfill waste and close the nutrient cycle.**
- Reducing greenhouse gases through carbon sequestration in the soil using no-till farming techniques.

- A site for development and experimentation with renewable energy including biofuels and solar.
- Generation of produce for Bucknell Dining Services that is grown using organic practices without the use of synthetic fertilizers and pesticides.
- Protection of open space to promote biodiversity and intact ecological systems
- Use of wastewater and storm water for irrigation

**Residential life:**

The Bucknell University Farm would provide an aesthetically pleasing, peaceful location that would allow for spiritual and religious connections and promote health and well-being.

- A suggestion has been made that the BUF include a meditation garden, a place for reflection, prayer and connection to nature.
- Faculty and staff have indicated that the BUF would be a location for all university members to work together outside of the classroom that would benefit campus climate and provide a positive social environment.
- The Lewisburg Community Garden has repeatedly gotten requests from student groups for space to grow vegetables, particularly from international students who are unable to find many of the ingredients that are part of their cuisine. A farm would allow for enough space to accommodate these requests.

### III. Questions that need to be addressed to move forward on developing a Bucknell University Farm:

The first three questions are the most significant, but are dependent upon the answers to the remaining questions.

- ⇒ Size and location of the farm. There is broad support for an on-campus farm, but other Bucknell properties exist. **The BUF should be a minimum of 2 acres for vegetable production alone,** larger if we are to integrate animals or other projects (renewable energy, greenhouses).
  - ◆ An approximately 5 acre field S of the water tower on campus has been identified that has plenty of space for vegetable and fruit production, naturalized areas and a meditation garden.
  
- ⇒ Facilities needs
  - ◆ Greenhouse
  - ◆ Hoop houses (temporary greenhouses)
  - ◆ Equipment barn/shed
  - ◆ Certified kitchen for packing / teaching – building should also have restrooms
  - ◆ Electricity
  - ◆ Plumbing
  - ◆ Wi-Fi
  
- ⇒ Organization and staffing for the BUF.
  - ◆ Advisory board consisting of staff, faculty and students
  - ◆ Staff reports to Assistant Director of Service Learning
  - ◆ Full time farmer/educator.
  - ◆ Faculty director
  - ◆ Administrative support – part time
  - ◆ Student interns
  
- ⇒ Funding.
  - ◆ How will a university BUF be funded?
  - ◆ Need to develop projections for revenue from sale of produce?
  
- ⇒ Will we grow food for Bucknell Dining Services?
  - ◆ Main issues
    - PA – Dept of Ag – licensing and inspection – food safety
    - Liability insurance
  - ◆ Contacts:
    - Carlos Soza – Parkhurst
    - David Freeland – Parkhurst
    - Jay Breeding – Parkhurst
    - Lori Wilson – Finance

⇒ Integration with Office of Civic Engagement – Lewisburg Community Garden

- ◆ Benefits of integration
  - Increased opportunities for students for service learning and research
  - Can strengthen the food access mission of the LCG
  - Increased awareness of benefits of local, healthy food
  - New funding opportunities
- ◆ Issues
  - How do we maintain volunteers and resources for LCG?
  - Make sure that farm includes opportunities for community members.
- ◆ Contacts
  - Janice Butler
  - Kyle Bray

⇒ Integration with projects at BCSE

- ◆ Benefits:
  - Increased visibility of sustainability on campus
  - Coordination of BCSE gardens with BUF
  - Direct application for research projects such as the renewable energy scholars.
- ◆ Contacts
  - Peter Wilshusen
  - Jessica Newlin
  - Dina El-Mogazi
  - Shaunna Barnhart

⇒ Integration with Bucknell Arboretum

- ◆ Benefit:
  - Increased support for sustainable landscape
  - Increased diversity of plantings
  - Possibility of themed and formal gardens
  - Connections to community
- ◆ Contacts:
  - Duane Griffin
  - Mark Spiro
  - John Testa

#### **IV. The Lewisburg Community Garden History and Scope:**

The Lewisburg Community Garden (LCG) was established in 2012 as a partnership between Bucknell University and the Borough of Lewisburg, Pennsylvania with the following goals.

- Increase access to fresh, healthy, locally-grown food, especially to the low income population of our region.
- Enhance awareness within the community of food insecurity and the need for nutritious options.
- Use the garden as a living classroom and laboratory for faculty and students to investigate issues related to agriculture, nutrition, food insecurity and ecological sustainability.
- Educate community members about home gardening benefits and techniques.
- Create opportunities for children to learn through active engagement in the garden.
- Create cooperative, multigenerational learning opportunities between campus and local community members.

#### **Overview:**

In the past six years, the LCG has achieved considerable success in its local food access programs, as well as its educational and community outreach efforts. The LCG benefits from the direct and active involvement of community members and students, staff and faculty from Bucknell. The LCG operates with a model that differs from most community gardens in that it provides not only individual rental plots, but also has a communal garden that relies on the efforts of volunteers, students and staff to grow produce for donation to local food banks and meal programs. The LCG is a teaching and research garden in which undergraduates at Bucknell University learn about issues of food insecurity and poverty in their local community while gaining hands on skills in organic horticulture, food production and meal planning and preparation. Student interns share their knowledge with adults and children through workshops and summer camps. Undergraduates and community members work side-by-side in the garden, on the board of directors and on fundraising activities. Along the way they gain important skills in communication, community organizing and organizational management.

In each of the past six years the LCG has improved in its ability to deliver on each of its goals and has become recognized as an important resource in promoting local sustainably grown food in the community and at Bucknell. Yet, the ability of the LCG to continue to expand its impact is limited by the physical size and location of the garden. The BUF would complement the work of the LCG and would allow Bucknell students, staff and faculty to work together with community partners in a professionally-managed horticultural operation to address local food insecurity and provide invaluable educational and research opportunities. Expansion of the LCG model to a university farm would also provide opportunities for positive residential life experiences and help to address environmental sustainability on campus.

#### **LCG physical space and organization:**

The garden is located on an approximately half-acre plot on the corner of N. Water St. and Saint Anthony St. in Lewisburg Borough. Approximately half of the land has been divided into 41 individual plots that are rented to community members and groups for \$20 per year. The other half is used as a communal garden consisting of annual and perennial vegetable beds, berries, herbs and flowers that is managed by LCG staff, student interns, work-study students and numerous volunteers from the community and university (See Appendix 3). During 2016 the communal garden harvested over 3,600 pounds of produce, worth nearly \$9,000, that was



donated to local hot meal programs through our partnership with the Community Harvest Hot Meal program in Milton, the First Presbyterian Church of Lewisburg and additional community partners (See Appendix 3).

The garden benefits from many Bucknell resources: the garden uses the Biology greenhouse to grow seedlings and Facilities provides mulch, compost, and assistance with some construction projects.

The LCG advisory board meets monthly and includes Bucknell students, faculty and staff, representatives of Lewisburg Borough Council and community organizations and local citizens. This group helps to guide the rental policies and programming at the garden and is involved in fundraising efforts to support garden operation.

### **LCG Staff and Student Interns:**

Bucknell University currently provides funding for the Assistant Director of Service Learning, who oversees the garden, along with partial funding of 1 fulltime VISTA and 2 seasonal fulltime AmeriCorps workers. Bucknell also designates funding for typically 3 – 4 summer interns to work in the garden and a summer stipend for a Biology professor who serves as a faculty-in-residence.

### **Connection to academic mission:**

The LCG has become an important educational and research facility by supporting a living-learning experiential environment through hands on management of the garden. A number of service learning courses in Biology, Management, Political Science, and the Social Justice Residential College program use the garden within their academic course work with the purpose of (a) applying the disciplinary theory to practice, (b) promoting an understanding of the course concepts within a broader context, and (c) cultivating a sense of civic responsibility.

Management 101 course has funded several innovative projects within the LCG. Each summer Bucknell funds three to five undergraduate interns who take part in faculty sponsored research, development and implementation of programming for day camps, garden maintenance, and preparation of fresh produce for delivery to regional meal programs. Upon graduation several LCG interns have gone on to careers or graduate study in sustainable food systems and public health.

-Engineering coursework and research – need description

-Examples of research projects from Biology interns – need description

### **Connection to civic engagement and community outreach:**

Community outreach and civic engagement are central to the mission of the LCG. Since its inception the LCG has worked to address local food insecurity by providing fresh organically-grown produce to local meal programs and by providing educational resources to children and adults on nutrition, gardening and ecology.

Most of the produce grown in the communal plot of the LCG is used to feed the approximately 100 patrons of Community Harvest, a weekly meal program in Milton that is operated by the Office of Civic Engagement. Additional food is donated to several other meal programs and food banks (see Appendix 3). In 2016 more than 3,600 pounds of produce, worth nearly \$9,000, was donated to these programs. The LCG has greatly increased the amount of produce grown each year (compare to 2,500 pounds in 2015) by improving its organization and through the use of advanced horticultural techniques.

Since its inception the LCG has worked with local agencies to provide summer camps. Student interns have been central to developing the curriculum and delivering the content. Last summer the LCG offered 13 summer camp sessions that served 78 K-12 students affiliated with the Buffalo Valley Recreation Authority, Essex Place and Meadow View low income housing complexes. The children who visit are highly diverse, including more than 20% from families where English is a second language and more than 50% at or below the national poverty level. The goal is to actively engage children in learning about healthy nutrition while empowering them to grow fresh produce their families otherwise could not afford with SNAP benefits. Additionally, Bucknell students and staff have worked with the garden club at the Donald H. Eichhorn Lewisburg Middle School to renovate and operate a school greenhouse and develop a gardening program.

Adults and families interested in gardening benefit from the LCG as plot renters, volunteers in the communal garden and as participants in workshops. LCG provides 41 gardening plots that are rented for \$30 annually including the cost of soil, mulch and water. Twelve raised-bed garden plots improve access for individuals with limited mobility. Since 2013 we have offered monthly workshops, based on community members' suggestions that have included a broad range of topics on gardening techniques, cooking and food preservation.

The LCG has become a key experiential educational and research space for Bucknell. A number of academic service-learning courses use the garden to apply the disciplinary material to the real world, promoting an understanding of the course concepts within a broader context, and cultivating a sense of civic responsibility. Students also contribute to the mission of the LCG through work-study, internships and community service.

The LCG is actively involved in developing a network of local community gardens to share knowledge and resources. Word has spread about the successful model of the LCG and assistance has been provided to emerging community gardens in Selinsgrove, Sunbury, and Williamsport.

**Connection environmental sustainability:**

- All produce grown using organic techniques
- Composting
- Local food reduces food miles
- Education on issues of sustainability helps students and youth become better stewards of the environment.

**Connection to residential life:**

- Many student groups including fraternities, sororities, clubs have volunteered at the garden.
- This creates a positive social environment for students working side-by-side with community members, staff and faculty.

**Limitations to the current LCG site:**

- Size is limited – could do much more research, teaching and generate more produce on a larger plot
- Horticultural operation is limited by the community nature of the garden... We cannot properly control for insects or rotate crops because we do not control what is grown in the individual plots
- No permanent structures are allowed at the LCG site. This limits hoop houses that are generally used for season extension and to protect against disease, insects and herbivores. This would

allow us to generate a greatly improved harvest and would be important educational, research opportunity for our students.

- BUF would allow for integration of renewable energy, such as solar and biogas.

- BUF would allow for composting of food waste and closing the nutrient loop.

- On-campus location would allow for greater participation by classes – reduced transportation time

## V. Benchmark study of farms / gardens at comparable colleges and universities:

In order to tackle the set of questions identified above and to move forward on developing a Bucknell University Farm, we felt that it was appropriate to identify comparable schools that had established farms or gardens that were incorporated into the core mission of the school. Our preliminary study identified a set of eight benchmark farms (Table I); Dickinson College and Middlebury College were identified as the most appropriate initial schools for this study. Provost Barbara Altmann generously provided funds to travel to these schools to carry out this study.

Table I: Farms at selected colleges and universities comparable to Bucknell.

Institution name	Approx. number of students	Year farm/garden founded	Paid Employees?	Acres devoted to food production	On campus?	Grow for dining services?#	Operates a CSA?
Allegheny	2000	2003	PT	½	Y	Y - Parkhurst	N
Bowdoin	1700	2004	FT - 1	1	Y	Y - Self	N
Carleton	2100	2002	N Student run	1.5	Y	Y - Bon Appétit	N
Davidson	1800	2008	FT - 1	3	Y	Y - Self	N
Dickinson	2300	2007	FT - 2	50@	N (7 miles)	Y - Self	Y
Kenyon	1700	2012	FT	10	N (2 miles)	Y - Self	Y
Middlebury	2500	2002	FT	2	Y	Y - Self	Y
Oberlin	2800	1998	Y*	4	N (1 mile)	Y - Self	Y

# - Self = University administered dining service, Bon Appétit and Parkhurst are dining service providers.

@ - Dickinson College Farm has a total of 50 acres much of which is pasture for meat production, approximately 12 acres is devoted to vegetable production.

\* - Oberlin's George Jones farm is an independent non-profit organization

## **IV. a. Dickinson College Farm – Benchmark Report:**

Mission: “To inspire responsible land stewardship through the study of the earth’s natural processes and demonstrate the science, practice and culture of sustainable food production.”

**Overview:** Dickinson College maintains a 50 acre, USDA-certified organic, diversified farm located approximately 7 miles from campus. The farm currently in its 10<sup>th</sup> growing year produces vegetables (approx. 10 acres), beef, lamb, chickens, eggs and honey and is staffed by two full-time farmers, five graduate apprentice interns and student employees (18 part-time student employees during the school year and 6 full-time student employees in the summer). The farm is supported through a 155-member CSA (campus supported agriculture) and by sales to Dickinson College dining services (self-operated) and at the Carlisle farmers’ market. While the Dickinson College Farm is a highly efficient agricultural operation, the primary mission is to provide valuable educational and internship opportunities for students to work with their hands and engage the local community as they learn about sustainable food production.

### **Academic Mission:**

- Dickinson College Farm hosts dozens of classes each semester in the natural sciences, social sciences and humanities. In 2015 the farm hosted 464 students in classes as diverse as Art History, Japanese, Creative Writing, Economics, Sociology, Environmental Studies, Chemistry and Biology.
- An interdisciplinary Food Studies Certificate program has recently been formed that has as one of its goals to integrate the Dickinson College Farm into student learning through coursework and research at the farm.
- The ‘Food for Thought’ lecture series has sponsored celebrity chef and James Beard Foundation's 2012 award recipient, Hugh Acheson, and Raj Patel scholar and author of *Stuffed and Starved: The Hidden Battle for the World Food System*.
- Student workers and apprentices are trained in agriculture and horticulture. The apprentices are recent grads that stay typically for one year, but sometimes two years. The apprentices go on to take on jobs in agriculture and food.

### **Civic Engagement and Community Outreach:**

- Dickinson College Farm has developed several educational programs in which undergraduates work with local youth to promote nutrition and sustainable agriculture.
  - Farm, Cook, Eat is a free after-school program for Elementary school students to learn to make healthy foods from produce grown on the farm.
  - Sustainable Earth Education (SEED) is an on-farm educational program that engages local school children in agriculture and food production.
  - Dickinson College Farm students have helped to secure funding for and worked closely with the local non-profit organization, Leadership Education and Farming (LEAF) that provides paid summer internships for a diverse group of local teenagers who apprentice with farmers, chefs and local food relief programs while learning about sustainability, leadership and local food systems.
- The farm regularly hosts student clubs and volunteers. Through the student organization GATHER, students combine interests in business management, arts and sustainable

agriculture as they help to organize, plan and execute monthly “pop up” farm to table meals in collaboration with local chefs that feature seasonal produce from the farm. The Education and Outreach Coordinator has established connections with community members and facilitated field trips and activities for student groups such as Students Interested in Sustainable Agriculture (SISA).

- For the past 13 years, the farm has collaborated with student organization SISA to organize annual Local Food Dinner that brings together College and community members to celebrate and promote local sustainably-raised foods. Each dinner has hosted speakers who are prominent writers and activists within the local food movement.
- Additionally, SISA and the Farm collaborate to host an on-farm Harvest Fest on Homecoming Weekend that draws over 900 attendees.

### **Environmental Sustainability:**

- Dickinson College Farm plays an important role in helping Dickinson College meet its sustainability goals. The farm provides over half of the vegetables used by the college food services having an important impact on the carbon footprint of the college and producing highly nutritious locally produced foods. The farm each day composts over 780 pounds of food waste and compostable food service packaging from campus closing the nutrient cycle by forming compost that is used as a soil amendment on the farm.
- Additional environmental sustainability initiatives on the farm include:
  - Biogas, generated from food waste and manure, is used for cooking and to heat the greenhouses and farm buildings.
  - Biodiesel, made on the farm, almost entirely powers the farm equipment
  - Solar panels subsidize electric use for farm buildings.
  - The farm collaborates with the Chesapeake Bay Foundation and the Bureau of Forestry, Natural Resource Conservation Service (NRCS) on silvopasture and agroforestry system research projects that help to maintain a high level of biodiversity and limit soil erosion and nutrient pollution from the farm.
  - The design of the farm leaves a significant portion as woodland and several student projects have been undertaken to enrich the biodiversity of the farm in order to allow for study of, for example, reptiles, amphibians, birds and insects for coursework and research.
  - Certified USDA organic.

### **Residential Life:**

Many events are sponsored by the farm that provide healthy recreational and social opportunities for students. “Farm Frolic” events feature live music, games and farm grown food and plein air painting. “Farm Yoga” gets students into the fresh air and away from campus for rejuvenation. The yearly “Harvest Fest” celebrates the autumnal equinox on a Friday evening with live music and dancing and farm grown and locally-produced food.

**Budget:**

- In fiscal year 2015, the farm generated revenue of \$165,000 with 75% coming from CSA, sales at the farmers' market and sales to the dining hall.
- Dickinson College Farm contracts with the self-operated Dickinson College Dining Services to provide 20 different crops including salad mix, tomatoes, summer squash, lettuce, peppers and zucchini for a total of \$34,450 as well as \$3,000 in beef in 2015. The Farm estimates that The College Farm saved the Dining Hall \$4,312.36 in 2015 compared to the average wholesale certified organic price, while providing extremely local freshly harvested products grown by Dickinson students.
- I was not able to get a full accounting of the budget for the farm, but through conversations with the Matt and Jenn I learned that the revenue from the farm is subsidized through funds from Dickinson College that cover staff salaries and benefits as well as maintenance of farm house and student housing, utilities, administrative costs and vehicle maintenance.
- Dickinson College Farm has obtained some funding from the following agencies
  - PA-DEP – Composting Infrastructure
  - Keystone Innovation Zone
  - NCRC of USDA for greenhouses

**Comparison to Bucknell:**

- Dickinson College Farm is much larger than Bucknell would likely be able to support, in terms of acreage, facilities, production and staffing. Dickinson sells much of its produce to the local community through its CSA and stand at the farmers' market. Over the past two decades Lewisburg has progressively developed a vibrant local food system including a number of CSAs and organic farms. We would not want to compete with these farms.
- The Dickinson model works well and shows the necessity of full time farm staff to manage the day to day and seasonal growing operation, academic connections and programming within the garden.
- Bucknell could greatly benefit from a model of horticultural training that is employed at Dickinson. The highly-experienced full time farm staff trains students over several years as employees during the academic year and the summer and ultimately through apprenticeships for those students interested in careers in sustainable agriculture, food systems and policy.
- Bucknell in many ways is already ahead of Dickinson College in terms of engaging the community through the activities of the Lewisburg Community Garden and associated meal programs, particularly the weekly Community Harvest dinner in Milton. Bucknell students are engaged directly addressing food insecurity from seed to plate and have direct interaction with patrons of meal programs. The food security issue is a central focus of the Bucknell's mission, where it appears to be more peripheral at Dickinson.

## **IV. b. Middlebury College Organic Farm– Benchmark Report:**

“This is not about growing vegetables. It’s about growing people.” Jay Leshinsky – MCOF Farmer

### **Overview:**

Middlebury College Organic Farm (MCOF) is located on a two-acre plot on a knoll at the edge of campus tucked into an expanse of preserved land and recreation paths. The farm, established in 2002, places more emphasis on aesthetics and holistic well-being than production. The farm employs agroecology and uses many native trees, shrubs and perennials within its design that blend into the surrounding natural areas. The half acre of vegetable beds are not organized into a conventional grid; but instead radiate out in a starburst pattern. Students regularly stop by to meditate on the marble bench (blessed by the Dalai Lama when he visited) or simply to enjoy this oasis. Over its 15 years MCOF has become highly integrated into the academic and residential life and is well regarded by students and faculty. In 2016 MCOF grossed \$8,000 in sales of vegetables and honey to Middlebury College dining services and select restaurants. The horticultural operation is managed by a full time farmer, Jay Leshinsky, who has decades of experience in organic agriculture and has connections to farmers throughout New England. The integration of academics and student-life are facilitated by Sophie Esser-Calvi, the associate director of Global Food & Farm Program, who was instrumental in developing the Food Studies minor and the Food Works summer internship that both grew out of the farm.

### **Academic Mission:**

MCOF is integrated into courses by faculty across the college. While many of the classes focus on food systems, sustainability and the natural environment I was impressed by the range of creative academic connections to the farm. For example, a psychology professor uses MCOF to study the impact of time spent in a nature on human behavior and mental health. A dance professor regularly creates choreography and gives performances at the farm. Several courses focus on the intersection of food and culture; the college has been a member of Slow Food International since 2007. The farm frequently hosts slow food dinners with an emphasis on celebrating and preserving the diverse cultural traditions of world cuisine with food produced in a sustainable and ethical manner.

I had a chance to talk to Professors from Biology, Environmental Studies and Psychology. Each of them have been using the garden in their classes for several years and they indicated that the proximity of the farm and the ability to work closely with the farmer were important.

- MCOF hosts courses within the following departments Art and Architecture, Biology, Dance, Environmental Studies, Food Studies, Geology, Geography, Italian, Physics, Psychology and Religion
- MCOF is used frequently for summer research project by students in Biology, Environmental Studies and Geography and have recently included projects related to pollination, carbon sequestration and GIS mapping. Farmer Jay works closely with these faculty members and students to understand their research questions and to provide the needed space and resources. I had a chance to speak to a summer intern who was carrying out an agroecology research project on the effect of agricultural practices on symbiotic soil fungi.



- The Middlebury College School of the Environment summer program has used the farm to hold its opening ceremony for several years that incorporates planting of native fruit trees.
- The FoodWorks Summer program, which grew out of the academic programming at MCOF, attracts students from across the country and places them in internships in Washington DC, Louisville KY and Vermont. Participants gain hands-on agricultural skills four days a week and participate in a food studies curriculum on the fifth day, focused on the sustainable production and equitable distribution of safe, nutritious food.

### **Civic Engagement and Community Outreach:**

MCOF has been a valuable connection between academic and civic engagement goals facilitating projects related to food security, farm to school programs and connections with the vibrant food and agriculture network in Vermont.

- The summer internship program connects students with organic farmers from across Vermont to build connections and provide horticultural training.
- Students and farm staff have worked with colleges and schools across the region to develop their own farms and gardens.
- While most of the food grown at MCOF is used in the dining program, a small portion is donated to the H.O.P.E. food shelf in Middlebury. This provides exposure for students to the issue of food insecurity within their community.

### **Environmental Sustainability:**

Middlebury College has placed environmental sustainability at the forefront of its mission as exemplified by its [5<sup>th</sup> place ranking](#) on AASHE's Sustainable Campus Index recent accomplishment of reaching [carbon neutrality](#). MCOF plays an important role in sustainable operations and in integrating sustainability into the curriculum.

- As part of their Local Food initiative, Middlebury College currently purchases approximately 1/3 of the food for their dining program within a 250-mile radius. The local food initiative grew out of MCOF when farm interns and a Geography faculty member carried out research to [map](#) the source of all food used in the dining services.
- MCOF uses organic practices and grows food that is used within the dining program, reducing food miles and embodied carbon.
- Middlebury College has worked with local conservation groups to maintain preserved open land to increased biodiversity and to provide a trail network for recreation and transportation around the town and campus. MCOF is within a preserved parcel at the edge of campus and is integrated into the trail network.
- To promote biodiversity and beneficial insects MCOF has devoted space to wildflowers and native trees and shrubs.

### **Residential Life:**

MCOF has a strong and positive connection to student life. The farm is used broadly by student groups as a place to gather or to volunteer. The students who I met indicated that the garden was seen as a restorative location for contemplation, meditation and connection to nature.

- The farm is used regularly for meditation and yoga by individuals as well as groups. Many of the people I talked to described the garden as a peaceful and spiritual location, particularly a marble bench that was blessed by the Dalai Lama during his visit.

- A special interest house – Weybridge House has each year used the farm to grow food for meals focused on local eating within 100-mile radius.
- Student groups regularly volunteer at the farm providing a valuable recreational and social opportunity.
- Spring planting and fall harvesting festivals are held yearly and typically draw upwards of 200 students, staff and faculty.

#### **Staffing:**

- Jay Leshinsky – Full time farmer
- Sophie Esser-Calvi – Associate Director Global Food & Farm Program
- Typically the garden has four or five student interns each summer who work for 14 weeks.
- The farm is administered through the Global Food & Farm Program as part of the Franklin Environmental Center, which is directed by the Dean of Environmental Affairs who reports to the Vice President for Academic Affairs.

#### **Facilities:**

- Outdoor classroom/shade house constructed by students from locally sourced lumber.
- Tool shed
- Unheated greenhouse
- Post-harvest processing must be taken off site done at Dining services.
- The farm lacks plumbing and supports only minimal electrical loads limiting the activities possible

#### **Budget:**

- \$8,000 in annual sales of vegetables and honey to local restaurants and MC dining services covers supplies for the garden.
- Jay's salary is paid by an endowment resulting from an alumni gift to the farm.
- Sophie is a regular salaried staff member within the Global Food & Farm Program.

#### **Comparison to Bucknell:**

- MCOF is a particularly good model for academic engagement with a farm at a liberal arts college. Despite its rather small size the farm is extremely well received by faculty across campus and is very actively used in coursework and research. This farm shows the advantages of a campus location and a farmer who has many years of experience and who is in equal parts educator, mentor and horticulturalist.
- While MCOF is a relatively small farm located adjacent to campus, it is located within a larger preserved space that gives a feeling of being apart from campus. MCOF is an idyllic, peaceful and aesthetically pleasing refuge that is an important part of student life. Middlebury College has done an excellent job of preserving open space at the edge of their campus creating valuable opportunities for recreation, research, nature watching and contemplation. Such a space would be well received by the Bucknell community.
- MCOF is able to contribute significantly to the college dining program even though they have only a half acre of vegetable production. To significantly contribute to the dining program at Bucknell, it would be better to have at least 2 acres in cultivation.

- It is clear that MCOF would benefit from additional permanent structures, particularly a heated greenhouse and a packing house and kitchen that could be used for teaching.
- Middlebury has not made particularly great efforts at using its farm for civic engagement an area in which Bucknell has already focused great efforts through direct engagement of students in meal programs that address food security as well as summer camps and workshops.

## **Appendix 1:** Summary of questionnaire responses from faculty and staff

In response to a December 2015 message center request for feedback on the interest in a university farm we received 47 responses. There is much support for the development of a university farm among faculty and staff.

### Number of responses by division or unit

• Arts and Humanities	9
• Natural Science, Math	7
• Social Sciences	16
• Management	2
• Engineering	7
• Student life	5
• Facilities	1

The following list is an attempt to summarize the most common responses from faculty and staff as to the benefits of a university farm in approximate order of frequency of response. This list is a broad summary and does not convey the complete set of responses or the nuances of the ideas that were communicated.

- Connections to course material – almost every faculty member who responded had one or more courses that would benefit from a farm, several dozen courses in total.
- Opportunities for research – faculty from across the university expressed interest in using a university farm for student research or for their own scholarship.
- Opportunities for service learning and connection to the local community
  - Support of local meal programs and food bank
  - Developing a network of local community gardens to provide technical and logistical support
  - Growing food for Bucknell dining services
- Campus sustainability
  - Reduced waste through composting of food
  - Increased biodiversity, healthy ecosystem
  - Potential for alternative, renewable energy
  - Helping to meet university climate commitment.
- Social justice – addressing/understanding local food insecurity, food deserts
- Connection to nature – aesthetic, spiritual, health and well being and educational values
- Connections to local agriculture
- Positive social opportunities – interactions between students, faculty, staff – positive impact on campus climate
- An opportunity for student involvement in managing the farm as an organization
- Intrinsic value of working with one’s hands and directly contributing to food production
- As a place for creative and artistic expression
- As a tool to increase our educational outreach to local children and families
- Connections to traditions and religious practices that are rooted in agriculture
- Residential College involvement

**Appendix 2** –Bucknell University Farm *Ad Hoc* Committee

**Faculty** –Phillip Asare, Chris Camuto, Amy Golightly, Emma Gaalaas  
Mullaney, Mark Spiro

**Staff** – Shauna Barnhart, Kyle Bray, Mike Hackenberg, Susanna Jackson, Rebecca Meyers,  
Merritt Pedrick, Lori Wilson,

**Students** – Seneca Burgess-Norman, Caroline Kunkel, Jordan Sneed, Avery Snyder

**Appendix 3 – Summary of Lewisburg Community Garden Activities (Updated October 2016)**

2015 Lewisburg Community Garden Statistics

**Total pounds of produce harvested – 2,507 lbs.**

**Estimated market value of produce harvested - \$6243.79**

**Total Number of Classes, Programs and Community Organizations Impacted – 20**

**Total number of Bucknell student volunteers – 170**

**Total number of Bucknell student volunteer hours - 407**

**Total number of community volunteers – 20**

**Total number of community volunteer hours – 128**

**Total number of volunteers – 190**

**Total number of volunteer hours – 535**

Recipients of Donated Produce

1. Community Harvest
2. Lewisburg Food Bank
3. Dinner On the River
4. Haven Ministries
5. Christ Wesleyan Church
6. Milton Developmental Services

Bucknell Classes and Programs Impacted

1. Professional Development Week – 5 faculty/staff
2. Building On Foundations – 24 students
3. Grand Challenge Scholars Program – 2 students and 1 faculty
4. Imagining Sustainability course – 34 students and 2 faculty
5. Entomology course – 15 students and 1 faculty
6. Plant Growth and Development, BIOL 316, 3 sessions of 12 students and 1 faculty
7. Resident Assistant Resource Training – 3 sessions with a total of 45 students
8. Foundation Seminar – 23 students

Community Programs Impacted

1. Garden Enrichment Series – 6 sessions held with a total of 35 attendees
2. Meadow View Housing Complex – 3 garden visits with 13 K-12 students and 3 family members
3. Essex Place Housing Complex – 3 garden visits with 12 K-12 students and 6 family members
4. Buffalo Valley Recreation Authority Summer Camp – 3 garden visits with 12 K-12 students
5. Buffalo Valley Recreation Authority Locavore Camp – 1 garden visit with a total of 8 children
6. Lewisburg High School Volunteer Day – 1 work session with a total of 7 students
7. Girl Scouts of America – 3 garden visits with a total of 6 scouts

Special Events

1. Spring Plant Sale – More than 2,000 plant starts sold
2. Locavore Dinner – 31 Bucknell faculty and staff, 20 community members

## 2016 Lewisburg Community Garden Statistics

\*2016 season is not yet complete – these statistics cover Spring 2016 and Summer 2016, but do not contain Fall 2016 information\*

**Total pounds of produce harvested – 3,470 lbs.**

**Estimated market value of produce harvested - \$8484.20**

**Total Number of Classes, Programs and Community Organizations Impacted – 30**

**Total number of Bucknell student volunteers – 97**

**Total number of Bucknell student volunteer hours - 610**

**Total number of community volunteers – 27**

**Total number of community volunteer hours – 229**

**Total number of volunteers – 124**

**Total number of volunteer hours – 839**

### Recipients of Donated Produce

1. Community Harvest
2. Lewisburg Food Bank
3. Dinner On the River
4. Haven Ministries
5. Christ Wesleyan Church
6. Milton Developmental Services
7. St. Pius Church
8. Buffalo Valley Recreation Authority
9. Essex Place Housing Complex
10. Meadow View Housing Complex

### Bucknell Classes and Programs Engaged

1. Professional Development Week – 4 faculty/staff
2. B-LINC (Pre-Orientation) – 26 students
3. Grand Challenge Scholars Program – 1 student and 1 faculty
4. Biology 131 – The Biology of Food – 17 students, 1 faculty, 6 sessions
5. Electrical and Computer Engineering 347 – 3 students, 1 faculty
6. Civil and Environmental Engineering 340 – 4 students, 1 faculty
7. Social Justice Residence College – 14 students
8. Resident Assistant Resource Training – 38 students, 1 session

### Community Programs Impacted

1. Garden Enrichment Series – 5 sessions held with a total of 28 attendees
2. Meadow View Housing Complex Summer Camp – 3 garden visits with 16 K-12 students
3. Essex Place Housing Complex Summer Camp – 3 garden visits with 17 K-12 students and 3 family members
4. Buffalo Valley Recreation Authority Summer Camp – 6 garden visits with 23 K-12 students
5. Buffalo Valley Recreation Authority Locavore Camp – 1 garden visit with 12 children
6. Lewisburg High School Volunteer Day – 1 work session with 7 students

7. Girl Scouts of America – 4 garden visits with 18 scouts
8. Meadowbrook Christian School Class Project – 1 class visit and 1 garden visit with 16 students
9. Boy Scouts of America Eagle Scout Project – 3 planning sessions and one work session, with 5 scouts, 6 K-12 students, and 4 parent volunteers
10. Danville Community Garden – Consultation visit and follow-up assistance with the Danville garden manager, providing advice on how to strengthen their program
11. Milton Community Garden – Consultation visit and follow-up assistance with a team of people wishing to start a community garden in Milton
12. RiverWoods Assisted Living Facility – Consultation visit and follow-up assistance with a team of people wishing to start a community garden at the RiverWoods facility
13. Homeschool Student Project – 2 K-12 students

#### Special Events

1. Spring Plant Sale – More than 2,000 plant starts sold
2. Locavore Dinner – 34 Bucknell faculty and staff, 18 community members



**Appendix 4** –Possible sources of grant money from foundations and agencies (this is only a partial list – further research needs to be done to find additional sources of funding)

- ❖ **Chesapeake Bay Trust:** The Trust's grant-making strategies are shaped by three core objectives; environmental education, demonstration-based restoration, and community engagement. We look to these objectives as basic touchstones for developing our grant programs, engaging new partners, and communicating about our work. In 2015, the Trust awarded \$9.8 million in grants to hundreds of organizations. These awards, spearheaded by grassroots nonprofits, schools, community groups, and others dedicated to creating environmental stewards and committed to restoring the health of their local waters and the Chesapeake Bay.
- ❖ **NRCS (Natural Resource Conservation Service)** of the United States Department of Agriculture
  - EQIP (The Environmental Quality Incentives Program) provides financial and technical assistance to agricultural producers in order to address natural resource concerns and deliver environmental benefits such as improved water and air quality, conserved ground and surface water, reduced soil erosion and sedimentation or improved or created wildlife habitat.
- ❖ **Pennsylvania Department of Environmental Protection**
  - EEGP (Environmental Education Grants Program) supports innovative projects that increase public education and knowledge about environmental issues, within the areas of climate change, water quality and environmental justice.
  - PEDDA (PA energy development authority) provides grants, loan guarantees for alternative energy projects and related research referring to deployment projects, manufacturing or research involving the following types of fuels, technologies or measures: solar energy; wind; low-impact hydropower; geothermal; biologically derived methane gas, including landfill gas; biomass; fuel cells; coal-mine methane; waste coal; integrated gasification combined cycle, and; demand management measures, including recycled energy and energy recovery, energy efficiency and load management.
  - NSIP (Nonpoint Source Implementation Program) provides funding to assist in implementing Pennsylvania's Nonpoint Source Management Program, including agricultural projects.