



**The Dining Services Farm
at Kentland Farm**

2016 Annual Report



Acknowledgments

Susan Clark, Associate Professor, Horticulture; Director, CAFS Minor
Ted Faulkner, Director, Dining Services
Roger Harris, Department Head, Horticulture (former)
Bill Hess, Associate Director, Dining Services (former)
John James, UHC Facilities Manager, Horticulture
Tom Kuhar, Professor, Entomology
Ron Morse, Professor (retired), Horticulture
Megan O'Rourke, Assistant Professor, Horticulture
Dwight Paulette, College Farm Coordinator, CALS (former)
Anthony Purcell, Assistant Director for Southgate, Dining Services
Holly Scoggins, Associate Professor, Horticulture
Susan Sumner, Associate Dean of Academic Programs, CALS
Jon Wooge, Kentland Farm Agricultural Manager, CALS (former)
Rial Tombes Carver, Sustainability Coordinator (former)
Kentland Farm crew
Dining Services Farm crew
Sustainable Agriculture Practicum students

Photographs courtesy of Victoria Boatwright, Rial Tombes Carver, Gwyneth Manser, Jud Froelich, Tom Kuhar, Virginia Tech University Relations, and Alex Hessler.

For more information, please contact:

Alex Hessler

Director, Dining Services Farm
Instructor, Department of Horticulture

306-B Saunders Hall (0327)
490 West Campus Drive
Blacksburg, VA 24061

hessler@vt.edu
(540) 231-0834

Gwyneth Manser

Sustainability Manager, Dining Services
& Housing and Residence Life

Southgate Food Center (0224)
330 Sterrett Drive
Blacksburg, VA 24061

gmanser@vt.edu
(540) 231-1139

Table of Contents

Letter From the Farm Director	1
Executive Summary	2
A Year in Review	2
Manure Incident	3
2016 In Numbers	4
Operating Expenses	4
Crop Production and Value	5
Impact	6
Student Engagement and Academic Participation	6
Public Engagement	7
Special Events	8
Ongoing Goals and Progress	9
Progress	9
Goals	10

Appendix

Crop Production and Value	11
Expenses: Department of Horticulture	12
Expenses: Dining Services	13
Fuel Usage	14
Summer Farm Crew Labor	14
Produce Delivery Log	15
Crop Planting Map	16
Farm Map	17
Farm Map, with Manure Incident	18



Letter from the Farm Director



Reflecting on the 2016 growing season, I am filled with an immense sense of gratitude for the contribution of so many people who make the Dining Services Farm a success. Students and staff who mow, till, seed, weed, water, and harvest, in all weather. Chefs who adapt their menus to the cycle and unpredictability of the seasons, knowing that fresh produce can not only satisfy but shape the palettes of young people.

My own sense of the Dining Services Farm's value has grown as I have witnessed its impact on students on and off the farm. The pride of a student who filled their entire plate in a dining center with things they had harvested; the amazement that that was even a possibility. The lasting comradery among classmates who farmed together and grew personally because of it. An eagerness to eat something new, and to eat healthily, knowing that it was grown by fellow Hokies.

The Dining Services Farm has evolved and grown so dramatically that it is hard to imagine where it was seven years ago, or where it will be ten years from now. Teaching us that change and adaptation are constant is possibly the Dining Services Farm's greatest value. As we pursue new opportunities and improve our practices, the repertoire of insight we draw from grows richer, and our work becomes easier and more fulfilling. These experiences remind us that nothing is permanent, there is no one right way, anything can be improved. I find this thought extremely empowering, and I evoke it internally and aloud routinely. By exercising our capacity for reflection, humility, and adaptation, we can take responsibility for making positive change.

Sincerely, *Alex Hessler*

Alex Hessler, Dining Services Farm Director



Alex Hessler working with students in the Sustainable Agriculture Practicum class to teach proper weeding technique

Executive Summary

A Year in Review

The Dining Services Farm at Kentland Farm (DSF) is an educational farm-to-campus program at Virginia Tech managed collaboratively by Dining Services, the Department of Horticulture, and the College of Agriculture and Life Sciences (CALs). Founded in 2009 as a small herb garden, the DSF now produces vegetables, fruit, and herbs on 5.5 acres at Kentland Farm, as well as a high tunnel at the Urban Horticulture Center. Produce from the farm is served on campus in all of the major Dining Centers and contributes to Dining Services' mission to increase local and sustainable sourcing.

The DSF aims to fulfill the threefold land-grant mission of education, research, and outreach. The DSF hosts the Sustainable Agriculture Practicum, a three-credit course offered by the Department of Horticulture that provides hands-on experience in sustainable vegetable production. Nineteen students participated in the Practicum in 2016. The DSF also partners with the Civic Agriculture and Food Systems minor by serving as a site for service learning and student capstone projects. Faculty and graduate students in the Department of Entomology use DSF fields to conduct research on integrated pest management strategies. The DSF invites students from other courses, clubs, and organizations to tour the farm and volunteer. This fall, the Environmental Coalition student group assisted with the submission of a grant proposal to fund the construction of a rainwater catchment system on a high tunnel. In 2016, the DSF hosted six educational farm tours for K-12 students, professionals, and members of the public.

In June of 2016, the unanticipated application of dairy manure to land adjacent to the DSF raised concerns about potential food safety risks. After consulting with Virginia Tech food safety specialists, DSF personnel decided to destroy or forego harvesting crops from approximately 2.25 acres (pages 3-4). The incident impacted crop yields in 2016, which totaled 24,978.8 pounds valued at \$22,002 (page 5). Expenses for crop inputs, materials and supplies, and infrastructural improvements amounted to \$41,714.29 (page 4).

The DSF continues to evolve and grow to produce crops more efficiently and create a functional and safe environment for working, teaching, and outreach. An additional 1.25 acres were brought under the management of the DSF in the summer of 2016, and new tractor-drawn implements assist with mechanical weed control and harvesting. Improvements to the washing and packing shed streamline post-harvest handling and orient the farm operation towards the successful completion of a Good Agricultural Practice (GAP) food safety audit in the near future.



Executive Summary

Manure Incident



On June 9th and 13th of 2016, liquid dairy manure was applied to a field adjacent to the DSF that is used to produce livestock forage (page 18). Faculty and staff from Dining Services, the Department of Horticulture, and Food Science convened to discuss food safety concerns for DSF crops and formulate an appropriate response. Possible routes of contamination included drift of aerosolized manure during application, cross-contamination by vehicles and personnel, and runoff of contaminated water.

Resolution

DSF personnel decided that the close proximity of DSF fields to the site of manure application and the possibility of cross-contamination warranted the adherence to the following food safety standards for manure application in vegetable crop production:

- The USDA National Organic Program requires a 120-day interval between direct application of manure and the harvest of crops the edible portion of which is in contact with the ground, and a 90-day interval for crops the edible portion of which does not contact the ground.
- The California Leafy Green Products Handler Marketing Agreement (LGMA) requires that raw manure is never applied to fields on which leafy greens are grown, and that a minimum of 400 feet separate leafy greens fields from nearby composting operations, confined animal feeding operations, and manure piles.

Action

The following actions were taken to mitigate food safety risks associated with manure application:

- Crops could only be harvested after October 11, 2016, in accordance with the National Organic Program's 120-day manure application pre-harvest interval.
- All other crops grown in DSF fields were plowed under. Some small sections of fields were maintained and used for research purposes only.
- All vegetable crops planted after June 13th 2016 were located in fields greater than 400 feet away from the manure application site.
- Faculty in the College of Agriculture and Life Sciences overseeing Kentland Farm agreed to forego future applications of manure to fields adjacent to the DSF.

2016 in Numbers

Operating Expenses

2016 operating costs for the Dining Services farm totaled \$41,714.29, and expenses were shared between Dining Services and the Department of Horticulture. Dining Services contributed \$31,086.16 (75%), and the Department of Horticulture contributed \$10,628.13 (25%). Labor costs are not included (page 14), nor are research and University-related grants that benefited farm operations (page 7).

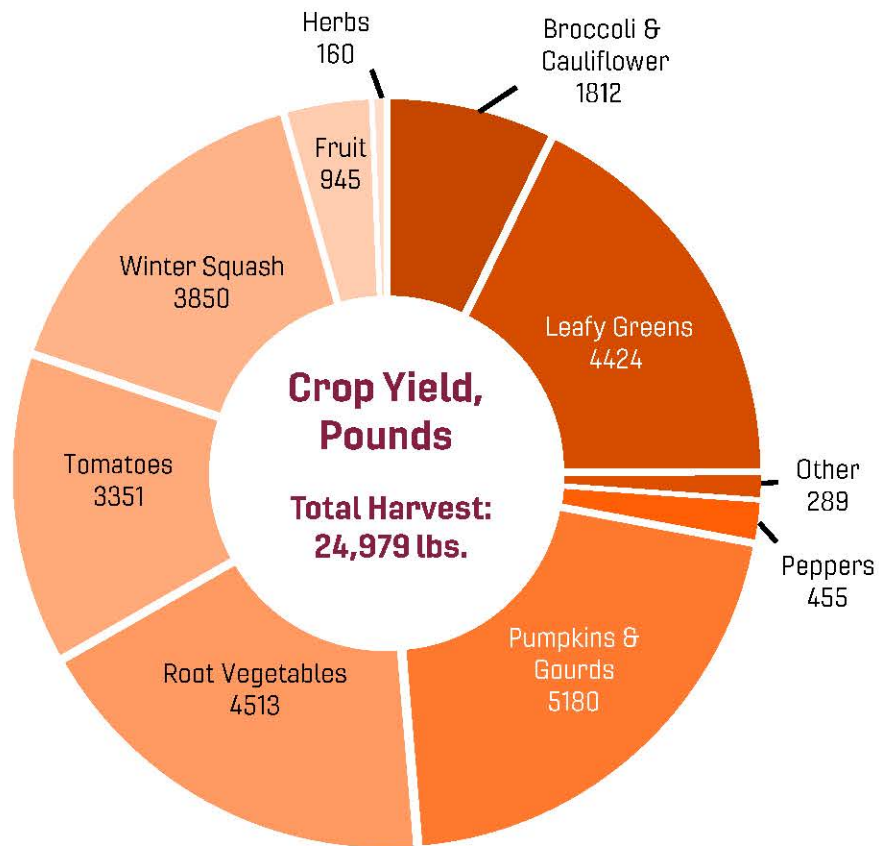


2016 in Numbers

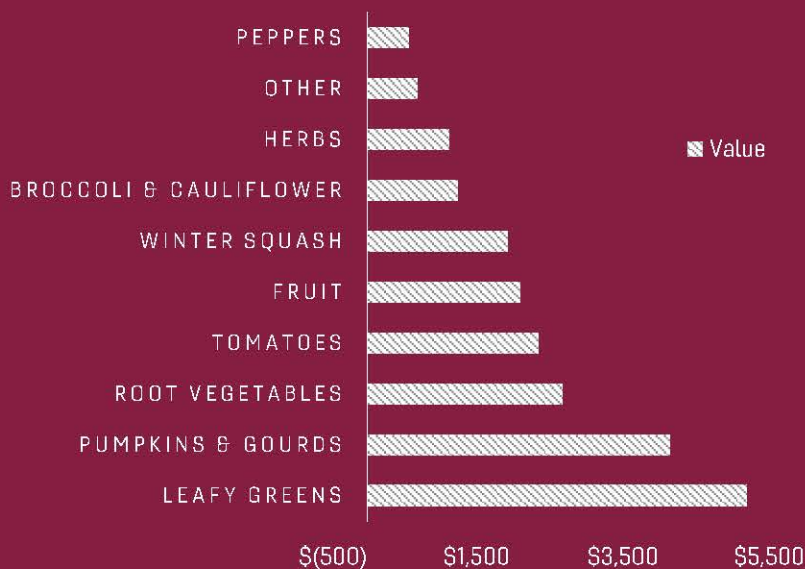
Crop Production and Value

All of the produce grown at the DSF is served in the dining centers on Virginia Tech's campus. Each spring, the Dining Services sustainability coordinator and the DSF director collaborate with the chefs and food production managers to determine crop needs, and to schedule production for the upcoming growing season.

In 2016 24,979 pounds of produce were harvested at the DSF. Due to the manure incident in June (pages 3-4), the total harvest was significantly lower than in 2015, which totaled 48,316.15 pounds. The total value of crops harvested was \$22,002. Information on crop valuation methodology can be found on page 11. Due to the manure incident (page 3), some of the harvest of garlic, collard greens, sweet corn, basil, parsley, cilantro, dill, green beans, and tomatoes was lost.



Market Value by Category



Summary Statistics

Market value:
\$22,002.56

Dining expenses:
\$31,086.16

Horticulture expenses:
\$10,628.13

Impact

Student Engagement and Academic Participation

Student engagement and academic participation are the backbone of the mission and operation of the DSF. The farm is a vibrant part of campus life, with classes, tours, and volunteer opportunities allowing students to truly engage with the logistics of farm to institution growing and sourcing.

The Sustainable Agriculture Practicum

The Sustainable Agriculture Practicum is a three-credit experiential course in sustainable vegetable production that takes place at the Dining Services Farm and the Urban Horticulture Center. The Sustainable Agriculture Practicum was approved as an official course in 2016 after being offered as a special study for three semesters. Nineteen students representing 6 different majors enrolled in this unique field-based learning experience during the 2016 spring and fall semesters. Students participate in all aspects of operating the farm, including plant propagation, seeding and planting, cultivation, harvest, and post-harvest handling. Students pursuing a professional career in a related agricultural field gain an appreciation for the practical challenges and opportunities of sustainable agriculture and food systems. A few students have gone on to work for local horticultural farms. All of the students have grown in their sense of ownership and agency as members of the Virginia Tech community.

Civic Agriculture and Food Systems Minor

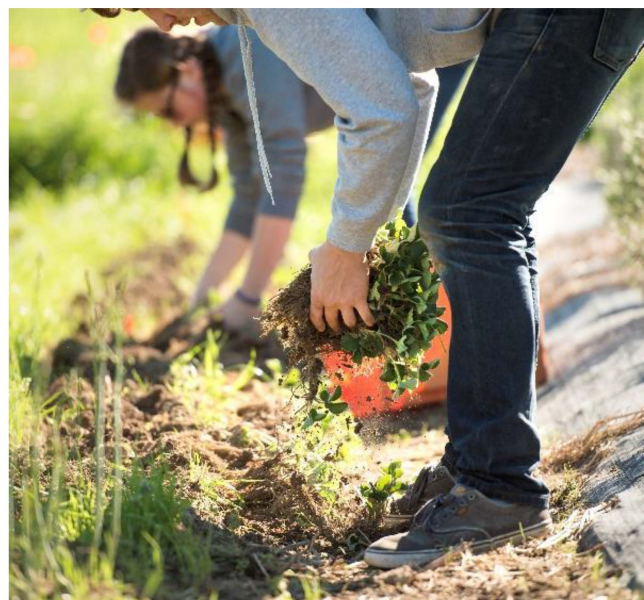
The Civic Agriculture and Food Systems (CAFS) minor is a foundational partner of the DSF, having provided early funding when the DSF first began in 2009. The DSF is a living laboratory for students in the minor to explore the application of community-based food and farming systems in a university setting. In 2016, CAFS minor Evan O'Neil completed his senior capstone project at the DSF by assisting with the construction of a moveable high tunnel. Evan's carpentry skills and mechanical aptitude were invaluable to the immense progress made in constructing this important piece of farm infrastructure.

Class Tours

- Virginia Tech Summer Academy: Animal and Poultry Sciences Track
- Virginia Summer Residential Governor's School for Agriculture
- Introduction to Civic Agriculture (ALS 2204)

Volunteers

Thank you to the members of the Nu Kappa Epsilon service sorority for volunteering at the farm during the spring and fall semesters.



Impact

Student Engagement and Academic Participation

Research Partnerships and Support

As a working, diversified horticulture farm, the DSF is a model agricultural system for conducting applied research in a real-world setting. Students and faculty in multiple departments in the College of Agriculture and Life Sciences are encouraged to integrate experiments into production fields, and may receive technical support from DSF personnel. In 2016, Dr. Tom Kuhar and graduate students in the Virginia Tech Vegetable Entomology Lab conducted three experiments in DSF fields.

- Integrated pest management strategies for Mexican bean beetle in snap bean.

Louie Nottingham

- Comparing conventional and IPM pest control on ear damage, pollinators, and arthropod predators in sweet corn.

Tom Kuhar

- Evaluating economic thresholds for brown marmorated stink bugs in tomato.

Tom Kuhar



Predatory stink bug feeding on Mexican bean beetles in DSF green beans. Photo by Tom Kuhar.



Grants

The DSF, in collaboration with Environmental Coalition student group, was awarded \$1,715 to construct a rainwater catchment system on the high tunnel at the the Urban Horticulture Center. The system will divert rainwater into storage tanks to be used for irrigate vegetable crops. Students in the Sustainable Agriculture Practicum started building the system in the fall semester.

Public Engagement

Outreach and Tours

- Dining Services Culinary Camp. Farm Tour - June 21 & 28
- Virginia Master Gardener College. Organic High Tunnel Tomato Production Tour - June 27
- Virginia Tech Family Weekend. Farm Tour - September 30
- Rural Planning Caucus of Virginia. Farm Tour - October 19
- Board of Visitors Spouse and Partner Program. Farm Tour- November 7
- Auburn Middle School. Careers in Agriculture. Farm Tour - November 17

Impact

Special Events

Chef's Premiere Dinner: An Evening at Kentland Farm

During parent's weekend in early October, students and parents were invited to enjoy an evening at Kentland Farm replete with hors d'oeuvres, farm tour, campfire, and a three course meal prepared by Dining Services chefs featuring DSF-grown vegetables and Virginia Tech Meats.



Images from the sold out Chef's Premiere Dinner: An Evening at Kentland Farm. The event, hosted by Personal Touch Catering. The evening featured a farm tour, fresh produce from the DSF, and meat raised on Virginia Tech's campus.

Fall Harvest Celebration Meal

Each autumn, students, staff, and faculty from Dining Services, the Department of Horticulture, and CALS gather at Kentland Farm to celebrate the collaborative spirit that drives the DSF. The chefs from Owens Dining Center prepared a farm-to-table meal featuring DSF produce and Virginia Tech Meats. We recognized and gave thanks to all those that made this growing season a success.

Ongoing Goals and Progress

Progress

Every year, the DSF evolves and grows to become more efficient, productive, and sustainable. Below are some of the achievements of the 2016 farm season.

Acreage Expansion

The DSF expanded to include 1.25 acres of adjacent land, bringing the total area under cultivation in 2016 to approximately 6.5 acres. This addition enables more production and allows more land to be rested each year to restore and maintain soil health.

Farm Equipment Acquisition

Weed control is a foremost challenge in vegetable production. The finger weeder is a precision cultivating implement purchased in 2016 that has dramatically reduced the time spent hand weeding at the DSF. The implement is pulled by a tractor, but is steered by a rear operator sitting on the implement; this allows the finger weeder to get close to the crops without damaging them.

A motorized conveyor mounted to a wagon was purchased to assist harvest and transport of produce from the field to the packing shed. This mobile harvesting platform makes picking produce easier, more food safe, and more fun!



The finger weeder at the DSF (left), and an image of the students in the Sustainable Agriculture Practicum class using the new harvest conveyor to harvest butternut squash in the fall (right).

Ongoing Goals and Progress

Goals

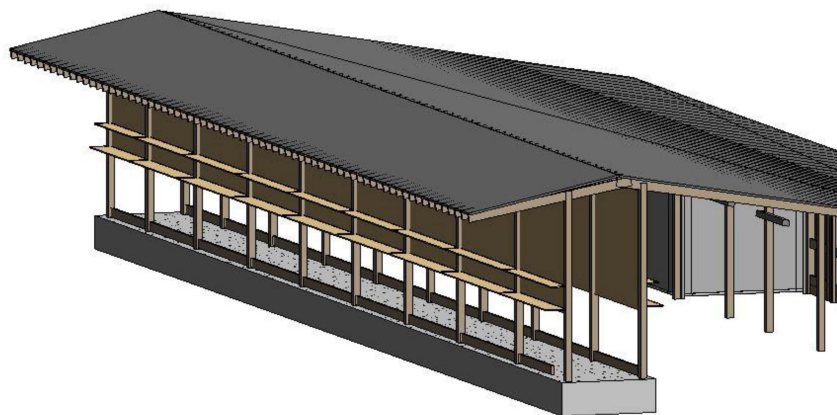
Since its inception in 2009, the DSF has continually grown and evolved, and will continue to do so for years to come. Our goals are guided by a vision of the DSF as a robust, vibrant, and productive model for agricultural education and institutional sustainability. Achieving this vision will result from the continued contribution of a broad and unique collaboration of cross-campus stakeholders.

Good Agricultural Practices

Food safety and sanitation are paramount principles of Virginia Tech Dining Services, and are no less critical in the operation of the Dining Services Farm. DSF personnel have partnered with the Virginia Tech Fresh Produce Food Safety Team to develop and implement Good Agricultural Practices (GAP) at the DSF that identify and mitigate on-farm food safety risks. We intend to undergo a third-party GAP audit in the near future to verify the adherence to these important standards and practices.

Facilities

In 2015, students in the Department of Building Construction completed a structural analysis of a barn at the DSF which was used for storage, breaks, and teaching. The students found the barn to be structurally unsound and, upon their recommendation, use of the barn was halted. Plans have been made to demolish the barn and erect a modern pole barn to protect the farm's equipment.



An image of the barn at the DSF (left), and a rendering of a potential replacement structure created by Virginia Tech students in a Department of Building Construction class (right).

Logistics

The DSF provides produce to five dining centers on campus, requiring ongoing communication among chefs, administrators, and delivery drivers to get produce where it needs to be on time. Progress is being made towards integrating farm produce delivery into FoodPro, Dining Services' computerized ordering system. This streamlines the produce ordering, delivery, and tracking process, and would serve as a model practice for peer institutions with farm-to-campus programs.

Appendix

Crop Production and Value

Below are the crop production and market values for the 2016 DSF harvest. Market value was assigned to each crop based on typical prices charged by Produce Source Partners (PSP), Virginia Tech's contract produce supplier. Pricing for local produce was used when available; for items not available locally, national pricing (typically from California-grown produce) was used.

Crop	Pounds Harvested	PSP Market Value (per lb.)	Harvest Value	Price Reference
Broccoli	1235	0.63	\$ 778.05	PSP Local
Cauliflower	577	0.80	\$ 461.60	PSP Local
Collards	1170	0.7	\$ 819.00	PSP Local
Kale, Lacinato	578	0.69	\$ 398.82	PSP Local
Kale, Red Russian	976	0.69	\$ 673.44	PSP Local
Mixed Greens	120	2.95	\$ 354.00	PSP National
Lettuce, Green Leaf	292	0.75	\$ 219.00	PSP Local
Lettuce, Romaine	37	0.8	\$ 29.60	PSP Local
Mustard Greens	14	0.7	\$ 9.80	PSP Local
Power Greens Salad Mix	572	2.95	\$ 1,687.40	PSP National
Swiss Chard	665	1.5	\$ 997.50	PSP Local
Asparagus	255.8	2.25	\$ 575.55	PSP Local
Garlic Scapes	33	3.60	\$ 118.80	PSP Local
Peppers, Serrano	14	1.50	\$ 21.00	PSP Local
Peppers, Carmen Red	6	1.3	\$ 7.80	PSP Local
Peppers, Poblano	435	1.25	\$ 543.75	PSP Local
Gourds	3080	0.80	\$ 2,464.00	PSP Local
Pumpkins	2100	0.80	\$ 1,680.00	PSP Local
Carrots, tri-colored	345	1.08	\$ 372.60	PSP National
Potatoes, Fingerling	1065	1.25	\$ 1,331.25	PSP National
Potatoes, Kennebec	850	0.32	\$ 272.00	PSP Local
Potatoes, Red	995	0.32	\$ 318.40	PSP Local
Sweet Potatoes	1250	0.30	\$ 375.00	PSP Local
Turnips	8	0.70	\$ 5.60	PSP Local
Tomato, Roma (High Tunnel)	3351	0.70	\$ 2,345.70	PSP Local
Winter Squash, Buttercup	300	0.50	\$ 150.00	PSP Local
Winter Squash, Butternut	2725	0.50	\$ 1,362.50	PSP Local
Winter Squash, Red Kuri	825	0.50	\$ 412.50	PSP Local
Apples	285	0.70	\$ 199.50	PSP Local
Peaches	180	1.08	\$ 194.40	PSP Local
Rhubarb	480	3.55	\$ 1,704.00	PSP National
Cilantro	146	7.00	\$ 1,022.00	PSP Local
Parsley	14	7.00	\$ 98.00	PSP Local

Appendix

Expenses: Department of Horticulture

Date	Price	Vendor	Category	Subcategory
2/2	\$ 14.90	Stokes Seeds	Crop Inputs	Seeds and Plants
2/2	\$ 24.00	Richters	Materials and Supplies	Tools
2/5	\$ 99.00	AgSquared	Materials and Supplies	Tools
2/6	\$ 89.14	Blacksburg Auto Parts	Materials and Supplies	Equipment
2/23	\$ 16.67	Heavener True Value	Materials and Supplies	Tools
3/4	\$ 8,047.44	KULT Kress LLC	Materials and Supplies	Finger Weeder
3/10	\$ 102.74	Long Shop Auto	Materials and Supplies	Packing Shed
3/18	\$ 31.53	Richards Supply	Infrastructure	Packing Shed
3/18	\$ 34.26	QC Supply	Infrastructure	Irrigation
3/23	\$ 142.99	Heavener True Value	Materials and Supplies	Packing Shed
3/31	\$ 150.96	The Home Depot	Infrastructure	Equipment
4/6	\$ 31.14	Heavener True Value	Infrastructure	High Tunnel
4/6	\$ 7.58	Heavener True Value	Materials and Supplies	High Tunnel
4/7	\$ 14.35	Heavener True Value	Infrastructure	Tools
4/9	\$ 85.20	Berry Hill	Materials and Supplies	Tools
4/12	\$ 20.72	Heavener True Value	Materials and Supplies	Irrigation
4/16	\$ 53.10	Heavener True Value	Infrastructure	High Tunnel
4/18	\$ 15.98	Heavener True Value	Infrastructure	High Tunnel
4/27	\$ 6.24	Tractor Supply	Materials and Supplies	High Tunnel
4/27	\$ 17.82	Lowe's	Infrastructure	High Tunnel
4/27	\$ 6.24	Tractor Supply	Infrastructure	Packing Shed
5/18	\$ 292.66	Heavener True Value	Infrastructure	Packing Shed
5/19	\$ 13.59	Heavener True Value	Infrastructure	Packing Shed
5/19	\$ 11.99	Heavener True Value	Infrastructure	Packing Shed
5/20	\$ 57.13	Ferguson	Infrastructure	Packing Shed
5/20	\$ 5.30	Northwest Hardware	Infrastructure	Packing Shed
5/20	\$ 51.96	The Home Depot	Infrastructure	Packing Shed
5/24	\$ 71.81	Heavener True Value	Infrastructure	High Tunnel
5/31	\$ 13.63	Heavener True Value	Infrastructure	Packing Shed
6/6	\$ 30.64	Heavener True Value	Infrastructure	Tools
7/15	\$ 66.25	Lowe's	Materials and Supplies	Irrigation
7/22	\$ 38.24	PurAqua Products	Materials and Supplies	Packing Shed
7/22	\$ 11.98	Heavener True Value	Infrastructure	High Tunnel
7/27	\$ 10.99	Heavener True Value	Infrastructure	Tools
8/19	\$ 13.99	Heavener True Value	Materials and Supplies	Packing Shed
9/14	\$ 103.07	Lowe's	Infrastructure	Packing Shed
10/1	\$ 27.16	Lowe's	Infrastructure	Packing Shed
10/4	\$ 92.28	Heavener True Value	Infrastructure	Packing Shed
10/11	\$ 7.28	Heavener True Value	Infrastructure	Packing Shed
10/26	\$ 8.34	Heavener True Value	Infrastructure	High Tunnel
11/1	\$ 8.79	Heavener True Value	Infrastructure	High Tunnel
11/16	\$ 53.96	Lowe's	Infrastructure	High Tunnel
11/16	\$ 113.53	Lowe's	Infrastructure	High Tunnel
11/18	\$ 18.74	Lowe's	Infrastructure	Equipment
12/7	\$ 411.98	Long Shop Auto	Materials and Supplies	High Tunnel
12/19	\$ 80.84	Heavener True Value	Infrastructure	Finger Weeder

Appendix

Expenses: Dining Services

Date	Price	Vendor	Category	Subcategory
2/8	\$ 1,093.56	Johnny's Seeds	Crop Inputs	Seeds and Plants
3/4	\$ 2,000.00	KULT Kress LLC	Materials and Supplies	Finger Weeder
3/11	\$ 28.70	Johnny's Seeds	Crop Inputs	Seeds and Plants
3/18	\$ 14.65	Johnny's Seeds	Crop Inputs	Seeds and Plants
3/18	\$ 731.40	Harris	Crop Inputs	Seeds and Plants
4/6	\$ 299.10	Johnny's Seeds	Materials and Supplies	Harvest and Post-harvest Handling
4/14	\$ 3,996.44	Seven Springs	Crop Inputs	Fertilizer, Pesticides, Cover Crops
4/19	\$ 98.15	Gemplers	Materials and Supplies	Protective Equipment
4/19	\$ 630.00	Flexcon	Materials and Supplies	Harvest and Post-harvest Handling
4/19	\$ 3,520.03	Berry Hill	Materials and Supplies	Irrigation
5/1	\$ 201.96	AM Leonard	Materials and Supplies	Tools
5/25	\$ 1,979.25	Fedco	Crop Inputs	Seeds and Plants
6/1	\$ 497.25	New Sprout	Crop Inputs	Seeds and Plants
6/9	\$ 849.48	Hummert	Infrastructure	Packing Shed
6/9	\$ 60.14	Harris	Crop Inputs	Seeds and Plants
6/20	\$ 32.62	Harris	Crop Inputs	Seeds and Plants
6/20	\$ 180.98	Harris	Crop Inputs	Seeds and Plants
6/28	\$ 2,280.00	Lar Lyn Farms LLC	Materials and Supplies	Equipment
6/28	\$ 6,000.00	G L Nause Co Inc.	Materials and Supplies	Equipment
7/15	\$ 310.00	Fresh Water Systems	Materials and Supplies	Harvest and Post-harvest Handling
7/19	\$ 132.00	Berry Hill	Materials and Supplies	Irrigation
7/20	\$ 29.45	Uline	Infrastructure	Packing Shed
7/21	\$ 192.00	Uline	Materials and Supplies	Harvest and Post-harvest Handling
7/22	\$ 53.35	Gemplers	Materials and Supplies	Protective Equipment
7/28	\$ 308.73	Berry Hill	Materials and Supplies	Irrigation
8/5	\$ 609.28	Southwest Equipment Inc.	Materials and Supplies	Equipment
8/9	\$ 199.60	Gemplers	Materials and Supplies	Electric Fence
8/12	\$ (61.48)	Harris Seeds	Crop Inputs	Seeds and Plants
9/7	\$ 943.60	Seven Springs	Crop Inputs	Fertilizer, Pesticides, Cover Crops
9/7	\$ 45.00	Long Shop	Infrastructure	Packing Shed
9/19	\$ 224.95	Johnny's Seeds	Crop Inputs	Seeds and Plants
9/20	\$ 154.00	Uline	Infrastructure	Packing Shed
9/21	\$ 14.92	Uline	Infrastructure	Packing Shed
11/10	\$ 1,454.00	Biosafe	Infrastructure	Packing Shed
11/13	\$ 270.00	Seven Spring	Materials and Supplies	Harvest and Post-harvest Handling
11/16	\$ 136.00	Berry Hill	Materials and Supplies	Irrigation
11/17	\$ 145.35	Gemplers	Materials and Supplies	Protective Equipment
12/2	\$ 56.70	Harris	Crop Inputs	Seeds and Plants
6/1-9/1	\$ 1,375.00	Tidy Services	Infrastructure	Port-a-Johns

Appendix

Expenses: Dining Services

Fuel Usage

Date	Location	Fuel Amount	Cost
8/17	Fleet Services	12.96	\$ 21.90
7/18	Fleet Services	18.04	\$ 34.10
7/18	Fleet Services	3.80	\$ 7.18
6/15	Fleet Services	15.50	\$ 32.39
1/20	Fleet Services	10.94	\$ 18.16
12/14	Fleet Services	24.82	\$ 45.67
10/21	Fleet Services	23.69	\$ 50.46
8/17	Fleet Services	26.22	\$ 44.31
6/6	Fleet Services	27.57	\$ 56.24
5/18	Fleet Services	26.72	\$ 55.84
3/29	Fleet Services	27.40	\$ 46.31
12/13	James River Fuel		\$ 3.35
12/12	James River Fuel		\$ 6.75
11/21	James River Fuel		\$ 90.13

Summer Farm Crew Labor

From mid-May to early August, labor at the farm is provided by a summer crew of salaried Dining Services staff. In the summer of 2016 the eight-person crew worked approximately 1,737 hours. The total cost of summer labor, excluding benefits, was approximately \$19,582.

Employee (names withheld)	# Days Worked	# Hours Worked	Hourly Rate	Summer Salary
NW	28	215.5	11.76	\$ 2,534.28
NW	24	190.25	12.07	\$ 2,296.32
NW	31	228.95	11.47	\$ 2,626.63
NW	27	211.25	10.43	\$ 2,203.34
NW	24	192.25	11.00	\$ 2,114.75
NW	27	214.5	11.60	\$ 2,488.20
NW	34	267.75	11.76	\$ 3,148.74
NW	28	217	10	\$ 2,170.00
			Total:	\$ 19,582.26

Appendix

Produce Delivery Log

DATE: _____ TIME: _____							DRIVER: _____			
UNIT NEEDS PER WEEK (LB)										
Crop	Owens	WEM	D2	Turner	Squires	Total	Total Weight	# of Bins	Notes	Received (Y/N)
Beets	30	0	0	20	0	50				
Broccoli	100	0	200	0	0	300				
Broccoli Raab	0	0	0	100	0	100				
Carrots	40	40	0	20	0	100				
Cauliflower	25	100	0	0	0	125				
Greens, Collards										
Greens, Kale	50	0	50	150	0	250				
Greens, Swiss Chard										
Head Lettuce	0	0	0	50	0	50				
Lettuce Mix	10	0	0	30	0	40				
Pepper, Poblano	40	0	0	40	0	80				
Pepper, Serrano	0	0	0	2	0	2				
Potatoes, Yellow Fingerling	75	0	200	50	0	325				
Potatoes, Purple Fingerling	75	0	200	50	0	325				
Potatoes, Kennebec	0	0	0	300	0	300				
Power Greens Mix	15	70	0	0	0	85				
Sweet Potatoes	75	0	200	400	0	675				
Tomatoes, Roma	15	0	0	400	0	415				
Pumpkins & Gourds	0	0	0	0	0	0				
Winter Squash, Acorn	0	0	100	0	0	100				
Winter Squash, Buttercup	15	25	50	0	0	90				
Winter Squash, Butternut	20	0	100	50	0	170				
Winter Squash, Red Kuri	15	25	50	20	0	110				
Fruits:										
Peaches	100	0	0	200	0	300				
Apples, Gala	200	0	0	0	0	200				
Apples, Jonah Gold	0	0	0	20	0	20				
Herbs:										
Cilantro	5	10	1	3	0	19				
Parsley	5	5	1	1	0	12				
Other										

May not be expected every week

Appendix

Crop Planting Map

Below is a copy of the crop planting map for 2016.

<table border="1"> <tr><td>Broccoli and Cauliflower</td></tr> <tr><td>Broccoli, Kale, and Collards</td></tr> <tr><td>Carrots, Beets, Power Greens, Cilantro</td></tr> <tr><td>Lettuce and Swisschard</td></tr> <tr><td>Parsley, Lettuce, Power Greens</td></tr> </table>	Broccoli and Cauliflower	Broccoli, Kale, and Collards	Carrots, Beets, Power Greens, Cilantro	Lettuce and Swisschard	Parsley, Lettuce, Power Greens	Roadway	0-15 Cover Crop
	Broccoli and Cauliflower						
	Broccoli, Kale, and Collards						
	Carrots, Beets, Power Greens, Cilantro						
	Lettuce and Swisschard						
	Parsley, Lettuce, Power Greens						
	0-14 Cover Crop						
	0-13 Peppers, Watermelon						
	0-12 Garlic and Spring Collards						
	0-11 Potatoes						
	0-10 Sweet Potatoes						
	0-9 Cover Crop (former greens and carrot)						
	0-8 Cover Crop (former greens, beets, and carrot)						
	0-7 Cover Crop (former sweet corn)						
	0-6 Cover Crop (former basil and herb)						
	0-5 Cover Crop						
	0-4 Sweet Corn and Green Beans						
	0-3 Cover Crop						
	0-2 Perennial Herbs						
	0-1 Asparagus						
C-15							
C-14							
C-13							
C-12							
C-11							
C-10							
C-9 Pumpkins							
C-8 Winter Squash							
C-7 Tomatoes							
C-6 Cover Crop							
C-5							
C-4							
C-3							
C-2							
C-1							
	Demq						

Appendix

Farm Map

Below is a map of the DSF in 2016.



Image source: Google Maps

Appendix

Farm Map, with Manure Incident

Below is a map of the DSF in 2016, including the manure incident (page 3)



Image source: Google Maps

