



The Dickinson College Farm

2018 ANNUAL REPORT

Dickinson 
COLLEGE FARM

We welcome any questions or requests for additional information and encourage you to stay updated on farm events and happenings by following our blog, liking our page on Facebook, or following our Instagram account.

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“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.”

The staff at the College Farm invite you to review some of our accomplishments over the 2018 calendar year.

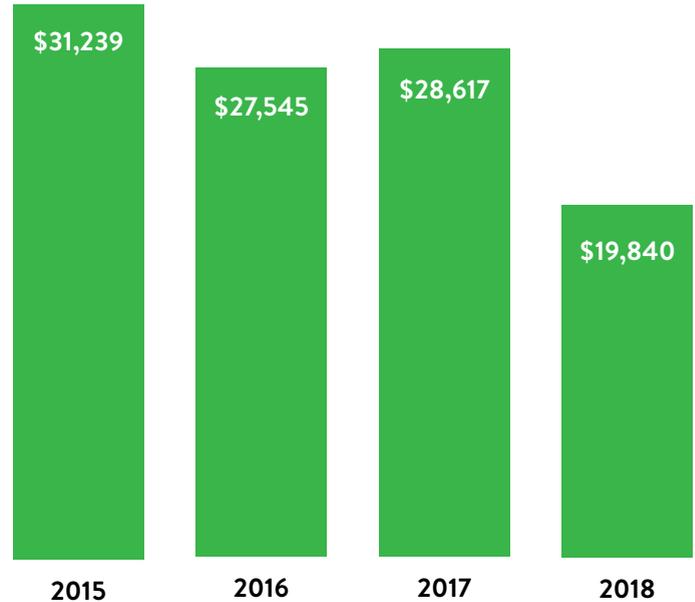
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Farm Production Highlights

Despite experiencing one of the worst farming seasons on record, the College Farm managed ten acres of certified organic vegetable production from May until December in 2018. Determined and hard-won efforts by College Farm staff, apprentices, and students **supplied 125 CSA members with 30 weeks of farm-raised vegetables, in addition to ample produce and pizza ingredients for farm sales both on campus and at Farmers on the Square.** However, produce sales to the Dining Hall in 2018 remained shy of annual production goals. Although the College Farm maintains its Certified Organic label, it remains committed to selling our high-quality produce to the Dining Hall at the conventional market price resulting in significant institutional savings.

One highlight worthy of touting includes **donating 4,227 pounds of fresh produce to Project S.H.A.R.E.** over the course of the 2018 growing season. Please see this chart for additional production highpoints from the 2018 vegetable fields.



ANNUAL VEGETABLE SALES TO DINING HALL

2018 VEGETABLE FIELD PRODUCTION HIGHLIGHTS

CROP	UNIT	TOTAL HARVESTED
TOMATO, SLICERS	LBS	13,975
TOMATO, CHERRY	PINTS	928
CARROTS	LBS	5,387
CUCUMBER	LBS	8,882
KALE	BUNCHES	2,368
POTATOES	LBS	3,550
CABBAGE	EACH	1,694
DILL PICKLES	JARS	82
MARINARA SAUCE	JARS	82
MARKET PIZZA CRUSTS	EACH	1,777

A SUMMARY OF SPECIFIC DINING HALL VEGETABLE PURCHASES FROM THE COLLEGE FARM

CROP	TOTAL 2018 PURCHASES DURING GROWING SEASON	UNIT	CASES-DCF	CASES-OTHER
BEETS, FRESH	30	LBS	18	12
BROCCOLI CROWNS	190	LBS	5	185
CABBAGE GREEN	17	LBS	9	8
CABBAGE NAPA	7	LBS	9	8
CANTALOUPE, FROZEN	277	LBS	ALL	0
CARROTS, FRESH JUICING	415	LBS	ALL	0
CARROTS, FRESH	218	LBS	55	163
CAULIFLOWER, FRESH	90	LBS	0	90
CUCUMBERS	40	LBS	16	24
FRISEE	174	LBS	18	156
KALE	93	BUNCHES	55	38
LETTUCE GREEN LEAF	51	HEADS	9	42
LETTUCE ROMAINE	28.5	HEADS	5.5	23
LETTUCE ROMAINE, CHOPPED	183	LBS	73	110
LETTUCE, SPRING MIX	829	LBS	318	511
PEPPERS GREEN, SLICED	42	LBS	0	42
PEPPERS GREEN, WHOLE	56	LBS	0	56
PEPPERS, SLICED FRESH	94	LBS	94	0
POTATO C RED	74	LBS	2	72
POTATO SWEET, ANY	26	LBS	26	0
POTATO C GOLD	27	LBS	6	21
SCALLIONS	34	LBS	11	22
SPINACH, BABY	1012	LBS	99	913
STRAWBERRY, FROZEN	380	LBS	ALL	0
SUMMER SQUASH	13	LBS	0	13
TOMATO, CHERRY	46	PINTS	20	26
TOMATO, GRAPE	27	PINTS	7	20
TOMATO, PLUM	8	LBS	0	8
TOMATO, SLICER	218	LBS	144	74
TURNIPS	42	LBS	14	28
WHEATGRASS	84	FLATS	14	28
YAMS	3400	LBS	0	68
ZUCCHINI	57	LBS	1	56



Currently, the farm livestock operation manages 35 beef animals (13 calves born during 2018), 37 sheep (18 lambs born), and about 70 laying hens. Beef sales to Dining Services totaled \$3361 for 2018, just shy of 15% of total farm sales to campus. Farm beef and lamb were also served at many of the College Farm's events like Harvest Fest (100 lbs. hamburgers), GATHER dinners, and as toppings at pizza events throughout the year on campus and at farmers' market. The recent donation of a gas-grill has prompted farm staff to consider integrating value-added sales of grilled burgers, sausages, and kababs at future events—another great opportunity for program exposure and increased revenue!

In 2018, the farm launched the Meat Club—a discounted buying program somewhat like a CSA. The first year of Meat Club was a big success with over 25 families participating and a noted increase in retail sales over the previous year. Dickinson Dining Services buys bulk ground beef, roasts, and beef cubes for student meals periodically—we work with the chefs to plan our butchering to meet their needs. Custom tanned lamb hides and custom spun yarn from our wool, as well as soap made from rendered animal fat continue to diversify farm product offerings sold throughout the course of the year. Most popular are the farm's holiday gift boxes.

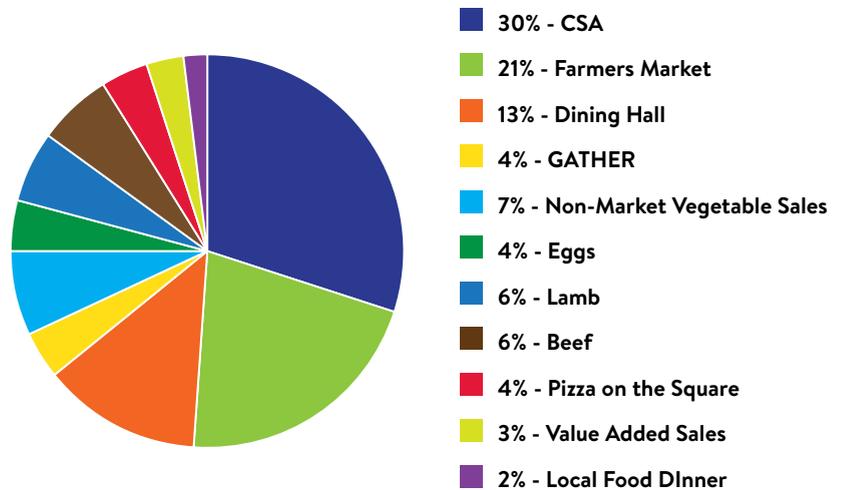
During the 2018 holiday season more than 150 boxes were sold. Gift box options included Kosher Dill Pickles, 7-Day Sweet Pickles, Zucchini Pickles, Garlic Scape Relish, Pizza Sauce, Red Devil Hot Pepper Sauce, Pickled Red Beets, Salsa, Marinara Sauce, Grass-Fed Tallow Bar Soap, Farm Grown Loofah, Felted Wool Angel Ornaments and Beef Jerky—all items produced with the help of students at the College Farm.



Over the 2018 calendar year, college farm staff and students collected 27 tons of food waste generated through dining services eateries and campus residence halls. On average, each day 695 pounds of food waste was added to compost piles at the College Farm. The result of actively managing the addition of food waste materials to stockpiled leaves and woodchips is finished compost, a key soil amendment applied to crop production fields each year. In addition to adding food waste to compost piles, a portion is diverted to the farm's biogas project. Learn more on page 11 under "Energy Projects".

The College Farm closed out the 2018 calendar year with total revenue of \$153,325—this was \$14K below 2017 revenue. This decrease was due to the challenging growing season we experienced in Central Pennsylvania in 2018. Despite this slow start, we remain on track to meet our fiscal year goals. Here is a snapshot of our revenue sources and percentage breakdown in each category.

2018 COLLEGE FARM REVENUE PERCENTAGES



Farm Personnel

2018 was a year full of personnel transitions and we are thrilled with how the College Farm Team has taken shape.

Margaret McGuirk joined the College Farm as the 2018-2019 Education and Outreach Coordinator. This one-year post-baccalaureate position provides the unique opportunity to a recent Dickinson graduate to develop professional skillsets in educational programming, project oversight, and communications within the context of campus sustainability through the lens of food and agriculture. Updates on Margaret's efforts can be found in this report under "Education and Outreach" on page 9.

In the fall of 2018, the farm welcomed Jenn Wolf as the new Packing House Coordinator. Jenn brings with her a great attitude and strong work ethic. With Jenn at the helm in the Packing House, our veggies and customers are well taken care of. And rounding out the 2018 calendar year was the addition of a new full-time, farm-based staff position. At the start of January, the College Farm welcomed Will Nelson, our new Vegetable Production Manager. For more information on our farm crew, [please click here](#).

One might ponder how the new farm staffing structure will take shape starting in 2019. For starters, there are new titles to share. In addition to Will assuming the role of Vegetable Production Manager, Matt Steiman will continue to take the lead on the livestock and renewable energy projects as the farm's Special Projects Manager. In this capacity, Matt will also oversee the farm's database systems, workshop, and machine maintenance needs, all the while assisting with student employee management and mentorship.

Jenn Halpin will use 2019 to transition from full-time vegetable production to new roles as the Director of the College Farm. Jenn will serve as the farm liaison for field-based research with faculty and students, as well as external organizations like the [Rodale Institute](#) and [Pennsylvania Association for Sustainable Agriculture](#). She will also continue to assist with student and apprentice training and mentorship plus further develop farm-based seed saving and plant breeding projects, as well as other educational hubs at the farm. Additionally, Jenn will be teaching more classes, mainly through the Food Studies Certificate program and Sustainability Course offerings.

As the Vegetable Production Manager, Will will oversee all aspects of the farm's vegetable production, aiming to meet crop goals set for 2019 and amply supplying our CSA program, farmers' market stand, and accounts with Dining Services!

Another exciting addition to the farm personnel team is the recent arrival of Kelsey Horowitz ('18). Kelsey is returning to the College Farm as our 2019 Second Year Apprentice. With one apprentice season behind her, Kelsey looks forward to sharpening her skillsets with staff management, greenhouse supervision, and assisting with scouting and bio-controls among many other projects we have lined up for 2019.

2018 Research and Partnerships

2018 included a range of collaborative research with faculty, students, and outside entities like the Pennsylvania Association for Sustainable Agriculture (PASA), the Rodale Institute, and [Marrone Bio Innovations](#).

The College Farm continues to participate in the statewide soil health benchmark study, a citizen-science research project led by Pennsylvania Association for Sustainable Agriculture (PASA). The College Farm is one of fifty farms across the Commonwealth and tristate region participating in this long-term project aimed at tracking soil management practices relative to soil health over time.

Over the course of 2018 collaborations with the Rodale Institute on on-farm soil health and management monitoring included a season-long side-by-side field trial of reduced tillage management strategies including roll-down cover crops and strip tillage systems using forage radishes compared against regular tillage practices on the farm. Additional research opportunities with Rodale have been funded for 2019 and 2020.

Additionally, this summer the farm conducted a tomato foliar disease management trial in conjunction with organic products company Marrone Bio Innovations. This study compared three different management protocols plus a control in a randomized, replicated block arrangement. A detail-oriented student and apprentice gained practical field research experience by managing control measures, harvests, data collection and analysis under the direction of project director Steve Bogash (formerly of Penn State Extension). In addition to funds to support labor used on the project, the farm gained public exposure through a public summer field day and will be featured in outreach materials used by Marrone to share results of the project.

Student-faculty research projects in 2018 included a summer CSE supported a student-faculty research project on increasing biogas utilization and efficiency at the farm. Max Lee '19 (Environmental

Science, Biology) co-wrote the grant application with Matt and performed most of the work on the project over the summer. Notable activities included bringing the second pilot digester online, upgrading infrastructure, collecting gas production, digester health, and gas quality data, developing novel gas utilization equipment (including a steamer for potting soil sterilization) and building infrastructure for a gas pipeline across the farm. Max also conducted a compost research trial and plant bioassays using digester effluent as a nutrient source. He has continued into the fall, using plant materials collected from the bioassay as subject matter for advanced chemical analysis under the guidance of Professor St. Angelo (Chemistry), and conducting cucumber germination tests in the compost generated in his summer study.

The farm also conducted a summer study of fly parasites on pastured beef cattle, funded by the USDA Sustainable Agriculture Research and Education program. Visiting Professor Jason Smith (Biology), Cecilie Macpherson '20 (Environmental Science), and Matt collaborated to assess the impact of dragging pastures after grazing on reproduction of parasitic flies in cow manure. In addition, Cecilie compiled fly related cattle behavior data using photographs and field observations. The results of this study will be submitted for publication and will feature in a presentation at the 2019 Farming for the Future (PASA) conference in Lancaster.



2018 Academic Collaborations

In cooperation with the Center for Global Studies, Jenn successfully developed an exchange program with the [Arava Institute](#) in Israel whereby one student with expressed interest in sustainable agriculture will have the opportunity to study at Dickinson for the 2019 spring semester followed by a summer internship at the College Farm. Additionally, the farm received approval for its Globally Integrated course scheduled for the fall of 2019 with travel to Israel in January 2020. The course will compare food and energy innovations between the U.S. and Israel.

Closer to campus, the farm received approval for three summer courses, two of which will be taught in 2019. The courses will earn students credit in Environmental Studies, Anthropology, and/or Food Studies. Matt and Jenn will serve as the instructors for the newly created summer courses. Here is a sneak peek at the 2019 farm-based summer courses:

RENEWABLE ENERGY FIELD COURSE

This course will cover the rationale, science, and practical implementation of renewable energy technologies available for use in residential, business, and developing world applications, including solar electric, solar thermal, biogas, biodiesel, wind, and micro hydro systems. Curriculum will include readings, lectures, and exams combined with field trips and hands-on labs focused on designing, developing, and testing small-scale renewable energy projects.

FOOD SYSTEMS EXPLORATION: INTRODUCTION TO SUSTAINABLE AGRICULTURE

This course aims to provide students with a full-spectrum experience in what it means to be a farmer and consumer in the 21st century. Students will explore the theories and practices of sustainable food production plus learn about the issues facing farmers and consumers, from field to farmers' market. The curriculum will include readings, lectures, and exams along with hands-on experience in food production, field-based research labs, and field trips.

The College Farm remains an active partner with faculty on course development and class support. For a full list of faculty and classes that utilized the array of resources available at the College Farm, [please click here](#). In addition to supporting Dickinson academic departments, the College Farm continues to serve as a resource for peer institutions within the region.

Education and Outreach

One of the College Farm program's strengths is in the innovative and collaborative effort placed on campus programming. Our mission is to expand the breadth of awareness and student participation in the College Farm. To this end, creative partnerships with entities like the Trout Gallery, LGBTQ initiatives, Dickinson's student-run programming board, MOB, and foreign language departments have served to heighten awareness of the College Farm through campus-based programming focused on food, sustainability, community, and wellness in ways that promote "safe, positive, and healthy norms".

The recurring position of the College Farm's Education and Outreach Coordinator plays a key role in this area of the College Farm. Each year, fresh ideas are infused into this branch of the College Farm program, giving ownership to a recent graduate to create and execute peer-appropriate events. Not only does it afford a recent Dickinson graduate the opportunity to build professional skills in communications, program management, and project development it obliges one to build connections between their Dickinson experiences and the College Farm in order to design programs with strong multidisciplinary dimensions.

The integration of food entrepreneurship into College Farm programming has proven to be of great interest to our student staff. GATHER, POP, and weekly pizza sales at the local farmers' market allow student and apprentice staff to showcase ingredients raised on the farm through prepared foods.

The College Farm's Post-Bacc Education and Outreach Coordinator works to expand the farm's capacity to support student interests in food and farming through creative

programming meant to engage and inspire the campus community. Programs and outreach in 2018 included:

- Edible Excursion Semester Series whereby students can travel off-campus and visit area farms, marketplaces, and food entrepreneurs. Destinations in 2018 included the Lancaster Central Market, Square One Coffee Roasters, Celtic Knot Alpaca Farm, and Wild Foraging.
- The annual "Food for Thought" Pre-Orientation Program that brought 15 first-years to the farm for two days of chores, cooking, and bonding through hands-on learning in sustainable agriculture.
- The fourth annual Farm Frolics at the end of the first week of classes. This event drew about 300 attendees, majority first-years. Attendees were entertained by a variety of clubs, from Dog House to Arts Collective, and enjoyed snacks from local farms.
- The farm's 11th annual Harvest Fest was a huge success, with an estimated attendance of 400 students. This event offers the farm as a setting for relaxation and celebration with simple programming and food that highlights the best features of the College Farm.
- Monthly Yoga classes on the Farm offered a retreat from busy campus life. Unfortunately, cold weather and busy student schedules kept us from holding October and November's dates.
- Cooking Classes included classes taught by student farmers and farm staff on topics ranging from hearty soups and canning to healthy snacks. These, in addition to a lecture and cooking class on Corn Cultures of the Northeastern Woodlands, taught by Dr. Nikki Dragone of the Department of American Studies.



On-Going Outreach and Co-Curricular Programming

Pizza on the Plaza continues to successfully bring the farm to campus each month. 2018 included cross-campus collaborative programming in addition to the farm's hand-tossed pizzas. Partnerships with the Tout Gallery, Multi-Organizational Board (MOB), and WDCV provided ideal segues to new student groups.

In collaboration with Homecoming Weekend, the College Farm hosted its fourth annual "Open Farm" for Dickinson alumni, students, and their families. A robust crowd turned out to interact with student farmers and learn about various farm programs.

The farm maintains its monthly "pop up" restaurant, GATHER—now in its fourth year of operation. In 2018, the farm collaborated with the Development Office to host a special GATHER dinner for members of the John Dickinson Society. Guest readers over the last year included Joyce Bylander, Erlyn Garcia '20, Sheela Menon (English), Lena Friedman '19, Abby Marich '19, Michele Ford (Psychology).

Farm-run youth education programs Farm, Cook, Eat (FCE) and Sustainable Earth Education (SEED) continue to provide Dickinson students with unique educator training, from lesson planning to curriculum implementation. For the last seven years, FCE has maintained a partnership with LeTort Elementary as an after-school program. Over the last calendar year, students Nina Bethel '20 and Karin Carthins '19 have served as FCE's lead educators. Favorite lessons with the group of third graders who participate in FCE include botany, ecology, and cooking in addition to creating new lessons on international cooking based on study abroad experiences in Cameroon and Tanzania.

Sustainable Earth Education (SEED) continued to build its educational partnership with Bellaire Elementary school in 2018 by using a series of in-class and on-farm lessons to bring the farm into everyday life. Our lead educator, Lena Friedman '19, hosted the second grade (45 students) in October and will host the third grade in the spring. Additionally, SEED began a new partnership with the Girl Scouts. Our educational team met with the GHSPA Partnership Coordinator to develop a series of lessons tailored specifically to Girl Scout badges and promote the SEED program to troops across Adams, Cumberland, and Dauphin counties.

Community and Ag-Specific Events

The farm hosted a field day in August to highlight summer research trials with the Rodale Institute, PASA, and Marrone Bio Innovations. Fifty area farmers, researchers, and educators attended this evening event. Field trial outcomes relating to soil and plant health were shared with event participants. Farm staff are scheduled to co-present with the Rodale Institute at the winter PASA Conference next February.

The farm hosted the CONNECT camp in July, coordinating an interactive learning program for middle school aged youth. Public tours were scheduled in June and October this year to showcase farm projects to area community members. These tours continue to serve as an important public relations tool with the local community.



Database Systems

Professor Grant Braught (Computer Science) recruited the help of Dr. Allen Tucker, retired CS faculty from Bowdoin College, to move the AnimalData (livestock database) project forward. Through the Non-Profit Free Open Source Software Institute (NPFI), Dr. Tucker works with students to develop software projects that meet community needs through non-profit organizations. He is the first software engineer who has been able to successfully launch an AnimalData server outside of Dickinson College. Dr. Tucker has plans to work with Matt to touch-up AnimalData and provide free copies for beta testing by livestock producers soon.

Energy Projects

Over the 2018 summer, Matt and Max Lee '19 had several conversations with the PA DEP and township officials regarding regulations pertaining to the biogas project. Both the DEP and local fire officials visited the biofuels plant with positive results. Advances with the farm's biogas system included successfully modifying a log splitter to run on biogas and converting an electric generator to also run on biogas.

Additionally, Matt is conducting an initial feasibility analysis and design of a larger biogas digester project for the farm, to possibly include processing of cow manure from neighboring Triple L farm. The goal of this process is to determine the ballpark cost and value of end products from an expanded system, as well as net environmental benefits. New grid-tied generator technology is available that makes electricity production feasible on a small scale, presenting the opportunity to wipe out the farm's power bills through on-site generation.

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