2015 SEASON REPORT

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Contents

2015 SEASON REPORT ................................................................. 1

Who we are ................................................................. 4

2015 Farm Managers .................................................. 5

  Ashley Engels ............................................................... 5
  Fallon Lowe ................................................................. 6
  Abigail Prisloe .............................................................. 7
  Eli Shanks ................................................................. 8
  Matthew Utterback ...................................................... 9

Start of the Season ..................................................... 10

Sales and Marketing ................................................. 12

  Overview of CSA .......................................................... 12
  Fall Share ............................................................... 14
  Work for a Share .......................................................... 15
  CSA Improvements for the Upcoming Season ............... 15
  Farm Stands .............................................................. 16
  Dining Connections ........................................................ 18
  Sales to Cooperative Living Centers (Co-Ops) ................. 18
  Cornell Orchard’s Partnership ....................................... 19
  Need for a Truck .......................................................... 20

Education and Outreach ...................................... 21

  Volunteer Work Days ..................................................... 21
  Field Day ................................................................. 22
  Kimchi Workshop ........................................................ 22
  Cider Pressing, Fall Food-dying, and Final Harvest ........... 23
  Beet Pickling Demonstration ........................................... 24
  Farm Tours ............................................................... 25
  Building the Kiosk ........................................................ 26
  TSF Farm Report .......................................................... 26

Vegetable Production ............................................. 29

  Overview ................................................................. 29
Crops in review ................................................................. 30
Weed Pressure .................................................................... 32
Overview ........................................................................... 32
Suggested focus areas......................................................... 33
Soil Health and Nutrient Management .................................. 36

Steering Committee .......................................................... 38
  Education & Outreach......................................................... 38
  Vegetable Production.......................................................... 39
  Business and Marketing...................................................... 39
Moments from the Season ...................................................... 40
Hoop House Grant ............................................................... 43

Acknowledgements ............................................................ 45
Who we are

**Dilmun Hill** is a student-run farm that has been practicing sustainable agriculture on Cornell University's campus for more than a decade. Our mission is to provide students, faculty, staff and community with opportunities for experiential learning, group collaboration and research. Throughout the year we host work parties where volunteers work in the fields and experience the latest in sustainable agricultural practices. The student managers and steering committee members collaborate with the Organic Coordinator and Faculty Advisors to provide leadership in farm operations and disseminate information through education and outreach. Our popular campus farm stand offers Dilmun Hill produce for sale from June through October and we supply local produce to Manndible Café in season. We also run a 30 member CSA from June-October where we supply the Cornell Community with fresh, organic produce.
**2015 Farm Managers**

**Ashley Engels**

**Major:** Industrial and Labor Relations, Class of 2017

**Dilmun Story:** I’ve been interested in agriculture and organic farming for a few years now so when I heard about Dilmun I was immediately intrigued. I heard about Dilmun at ClubFest and from some friends but I didn’t really get involved with Dilmun Hill Farm until hired as a farm manager in the spring of 2015. The community of people at Dilmun have continuously inspired me from the first day I started. I am proud to say that I am part of the Dilmun Hill Student Farm team.

**About Ashley:** I grew up in rural New Jersey where outdoor activity was always a part of my life. After working at a flower nursery for about 3 seasons and cultivating a smaller personal garden I realized how interested I am learning more about farming, particularly organic vegetable farming. While my major is business focused, I am interested in exploring different avenues. And after working as a manager for a season I am now certain that I will start a farm one day; how big it will be I am yet to know.
Fallon Lowe

**Major:** Agricultural Sciences, Class of 2017

**Dilmun Story:** My involvement with Dilmun began last summer when I started attending weekly work days. I had a blast getting my hands dirty with the Dilmun community and I wanted more, so I applied for the manager position.

**About Fallon:** My interest in agriculture began in my hometown of Denver, Colorado where I worked for a nonprofit aquaponic and hydroponic greenhouse called the Growhaus. Working with this organization to provide education and fresh produce to one of the poorest neighborhoods in Denver made me realize how food can truly bring people together. I hope to apply some of the knowledge I gained from the Growhaus by expanding Dilmun’s outreach to the broader Ithaca community.
Abigail Prisloe

Major: Agricultural Sciences, Class of 2018

Dilmun Story: Before coming to Cornell, I knew that I wanted to work at Dilmun Hill. I wanted to have the chance to not just be a farm hand, but to be a manager. It is a great opportunity for young people to run a farm at such a young age. I believe that more young people should be engaged in managing the business aspects of a farm.

The first semester of my freshmen year, I joined steering committee. It’s been great and I am excited to see the farm grow over the next 3 years. I was on the Business and Marketing Subcommittee before I was hired as a farm manager. I am most passionate about building the business components of the farm, and our CSA program.

About Abigail: I grew up in Trumansburg NY, and have been surrounded by farmers and close community all my life. I love farming and I hope to run a food related business when I graduate. I am especially interested in having an organic grain operation and raising livestock. I hope to be a sustainable hog farmer with some goats and chickens on the side. Although organic vegetable farming has had a HUGE amount of growth in the last decades, organic meat and organic grains have not grown at the same rate. I hope to join the organic grain and meat movement in the Northeast.
Eli Shanks

Major: Agricultural Sciences and Applied Economics and Management, Class of 2018

Dilmun Story: I have been working at Dilmun Hill since September of 2014. My first semester at Cornell, I started talking to Nate August, who mentioned they needed some help on the farm. I started working right away, and then I applied to be on the steering committee. Then I became a manager. I think we have a lot going for us and I like working with the other students and Cornell Agricultural Experiment Station. Everybody is very supportive of what we do, and believes we can succeed at whatever we set our minds to.

About Eli: I am originally from Boston where I worked on organic vegetable farms for three years with The Food Project, Waltham Fields Community Farm, and others. After completing three parts of the youth program at The Food Project, I was hired as staff to manage their orchard and coordinate all different parts of production and harvest of 20,000 lbs of tree fruit. These different positions at TFP taught me to lead workshops and educate groups about the food system and racial and economic inequality in America. They also taught me a lot about growing vegetables.

After I graduated from high school, I moved out to Arizona to start a hydroponic tomato greenhouse with my cousin. I return to Arizona every winter to work in the greenhouses. We started in 14,000 square feet, and now we have over 200,000. We supply most supermarkets and many of the top 40 restaurants in the city of Phoenix with delicious, vine ripened, heirloom tomatoes and cucumbers.

After college I hope to start a food related business of my own. I am especially interested in producing sustainably and marketing sustainably grown food that everybody can afford.
Matthew Utterback

Major: Applied Economics and Management, M.S. Candidate in Environmental and Energy Economics, Class of 2017

Dilmun Story: I learned about Dilmun Hill shortly after I decided to attend graduate school at Cornell. While I was not engaged with Dilmun my first year here at Cornell ('14-'15) because of a back injury, I was elated to spend the summer season and fall working with the managers as the farm carried out and expanded on its first CSA. Now that the growing season is over, I'm looking forward to changing hats and focusing on education and outreach efforts, specifically: towards summer education programs for local K-12 schools.

About Matthew (aka "Bear"): Like Ashley, I hail from the garden state of NJ. Before graduate school, I worked on some close friends' organic orchard in Northern NJ, where my passion and intrigue into local agriculture really intensified. I've also had the opportunity to work on trail building crews throughout the northeast United States, be a contract landscaper, and World Wide Opportunities on Organic Farms. All of these experiences are driven by my desire to learn more about the natural world and the relationships that string them together.
Start of the Season

We brought beds into production by spreading compost and then lightly tilling with a push tractor called a BCS. Sometimes even after we tilled with the BCS, we had to further loosen the soil using a broad fork. This was very time intensive but essential for the health of the plant roots. We found that on beds that were not well tilled and did not receive compost, the soil quality was very low and the yield was also extremely low. Although Dilmun is striving to adopt reduced till or even no till practices, it appears that due to the quality of our soil, and abundance of weeds, that this is not possible.

We were able to have such a successful season by starting most of the plants in flats in the greenhouses at Cornell. By transplanting instead of seeding plants directly into the soil, when we harvested a crop we were immediately able to plant another. For some vegetables like mixed greens and arugula, we direct seeded.

It was a very time consuming process to get the farm into production. Next year, we hope that the entire steering committee will work together to get the farm ready for production. This year, it was primarily the initially hired 4 managers, and a few volunteers.
most strenuous!

Kale starts in our greenhouse on campus. This is about how big most plants were when we transplanted them.

Seed starts gaining a little strength in our small on-site greenhouse.

Manager Ashley dropping seed starts. Someone usually followed behind to insert starts into the ground.

Managers Fallon and Eli prepare beds early in the season by broadforking, laying compost, and rototilling. Days like these were the most strenuous!

Kale starts in our greenhouse on campus. This is about how big most plants were when we transplanted them.
Sales and Marketing

Overview of CSA

2015 was a very successful year for Dilmun Hill. We dramatically increased our sales in comparison to previous seasons. This year was unique because we launched our first-ever, CSA program. CSA stands for Community Supported Agriculture. Members pay at the start of the season, for a share of the farm’s harvest. We decided to implement this farm business model because in the past, the farm has had trouble selling all of its produce. Additionally, each of us managers was interested in learning about how to run a fully-functioning CSA inside and out.

By starting a CSA, we received a large amount of capital upfront. This allowed us to pay for our expenses throughout the growing season. The CSA gave the managers the chance to practice running a small business and serving a lot of customers. It brought 30 people to the farm every week, and gave the farm much more publicity on campus when we distributed the box share at local markets. The CSA gave us a huge response from the community! We received many emails, and a huge amount of excitement. For the fall farm share, we had more people who wanted to join, than what we could supply! The CSA is one efficient means for Dilmun Hill to distribute produce, and it has the potential to yield very high profits. It is also a very sustainable model of business.
Summer Share

Above are two examples of the fliers that we used to advertise for the farm share. We had two separate farm shares, a summer share, and a fall share. The summer share ran from June 17<sup>th</sup> to August 19<sup>th</sup>, and cost $200, equivalent to $20 per week. We started with 20 members but after the first week, it was clear that the farm was producing an abundance of produce, so we marketed and added 7 more members. At 27 members, we still had a lot of potential to expand.
During the summer CSA, pickup was held in an old farm building. This structure, originally used for outdoor storage, has three sides. At the start of the summer, we cleaned out all of the junk, tore down some of the temporary walls, and pressure washed the entire structure. By the end of the long process, we were left with a beautiful location for our CSA pickup. Later, we built removable braces to hold totes of produce for the members to walk through and pick up their weeks share.

**Fall Share**

The Fall CSA ran from August 27th to October 15th, and cost $30 dollars a week. We had a large amount of CSA members continue their share. We had 28 members and there was a huge amount of excitement about the share. We were able to expose more students to the CSA when students visited the farm. During the fall semester, we had a large harvest share, and packed the shares into boxes where they were delivered.
on campus. As opposed to picking up shares from the farm in a marketstyle like over the summer, share members came to our farm stand located on the Ag Quad once a week.

**Work for a Share**

During the fall semester, we started a work for a share program. 4 students worked 3-4 hours a week on the farm, for a CSA share. This year the program was not very structured and therefore, it was a test run. Overall it was successful and we think it should be utilized in the future.

Next season, we will start a weed crew that will weed one day a week on the farm in exchange for a CSA share. We think this is a great program because we do not have the financial resources to hire more workers, and the farm has an abundance of weeds. This will free up time for the managers to focus on production, sales, and educational activities.

![A TYPICAL CSA SHARE:](image)

This one contained bok choi, carrots, beets, summer squash, Chinese cabbage, 2 types of kale, basil, and lettuce.

**CSA Improvements for the Upcoming Season**

In both the fall and summer CSA (especially the summer), we gave members more produce than what they paid for (~35$ per week’s worth). We started small and inexpensive because this was the farm’s first CSA and we wanted to make sure that we could supply all the customers. We realized that the farm has a lot of production potential that has not
been tapped into during recent years. When we got all of the land cultivated and in production, the farm was flourishing. We were producing more produce than we had immediate outlets for. Next year we plan to expand the CSA to 40 members and increase the price. This will bring in a huge amount of income and the farm will almost be financially sustainable! Eventually, we hope to implement a sliding scale for students and people who cannot afford the full price.

When we started the CSA program, there was a lot of marketing, email, and administrative work to do. At times, we were unable to keep up with this amount of work and we fell behind with email responses. At the start of the season, we had told members that they would receive weekly recipes and a bi-weekly farm newsletter. We quickly became overwhelmed, and we did not have the time to do this for the customers. This year our business and marketing subcommittee is preparing all of these documents for the next year’s managers. They are creating resources for the newsletter, and building nice design templates for recipes. In addition to preparing materials for managers in advance, we hope to use the CSA software program called Farmigo to manage the CSA and all of our customers.

**Farm Stands**

The farm stand on the Ag Quad is open during the spring and the fall semester at the Cornell Farmers Market. This is one of the best means for Dilmun to gain recognition on campus, however, there are other farmers there that we must compete with. Although it is not a huge source of revenue for us, we believe it is very important to have a presence on campus. CSA pickup during the fall semester was held at the farm stand on the Quad. Setting up is a long process and we had to cut the market short this year after the CSA ended because of the large time commitment. We are not allowed to drive on the Ag Quad to set up. This makes the set up and clean up process labor intensive because so many of our materials are kept on site at Dilmun. During the fall semester, we did not have enough time to set up and clean up. We are working with the Cornell farmer’s market staff to come
up with a better system of set up and clean up. Overall, it was a lot of fun working the stand on the Ag Quad. Students often stopped to inquire about who we are and what we do as a farm.

Over the summer, we had one farm stand on Ho Plaza every week. The Ho Plaza market was not worth the effort because we were not allowed to drive up to the stand to deliver all of the supplies. In order to set up for market, two managers would leave well over an hour before the market started in order to have enough time to set up. Ho Plaza is on the top of the slope. In order to get our supplies there, we would have to park at the bottom of the slope, and make multiple trips through the building using elevators. When we got off the elevator, we would have to move all of the supplies from one loading cart, to another that was small enough to go through doors. It was an exhausting process. On multiple occasions, we carried the supplies up the slope! Cornell also made us pay the loading fees. After about a month, we decided to drop the market on Ho Plaza. It was not worth the labor time and the stress that it put on managers. The market at Ho Plaza should not be pursued again unless we are given permission to drive on the plaza for set up and clean up.

Manndibles Cafe

This year we grew lettuce for Manndibles sustainable cafe on campus. It was wonderful working with John Little Paz, and the other Manndible employees!
He was always excited to receive our produce, and working with the cafe was easy and convenient. We hope to supply Manndibles with more greens next summer by communicating early on in the season and sending them weekly emails about the produce that we have. It would be ideal to have a secure agreement with them. As the farm grows, we hope to increase the amount of produce that is sold to the cafe because it is a great way to get people in the Cornell Community to eat our produce, and it’s great publicity for the farm. To the left is Eli, a manager, holding a head of our Salanova lettuce! Lettuce was one of our best performing crops this year.

**Dining Connections**

This summer we revived connections with Cornell Dining. At the beginning of the summer, we had hoped to grow carrots for Cornell Dining on rented land. This fell through due to a lack of organization regarding weeding the carrots. Next year, we have re-structured how we communicate to avoid another incident like this. Although we did not end up selling carrots to Dining, as the farm expands, we hope to grow crops like carrots, kale, and chard, on larger plots of land using mechanical cultivation to supply to Dining. As of right now, the farm cannot produce enough to meet Dining’s demands. Next season, depending on labor and funding, we may sell carrots and kale to Cornell Dining. This is still a viable option but it is very dependent on the season and what is decided to grow and how much.

**Sales to Cooperative Living Centers (Co-ops)**

At the start of the season, we sold some fresh greens, like arugula and spinach, to University Co-ops. We loved serving our peers however, the method of delivering the produce was very time consuming. It did not prove
efficient for us to sell in smaller quantities without planning ahead. As the CSA started, we decided to drop these connections because it was too time consuming. In the future, we hope to restore these connections as we gain more land, and labor, to establish communal CSA plans for the houses. As the farm grows, we would also like to make connections with fraternities and sororities.

**Cornell Orchard’s Partnership**

This year we partnered with Cornell Orchards to sell their fruit and berries at our farmstand and at our CSA pickup. This was a wonderful way to bring people to our farm stand and we found that on days when we sold fruit, people bought more vegetables. Throughout the season we sold strawberries, blueberries, apples, plums, peaches, and pears from the Orchards. We gave them half of the profits. We hope to continue this relationship through the future!
Need for a Truck

As we continue to grow and improve, it seems clear that we need a truck in order to continue to be a well-functioning farm.

Overall, having Abigail’s truck over the season was a huge asset to the farm. It allowed the managers to get a task done in a much shorter time period, and saved us from a lot of physical stress. Right now, the farm does not have a farm vehicle. It is important to remember, that the farm could not have been successful without the truck. This is the most important resource that we are lacking right now and there must be a huge push to get the farm a vehicle.
Volunteer Work Days

Work days were very helpful in completing projects this past season. Often when the projects for the day looked daunting, the thought of people headed our way to help tackle a project kept us optimistic in completing our goals. Throughout the season we had several devoted attendees who came almost every week and many others who showed up intermittently. Each volunteer helped us learn a lot and I’m sure we were also able to share a lot of information with them.

Some major projects that volunteers helped us to complete include planting bulbs as a beautification project, preparing and seeding large sections of beds, harvesting produce, weeding, and preparing for the CSA.

Attendance of volunteer work days was high closer to the end of the spring semester and near the beginning of the fall semester. While it was more difficult to get people out in the middle of the summer when it was hot, we did find that we had a larger turnout when we promoted events on the Facebook page, emailed the listserv and advertised free veggies as an incentive. Average attendance for volunteer work days was around 5 people.

Looking forward, while attendance was highly dependent on school cycles, we believe that with an improved social media presence we could have significantly better turnouts at events. Additionally, we believe that when creating a calendar of events at the beginning of the summer, there would be a better level of accountability to host educational events and there would be more people in attendance as they see our active community engagement.
**Field Day**

At the start of the season we held a kickoff event. Although it certainly wasn’t our first day in the field for the season, it was our first publicized event. At the field day volunteers and steering members helped to broadfork and lay compost down on beds. After a few hours of hard work we went down to the barn for some activities which included making “seed bombs” and paper. The paper-making activities were not very successful. The seed bombs, on the other hand, came out well and participants left with a biodegradable seed packet to pop in the ground.

**Movie Night**

The potluck dinner followed by a movie under the stars was a huge success. This event was intended to provide an opportunity for people to come out to the farm in a non-work setting, allowing people to experience the farm and connect with people who are regularly on the farm in a low-pressure environment. About 35 people came out to share dinner and watch Wes Anderson’s *Rushmore*.

**Kimchi Workshop**

A canning workshop held at the farm featured the art of fermenting kimchi. The event was held right at the beginning of the fall semester, pulling over 50 people to the farm! The event was lively with so many attendees.

We used Dilmun cabbage and supplemented the canning process with store bought salt and carrots. Everyone participated in preparing and packing the jars.
Later, some event attendees helped out with field work. At the end of the day, everyone left with a jar of kimchi.

Enthusiastic visitors make and package kimchi—a traditional Korean fermented side dish.

Cider Pressing, Fall Food-dying, and Final Harvest

Pressing cider and experimenting with food-based dyes was a fun closing event for the season. We quickly realized how real early fall sunsets are as we battled with darkness. But nature didn’t stop us from making cider, enjoying some live music performed by Kendra Ellis and Michal Lieberman and attempting to dye white cloth with vegetable dyes. This event was one of many across campus part of Food Week, hosted by Real Food Cornell.
Our main goal was to celebrate the end of the season while educating the community about utilizing food waste. For example, the apples we used for cider pressing were dropped apples from the Cornell orchards and the foodbased dyes were made from food scraps and compost.

**Beet Pickling Demonstration**

At the annual Food and Fiber Fair in Mann library we did a beet pickling demonstration. In addition to getting our name out there to new students, we taught about pickling with some of our stored beets. We had an excess of beets this season so this was the perfect time to sell some produce while engaging with on-campus activities. We ended up charging $3 per jar to cover supply costs. This may have turned some people away but we still had many participants.
Farm Tours

This season we had over 15 groups come tour the farm and/or participate with farm activities. Overall, throughout the season we logged to have impacted over 600 people! This number includes visitors from tours, volunteer work days, educational events and other various reasons. On occasion we had groups drop by spontaneously. Other planned tours included Frank Rossi’s class, Jonathan’s Soil Science Class, the Outdoor Odyssey farm group, CALS Administrative members including Jan Nyrop and Glenn Evans, and more. It was amazing to see so many people interested in learning more about what we are doing at Dilmun.

Lakeview Organic Farm Field Trip

Around Mid-Season the farm managers joined Betsy Leonard and a visiting Nuffield Scholar from Australia on a field trip to Lakeview Organic Farm in Penn Yan, NY. Lakeview Organics produces a variety of organic feeds and seeds and processes their own crops as well as crops for other regional organic farms. The farm owners, Mary-Howell and Klaas Martens, welcomed us with a tour of the
processing plant and fields and shared a wealth of information. Checking out the fields and observing some of their weed management tactics was the most interesting part. We learned about tine-weeding (pictured below) and the importance of timing when dealing with weeds, especially in organic farming. Overall, it was an educational and inspiring experience. We wish we took more field trips!

**Building the Kiosk**

Last year we bought a kiosk by raising money with an online fundraising campaign through Cornell University. This year we set it up! For a long morning, Glenn Evans, Director of Operations for the Cornell University Agricultural Experiment Station, helped us construct the kiosk which Dilmun uses to post information about the farm.

**TSF Farm Report**

**Weed Management Strategies**

Dilmun Hill is an organically managed farm that has recently established no-till permanent vegetable beds. No-tillage systems, or reduced tillage systems, have many benefits over conventional tillage systems. Dilmun Hill established no-till vegetable beds to decrease the negative impacts on soil health and the environment that are associated with tillage.
Because we are trying to reduce tillage, we have struggled for years to control weeds on the farm. This year we developed an experiment to test different weed management strategies, and received a grant from the Toward Sustainability Foundation at Cornell University.

We tested 6 different weed management strategies to determine which of the six techniques would be the most cost effective in terms of labor. The management strategies were straw mulch, biodegradable paper mulch, compost mulch, no mulch, black plastic mulch and “weedy check” plots. Six replications were set up around the farm for the six different weed management techniques. The replications were ten-foot by four-foot no-till beds planted with onion transplants from the greenhouse.

Data was taken to set up the plots, transplants, harvest, and weed at select intervals throughout the growing season. At the end, this data was compiled and reviewed to determine which management technique was the most cost effective. Black plastic was the best performer. However, it is important to note that the biodegradable paper mulch produced almost equal yields and only required a small amount of additional labor time.
Vegetable Production

Overview

Much of our farm that could have been under cultivation, wasn’t. We also put into production some areas of the farm that were previously uncultivated. We were restricted from tilling early in the season in the Pioneer Garden because there was a rumor of buried barrels. Jonathan Russell-Anelli led a Ground Penetrating Radar scan of the area and found nothing of concern. By tilling, we quickly and cheaply turned the whole area behind the barn into productive beds. We didn’t have to go through the costly, backbreaking process of building raised beds.

The raised beds that were already made behind the barn had very large paths that were wide enough to be beds, and were very irregularly shaped and sized. We adjusted and created new beds, doubling the amount of beds and the amount of production we could get from this area. In all, we tripled the amount of growing area behind the barn. This area is flat, convenient, and grew our most beautiful, productive plants this season.

Over time, the ends of the beds in the market garden had been encroached by grasses and weeds, and the area under cultivation was shrinking. We tilled, planted and cultivated the ends of the beds to reclaim them for growing vegetables. We added a huge amount of growing space in the market garden as well. We recommend that managers leave enough time at the beginning of the season to reestablish the ends of the beds before planting.

The greenhouse was the most important factor in our success this season. By starting everything in the greenhouse, we were able to maximize the amount we could produce by shortening the time everything spent in the ground. We recommend that to all future managers. All space-limited vegetable growers plant the largest transplants they can get away with, and always have something going in the ground when something comes out. This means having a very organized and dedicated person managing the greenhouse so that transplants are always ready when they are needed.

Irrigation was a big problem for us this season, especially during the late summer which was very dry. Turning the irrigation on and off from the source every day
was a huge waste of time, and there were constant leaks and issues. At one point, a utility project not connected to Dilmun Hill was conducted on and near the grounds of farm, and the workers cut our water lines. The lack of water was an issue, and also too much water, because areas with leaks flooded and water collected in beds that were downhill from leaks. Too much time was wasted fixing pipes! We are working with engineering students at Cornell to develop a different design for our irrigation system to make it more efficient and reliable.

We grew carrots and sweetcorn on a quarter acre farm site nearby, at East Ithaca. The corn was transplanted into black plastic, grew very well, and we harvested lots of delicious sweet corn from it. The carrots were for Cornell Dining, with whom we built a relationship with, around a mutual desire to work together. The problem in the past for Dining was that the student farm couldn’t produce the volume that they wanted to buy. By focusing on carrots, a high value crop that they wanted from us, we hoped we could meet their needs. Unfortunately, the field was too big to cultivate by hand, and we were not allowed to cultivate by machine.

**Crops in review**

**Brassica**

Brassicas grew well all season, but they need to be covered with row cover the very same day they are transplanted or seeded. No exceptions. The flea beetle pressure is high. Seriously. **FUTURE MANAGERS: COVER YOUR BRASSICAS.**

Special thanks to Kale for being extremely productive.

**Nightshades**

Field tomatoes were good, but we were lucky. While other farmers in the area were suffering from late blight in their tomatoes, we were not affected until the tomatoes had mostly stopped producing. Peppers were a lot of work for very little gain. They are difficult plants. Eggplants grew well. We wish we had planted more.
In our small, wooden hoop house, we grew tomatoes using a similar method to that used in hydroponic greenhouses. Tomatoes are twisted around a string and pruned weekly to maximize production and minimize disease in a small space. When they grew above the wire they are hung from, we released more string to allow them to continue growing. We were very productive and managed to get a lot of tomatoes despite the restrictions of a very small, very short hoop house. We have applied for and received a grant to build a bigger hoop house that would allow for much more of this sort of lucrative, efficient and delicious tomato production.

We grew lots of beautiful onions and scallions. They were very successful. They love our silty soil.

**Lettuce**

Lettuce is a winner. It grows easily and quickly and commands a high price. We sold it to Mandibles and at the farmers market. We especially recommend lettuces that can be cut apart and made into mixes.

**Carrots**

The carrots that we grew for the CSA on the home base site did very well. They are sensitive to weeds, so make sure they are well cultivated.

**Herbs**

Very successful. We grew sage, thyme, rosemary, dill and basil. FUTURE MANAGERS: Be careful how much basil you plant. We harvested 3 huge garbage bags per week from our plantings, and it was hard to push it on the CSA members. We had to make a lot of pesto.
Flowers

Over the season we received many generous flower donations. Blossom donated about 10 flats of cutting flowers. Some of the donated flowers were zinnias, celosia and marigolds. With so many flowers and some bought sunflower seeds, we started a flower patch on both sides of the asparagus. Although we neglected the flowers because we had to take care of the vegetables, many made it through the heat of summer because the flowers were in a low, wet spot. The sunflowers looked amazing but the other field of flowers was not so aesthetically pleasing. Regardless, we were able to pick many beautiful bouquets to sell or include in a couple of our CSA shares. The sunflowers were a hit with both, our CSA and the farm stands. In the end, the flowers did not take that much care and they added some beauty and value to our CSA. In the future we might suggest just planting sunflowers or some other type of plant. The sunflowers created a tall sunny patch on the farm that visitors certainly enjoyed.

Weed Pressure

Overview

Dilmun is host to a diverse population of weed species. This season we used mulching and mechanical weeding practices such as hand weeding and hoeing to
control weeds throughout the farm. We had a lot of difficulty keeping on-top of our weeding. Often we let weeds get too large for hoeing forcing us to weed by hand. We suggest that future managers keep strict weeding schedules to ensure adequate control.

**Suggested focus areas**

In addition to consistent overall weed control, future managers should implement long term strategies for the control of several hard-to-eradicate weed species:
Yellow Nutsedge (*Cyperus esculentus*) in field three

Yellow Nutsedge is a perennial weed that reproduces through a nutlike tuber that can persist up to 20 years in the soil (Wilen et al, 2010). Yellow Nutsedge thrives in wet conditions (Wilen et al, 2010), and has become a serious problem in the waterlogged soils of field three. Tillage in field three has made the problem worse by breaking up and redistributing Nutsedge tubers (Lingenfelter, Curran). We attempted to control the nutsedge in field three by manually removing the tubers. This method was ineffective because the tubers are small and hard to remove without excavating large amounts of topsoil. The best approach to controlling Yellow Nutsedge at Dilmun would be to exhaust the tubers’ stored reserves through regular mowing or manual weeding. The best time to enact this approach is just after the first shoots have emerged in the spring. At this time, the tuber reserves are low after a long winter without photosynthesis (Lingenfelter, Curran). Mowing or hand weeding should be repeated every 2-3 weeks throughout the summer (Wilen et al, 2010).

Quackgrass (*Elytrigia repens*) in the pioneer beds

Quackgrass is a perennial grass species that reproduces rhizomatically (Cox, Gallandt, 2012). This weed can be found all over the farm, but is especially bad in the east-most pioneer beds. These beds are new as of 2015 explaining why the perennial species is so prevalent here. Fragmented quackgrass rhizomes can re-sprout making regular tillage ineffective in controlling quackgrass (Cox, Gallandt, 2012). The best option for controlling quackgrass at Dilmun would be to kill the rhizomes through desiccation. This can be achieved by shallowly tilling or hoeing infested areas in dry conditions to bring the rhizomes to the surface. Following tillage the rhizomes should be left to desiccate in the sun (Cox, Gallandt, 2012) or covered by clear plastic to solarize the area. By planting short duration crops such as radishes future managers can repeat this practice every few weeks to exhaust the rhizome fragments.

Canada thistle (*Cirsium arvense*)

Canada Thistle is a spiny creeping perennial weed that is found all over Dilmun. This weed is especially bad because it pokes through plastic mulching and is painful
to remove by hand. Controlling canada thistle at Dilmun will be similar to controlling quackgrass. Shallow tillage or hoeng every few weeks to attempt to dessicate the rhizomes. Following the tillage with a cover crop of winter cereals at the end of the season has proven to be effective in suppressing Canada thistle (Gregalia et. al., 2006).

Works Cited:


Soil Health and Nutrient Management

Overview

This summer we faced many setbacks that stemmed from poor soil health. We believe that poor soil health at Dilmun is a result of soil type, climate and management. In order to resolve these problems, future managers will need to shift soil management practices to create healthy soils. The following paragraphs outline some of the problems we faced this summer, where we believe these problems stemmed from, and how we believe soil health could be improved.

Costly Compost

Currently, we use compost as the primary soil amendment and fertilizer at Dilmun. Originally, Cornell Compost supplied Dilmun for free, but this season we began paying for our compost. Over the course of the summer we spent $710 on 71 yards of compost. We believe that compost is over-applied at Dilmun. In addition to being extremely costly, the over-application of compost can result in nutrient leaching and increased weed pressure. Future managers should carefully calculate compost application rates and use other soil amendments and fertilizers. We had a lot of success with foliar-applied fish emulsion.

Flooding in the Market Garden

As the rain fell nearly every day in June, many of the beds at the bottom of the Market Garden became waterlogged. Anaerobic conditions stunted the growth of our kale and cabbage, and slugs, encouraged to surface by the wet weather, began feasting on our crops. The beds in the market garden are especially prone to flooding because of the clay soil type in the area. The negative effects of poor drainage were compounded by soil crusting caused by the heavy rains and the intensive tillage practices at Dilmun. Crusting in the Market Garden resulted in surface flooding and runoff. Runoff from uphill collected in the lower beds and exacerbated the poor drainage conditions that already existed there. As flooding issues worsened and production in affected areas declined, we decided to take
several beds at the bottom of the slope out of production. Space is a limiting factor at Dilmun, and we lost a lot of productivity by removing the flooded beds. With better management in the future these beds could be brought back into production.

The first step to restoring good growing conditions in the affected beds would be to improve soil aggregate stability in all of the beds of the Market Garden. Conservation tillage practiced and cover cropping have both been proven to improve aggregate stability. Reducing tillage is extremely difficult and costly in an organic vegetable system and would not be practical for Dilmun at this stage. We suggest that future managers focus on cover crops as a method to improve soil health. Because space is so limited at Dilmun, managers are often reluctant to take land out of production. By planting a cover crop in just a few beds each season, however, future managers could vastly improve soil health at Dilmun. We encourage next season’s managers to make a long term cover crop rotation that encompasses all of the growing beds.

Sources:
USCC Factsheet: Compost and Its Benefits

All of the soil issues and how we added nutrients

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http://compostingcouncil.org/
**Education & Outreach**
Dan Chamberlain – Agricultural Sciences
Isabel Gareau – Plant Science
Elizabeth Leonard – Development Sociology
Fallon Lowe – Agricultural Science
Jesse Puka-Beals – Agricultural Sciences

**Description**
The Education & Outreach team is responsible for fostering communication between Dilmun Hill, Cornell student body, and the greater Ithaca community. We work to make Dilmun more than just a farm by designing and implementing workshops, hosting student field trips, maintaining institutional memory, and increasing student engagement.

**Long term goals**
- Develop a course offered in Fall 2016 in which students are able to engage with all practical aspects of small-scale vegetable production.
- Produce video project about Dilmun’s history for Spring 2016.
• Host a College Farms of America Speaker Series in Spring 2016, during which members of some of the Nation’s most well-regarded college farms share their farm’s story and impact with the Cornell community.
• Host numerous workshops and social events showcasing everything from the science of soils to Contra dance.

**Vegetable Production**
Julian Garcia – International Agriculture and Rural Development
Eli Shanks – Agricultural Sciences and Applied Economics and Management
Tiffany Wu – Animal Science

**Description**
The Vegetable Production Subcommittee is responsible for planning all of the farm’s vegetable affairs. They organize the ordering of seeds and supplies, and plan all of the plantings and crop rotations in advance to help the summer managers. The main goal of the committee is to anticipate and plan for every scenario the managers may encounter over the summer with regard to producing a crop, and provide them with suggested solutions.

**Long term goals**
• Improve soil quality and increase production of the farm.
• Maximize the potential of the contaminated land.
• Get chickens and other farm animals at Dilmun.

**Business and Marketing**
Jacob Anderson – Charles H. Dyson School of Applied Economics and Management
Ashley Engels – Industrial and Labor Relations
Abigail Prisloe – Agricultural Sciences

**Description**
The business and marketing subcommittee is responsible for connecting Dilmun with good business practices. We work to present the farm in a professional manner and introduce new business practices as we see fit.

**Long term goals**
In the long term we hope to develop an all-encompassing website for Dilmun. Our goal here being to utilize modern technology to make handling our CSA more manageable and professional.
Moments from the Season
Many volunteers came out to help weed and plant over the summer.

Farm Manager, Fallon, shows off our summer Squash.

Gene from Farm Services at the Cornell agricultural Experiment Station helps us by seeding carrots with a vacuum seeder. We all went to watch, to help out and to learn about the machine.

The herb garden occupies a space that, at the beginning of the season, was a weedy mess near the entrance of the farm. We cleaned it up and put in these raised herb beds that would look much nicer and utilize the space better.
Hoop House Grant

This past year Alena Hutchinson wrote a Towards Sustainability Foundation (TSF) Grant Proposal in an attempt to get funding for a hoop house on site at Dilmun Hill Farm. The grant went through with an approved award of $10,000. Although we have to wait for some more approvals from the university, the outlook for the project looks positive.

One specific objective intended to come out of this project includes the development of a comprehensive educational curriculum by Dilmun Hill Steering Committee students through partnership with Cornell graduate students, faculty, and extension personnel. This curriculum will cover a full calendar year of organic high tunnel vegetable production and maintenance, giving participants hands-on experience in all of the skill areas necessary to successfully manage a high tunnel vegetable crop. Subsequent generations of Dilmun Hill Steering committee students will then continue the workshop series, with the series becoming the backbone of the organization’s experiential learning programming and a model for future on-farm educational curricula.

In addition to the workshop series, Cornell undergraduate engineering students will design and build an automated sidewall control system. Video documentation will take place during the construction of this system. Later, the video will be utilized as an extension tool at grower meetings and conferences. A partnership with students from the Engineering College would also mark the beginning of Dilmun Hill’s effort to establish itself as a leading site for engaged learning where students of all educational backgrounds can have the opportunity for hands-on application of the material that they learn in the classroom.
The high tunnel has lots of other educational potential. A few more benefits include: more realistic and valuable experience for Dilmun Hill Summer Managers, hands-on experience with high tunnels for engineering students, steering members and all Cornell students, and lastly, the opportunity for graduate students or other students to utilize Dilmun as a lab site for senior theses or research. These are just a few of the many benefits the future high tunnel will impart.
Acknowledgements

Abigail, Ashley, Bear, Eli, and Fallon would like to thank everyone who helped the summer 2015 season be the huge success that it was. Without the support of everyone including Betsy Leonard and our volunteers we would not have been able to accomplish as much as we did. Thank you!