Farm Report 2009

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This season at Dilmun Hill was full of new and exciting developments! For the first time, we had several major projects underway, with five different managers in collaboration. In the past, the entire farm has been run by just two or three managers who focused on market garden production. This year, three of us took on the responsibility of managing the market garden, while Neele Reimann-Philipp installed the Growing Mosaic Garden and Bonnie Cherner enacted her first year of research on the soil contamination. Later on, Neele graduated and Wren Albertson-Rogers and Kelley McCrudden took her place managing the GMG during the semester. In this way, learning the ropes of operating the farm and growing vegetables took place in the context of working in a diverse team of students. As a result, a major part of the learning experience for us this summer was in the dynamics of a managing team. Leadership styles and effective communication were essential lessons that came out of our Dilmun experience.

The issue of soil contamination at Dilmun Hill has been the focus of very active research by a whole team of people for the last two years. The site used to be in orchard plantings, which were historically sprayed with lead arsenate pesticides. These toxins remain stable in the soil, so the entire site was tested to determine what degree of contamination we are dealing with. We got great news this spring when we found out that Tortilla Flats was free of contamination, and we could continue to grow vegetables in that area. With Best Management Practices in place for mitigating exposure to toxins for managers and volunteers, this research project will hopefully yield methods for safely growing crops on contaminated land.

As a market garden team, we decided that it would be valuable to spend the season focused on various areas of development of farm infrastructure and collaboration. We refrained from putting all of our energy into strictly growing vegetables, and we were able to work on improving the site and establishing connections with other groups and organizations. As for site upkeep and improvement, we wanted to make the entrance to the farm much more visually appealing and functional. Restoring the herb garden, planting the berry garden, and planting flower beds all contributed to developing our front entrance. We also put considerable efforts into fixing our irrigation system and
creating a water catchment system to reduce our water use. Our outside collaborations and outreach efforts are detailed later in the farm report.

Although we tried to diversify our goals and improve the workings of the entire farm, we also had a very successful season in the market garden. With over 700 hours of enthusiastic help from our volunteers, we had continuous harvests from late June through early October. Our farm stand sales and efficiency improved throughout the course of the season, and we maintained a great relationship with the folks at Manndible Café. We were even able to establish a connection to Cornell Dining and Cornell Catering, growing vegetables for two separate events late in the season. The success of that project was especially great because it was the culmination of years of concerted efforts to make a working relationship with their organization.

All told, we had an amazing season at Dilmun Hill! It was a profound experience for the managers as we went through the difficult, but rewarding learning curve that enabled us to run the farm effectively. We would like to extend our deepest gratitude to everybody who helped us accomplish what we did.

Summer managers lead a visiting group through a tour of Dilmun Hill
Meet the Managers!

Hello, I’m Davis Archer. I am in my third year at Cornell, majoring in Natural Resources, and I’ve been working at Dilmun Hill since I got here. When I started volunteering at Dilmun, it was the friendly folks and tasty produce that really stood out to me. To this day, the most fulfilling aspect of working at Dilmun has been the enthusiasm and energy of our volunteers. I spent a number of years volunteering at the Community Farm at home in Jamestown, RI, and after developing a passion for this farming structure, I found that Dilmun Hill perfectly matched my interests. I believe that volunteer involvement is tremendously rewarding for both managers and volunteers alike, and it breeds a strong, unique commitment to the farm.

My name is Becky Hume and I am currently a Junior International Ag & Rural Development major. Some of my passions include: cooking, hula-hooping, everything Southeast Asian (which is where I grew up) and KALE!! . I just transferred to Cornell from Iowa State last year and am loving it so far! Dilmun has been a huge part of what made my transition here to Ithaca so wonderful. My favorite thing about Dilmun by far is the groovy community of people who are involved with Dilmun Hill. I have met so many truly amazing human beings who love the earth and are passionate about farming and for that I am so thankful. Managing the Market Garden this past year has been a truly amazing experience and through it I have come to realize my love for farming. It is my goal one day to have a farm of my own.

Hi guys! I’m Alex and I’m currently a sophomore in the college of Architecture, Arts, and Planning. I am an architecture major but I am fulfilling pre-med requirements and trying to get a minor in biology. I got involved with Dilmun because of my interest in sustainability. I have been searching for the intersection between medicine, architecture, and sustainability, and this search led me to sustainable agriculture as a possible option. I came to Dilmun and not only did I find that sustainable agriculture is a piece, but a vital piece of the puzzle, I also found a community of very friendly and knowledgeable people. I love the community that Dilmun has nurtured and I am proud to be a part of it.
Market Garden Overview

Don't panic, it's organic!

Growing vegetables is really a lot of fun. There’s an incredible diversity of things to learn and tasks to do in order to pick, eat, and sell delicious produce. Being a farmer is really a year-round process, especially at Dilmun Hill when it comes to the many interactions that the farm has with the community around it. The Steering Committee, Dilmun Hill’s governing body, meets all winter to make decisions about the farm, but we’ll say that the growing season begins early in the spring when we decide which plants to grow. Last year’s managers, this year’s crew, and a few other folks who were interested met in the early spring to decide which crops and varieties we should grow, and we sent in our seed order to Johnny’s seed catalog. We usually try to go with some heirlooms and other uncommon (and colorful!) varieties of vegetables. They are fun to grow, and they provoke questions, which gives us opportunities to educate people about what kinds of fun and crazy veggies are out there.

It's an exciting day when the seeds arrive in the mail - there's a whole garden in that little box! To get the process started, we head up to the Guterman greenhouses, where we have space reserved in the organic house. There are some greenhouse procedures and resources to get familiar with, so Janet Myrick and the greenhouse staff are really great and helpful. Melissa also helps us get this whole process squared away, so getting the logistics started early with her is a good idea. We initially ordered organic potting mix through the Ag Experiment Station, but later in the season they were able to make potting mix for us at the greenhouse. Around mid-April we started planting seeds into flats, and fairly soon after, they have to be thinned so the seedlings don't get too crowded. Since this happens during the later portion of the spring semester, everybody tends to be feeling rushed and hectic, and it's good to have a solid plan as to what's going to be planted, and when. Not only that, but once the seeds are out of the packets and into the soil, documentation becomes important.

Truth be told, documentation of farm activities throughout the season is crucial. Keeping track of what has already happened enables you to form expectations about when your crops will be ready and what sort of quantities you will have. On a longer timescale, you can learn from past experiences and make decisions based on what has or hasn't worked on your site in the past. The list goes on and on: detailed documentation is huge. It is a constant process that really pays off in the end. For better or for worse, we kept everything, all of our numbers and dates and drawings and ideas, in one single notebook. We knew where to record anything of relevance, and knew where to look for
that information later on. Our system could have definitely been improved, but its success definitely stemmed from its simplicity.

We start our season early under row covers, so once the weather warms, it's time to start work in the field. We prepare beds for the transplants that have been growing in the greenhouse as well as for the crops that get seeded directly into the ground. The transplants need to be hardened off in cold frames so that they become used to the cold nights of spring. There are cold frames at the greenhouse and at Dilmun over by the asparagus patch. When it comes to the nitty-gritty of how to grow all of the different vegetables, there's a wealth of resources with great ideas and techniques. We have a modest library in the barn, and some of our favorite go-to gardening guidebooks were by Crow Miller and Elliot Coleman. Everybody has a different way of doing it, and if it makes your vegetables grow, then it's the right way.

Our garlic in June – time to snip those scapes!

Above all, new plants need water to survive, and we get our water from the Cornell Orchards next door. It takes just a phone call or a trip over there to get them to turn on the Dilmun Hill valve, at which point we're in control of our water supply. This spring was pretty dry, so we used garden hoses to water in our sets of transplants before we had our irrigation lines installed. You can never count on the weather for very much; we had a really dry spring, but as the summer progressed it started to rain all the time, and mostly during work parties. We kept track of rainfall patterns in our farm notebook and with a simple rain gauge on a post, because it was good to know how much water our plants had been getting, helping us decided whether or not to irrigate.

Dilmun Hill is at its heart an organic farm. We haven't gotten certified mostly because we are too small, and the certification process would be really difficult to carry
out with respect to each year's changing managers. Even still, we do not spray any chemicals on our crops, and we try to enact sustainable approaches to all of our problems. Being subsidized by the university, we have the economic freedom to steer away from chemicals and enact cultural practices instead. This year, we kept hearing from other farmers that this year was brutal for pests and weeds alike, and we experienced the same in our garden. As a result, we had to suffer through some crop failures. Our tomatoes succumbed to Late Blight before reaching maturity, and we missed out on vast potential sales and sauce-making opportunities. It was unfortunate, inconvenient, and sad, but simply part of farming. After it was all over, we recognized the value in experiencing a crop failure. We also had smaller scale failures as woodchucks terrorized our garden and our eroded, compacted soil inhibited some seed germination. At every turn, though, we were taught valuable lessons and were grateful for the unique experience of managing this garden where we could learn from our mistakes.

At long last, we are poised to reap the bounty of our soil, our plants, and all of our hard work. The outlets for our Dilmun Hill produce are very local: we sell our vegetables on campus, and whatever is left over we donate to a soup kitchen in downtown Ithaca. Along the way, we wind up bringing home a lot of our veggies to feed ourselves and our friends. It'll suffice to say that we ate very healthy throughout the summer. While our harvests and our sales represented the tangible rewards of managing the market garden, the learning experience meant a whole lot more to every one of us.

The Site

Dilmun Hill is a 12-acre site, with 7 acres enclosed within a tall deer fence. Its namesake is a steep terraced slope at the entrance to the farm. We grow all of our vegetables at the top of this hill inside the fence in Tortilla Flats. Tortilla Flats is a roughly 1-acre, T-shaped field that borders the north side of the farm along Route 366.

Dilmun Hill is right on the edge of Cornell campus, an easy walk or bike ride from campus or Collegetown. On a campus map, Dilmun is at the southeast corner, bordered by Dryden Road (Rt. 366) to the North, Cascadilla Creek to the West, and the Cornell Orchards to the East. There are several ways to get there, the easiest being through the driveway off Route 366. This is the widest entry, but it is also tricky because there is no sidewalk, a light, or anything indicating a crossing. Wait for a lull in traffic, then cross the road. If you are coming from Maple Avenue from Collegetown, you can take the East Ithaca Recreational Way next to the vegetable crops buildings at the top of the hill. There is a set of steps that connects the Rec Way to Dilmun. There are also gates leading to the Orchards and the MacDaniels Nut Grove. Dilmun Hill is accessible and open to the public, and there are many Cornell community members and Ithaca residents who know the farm and come by. Some people walk their dogs through the farm, or use it for access to the recreational way. It’s a beautiful site and we love to share it!
When you first enter from the road, the Blair Barn is the centerpiece of this front area of the farm. The herb garden and the McBerry Patch are north of the barn, closer to the road. The barn has a few beds surrounding it that can be planted full of flowers. To the south are the compost toilet, or the “Chess Club,” and a newly installed sink fed by rainwater. The area behind the barn to the west, which used to be a mint garden, got cleared out this season so that we can resume some sort of production. There is a well spigot and some raised beds back there, and that space could be really neat if we could implement a well thought-out design.

Right across from the front door of the barn is our formidable fence and its main gate. While you walk up the hill, you will pass the fruit terraces. There are blueberries, pawpaws, hardy kiwis, and apple trees in the rows that were planted about 10 years ago in such a way that they prevent erosion down the hill, provide natural habitat, and slow down and utilize water runoff downslope. The fruit trees and vines, though, need some serious maintenance - only the apples produce much of anything. Once you're at the top, Tortilla Flats is a T-shaped plot of land to the north at the top of the hill. This is the main growing plot for the market garden.

To the east there are four separate fields, or blocks, under different plantings and uses. Block one is closest to Tortilla Flats, and this season it nourished the research vegetables. Block two is a long term hazelnut research plot, and the Growing Mosaic Garden is in block three. There is a long strip to the north of these that is an old agroforestry installation. Within it is a pine windbreak becoming slowly established, and fruits such as currants and gooseberries. To the south of these blocks is another terraced slope that was the site of the old market garden. What remains of those days are some blueberry and asparagus plantings, cold frames, and at the far end, a sink and a shed. The path leading to MacDaniels Nut Grove exits the fence at the SE corner of the site.

As we mentioned before, we put considerable effort into improving and revamping various parts of the site to make it a more inviting and functional space. The herb garden in front had gotten totally overgrown, with a few tenacious exceptions, so we spent a bunch of time cleaning it up, replanting herbs, and built two raised beds to the side that we planted with strawberries. In early May we planted and began to maintain the berry garden, culminating a project begun by Kelley McCrudden and Lindsay O'Hara. As part of our contamination best management practices, we needed a place for hand washing, so beneath a gutter downspout, we set up a rain harvesting system that connects to a sink. This system could be improved by diverting the drain water and excess away from the base of the barn and sink. Our compost system was pretty defunct, as well, so we built new bins at the top of the hill and began a more efficient compost process for field waste. At a work party in the fall, we fixed up the existing cold frames that were in disrepair, so that we could have an option to start, harden off, or temporarily store seedling flats on site. Finally, we put a lot of effort into making the barn itself a more functional space. Over its many years, it had collected massive amounts of junk and trash, so we cleared out all of the refuse, organized the space, and created a comfortable sitting and meeting area on the main floor.

A map of the entire farm is on the next page.
Farm Operation Manual

The Soil

Oh, where to begin! Last year’s managers, Matt and Suzy, and our soil contamination guru, Leigh, put together a beautiful, comprehensive, long-term cropping plan to help future managers be better stewards of the soil. Originally, this plan included parts of Tortilla Flats as well as block one. Unfortunately, this spring we received the soil test results indicating that the area in block one contains some residual contaminants from orchard pesticides used on the site in years past. With this new information, we grew crops only in Tortilla Flats, where extensive testing verified that the soils were completely clean and free of any toxins. Our quick shift in cropping areas did not leave us much time to plan a new crop rotation, so basically, things got planted a little willy-nilly this season. One area on southeast end of Tortilla flats has been in production for the last four years so this season we decided to let it rest and planted it only to cover crops (see map for specific area). Hopefully last year’s crop rotation can be revised to fit Tortilla Flats and be implemented in the future!

At Dilmun, we are sitting on top of a Hudson series silty clay loam soil. We are lucky to have high fertility; our soil has great levels of both macro- and micro-nutrients and is regularly amended with compost. So, all in all, our vegetables are pretty happy and well nourished. The site is not without challenges though. Tortilla Flats is on a relatively steep hill, which has led to a substantial amount of erosion over the years. Also, our main tillage instrument at Dilmun has been a rototiller and although the rototiller makes an awesome seed bed, it also completely destroys soil structure. This loss of structure, coupled with our very clayey soils up on the hill, causes soil crusting. This crusting was a huge challenge for us this season, inhibiting germination of the very small, direct seeded crops like lettuce, carrots and basil. Some solutions we experimented with were putting up reemay, or mulching newly seeded crops to help absorb some of the impact of the rain to prevent the crust. We were relatively successful with these measures, but restoring the soil structure is definitely a critical issue that future managers should keep in mind.

Irrigation

Dilmun Hill’s permanent irrigation system consists of underground pipes that come from the Orchards next door. We ask them to turn the water on at their valve, and then we have sparkly-fresh municipal water in our pipes. There is a single shutoff valve for our whole system located near the east end of the farm so we can cut water when it is not in use. Early in the season, we were told that Dilmun’s irrigation system was a primary suspect in a mystery concerning a large amount of missing water. We decided we should find and fix the leak that might be responsible. In the process we could make a comprehensive map of our underground system, which is really useful information that was lost at some point during the time since it was dug into the ground. We've attached just such a map as an appendix.
With little prior irrigation experience among the managers, the process started fairly slow, but was ultimately rewarding. Most of the parts are simple – pipes, clamps, threaded valves – and they can be manipulated with hand tools. The fact that much of it was buried underground did cause some exasperation, not to mention digging. We were very grateful to Hugh Ink, the former Orchards manager, who had an eye for the subterranean. After he helped us locate a few mystery valves, we finally had a good idea of where our water was going. Then by closing all of the perimeter valves, pressurizing our system, and reading the Orchards water meter, we were finally sure that we were not wasting any water. Still, from time to time, different pieces of the system would blow, and could be heard spewing water out of the ground. We would have to fix each leak to get pressure to the market garden, which lies practically at the end of the line, but each time wished we had a more effective pressure regulator at the front of the line. We never got around to installing one, but that would be a great improvement to the system.

So much work and we hadn’t even gotten water on our vegetables yet! The underground pipes have outlets at various noticeable risers throughout the farm. To distribute water on our fields, we use a drip irrigation system that we attach to one or more of these risers. We began with hard plastic tubing that we extended from the risers to the edge of the field, laying it laterally along the ends of the rows we wanted to irrigate. Then we attached one length of drip tape per row and laid it out along the center of the row. Our collection of pre-reused plastic lines didn’t always exactly fit our rows, so we used quite a few plastic connectors and clamps to suit our needs.

Once everything is in place, you can be pretty certain that it doesn’t work perfectly. There is endless troubleshooting to be done, and that’s where we put in most of the work. Patching or splicing around lawnmower injuries, walking lines to find and undo kinks, and replacing worn out parts are the lifestyle choices you enter into when you are caring for a drip irrigation system that is delivering water (life!) to your veggies. We didn’t actually subject our system to very much use, since we had adequate rain all summer. We watered in a couple sets of transplants, or else ran the irrigation superstitiously to encourage rain to come later. What that meant was that we were able to make do with the eclectic assortment of materials that were available to us from years past. However, if a new manager team were trying to set up a really nice efficient drip system to get their vegetables through a dry summer, it wouldn’t be a bad idea to invest in some new plastic lines and tape – and then take care of them! Cut them into useful, uniform, labeled lengths, and then use and store them with care; it could be a very nice, repeatable system that fits the same field each year.

After taking all of the drip tape and plastic laterals out of the field in the fall, the last step in taking care of the irrigation system is to drain the water out of the lines. This prevents any potential cracking or bursting that could occur when the ground and the water in the pipes freeze. There is a low spot in the system just south of the Growing Mosaic Garden where the excess water in the pipes can be let free. This only needs to happen once at the end of each season.
Machinery

Although we aren’t able to operate full-size tractors at Dilmun Hill, we can get all of the heavy machinery work done that we need by calling up Campus Area Farms or asking Melissa. As for our personal use, we have a walk-behind BCS tractor with several attachments. We bought the BCS early in the season from a fellow named Frank Brockman who had kept it in good shape and had no more need for it. It replaced the rambunctious “Bronco,” the finicky rototiller that had come before it, but also opened up many new possibilities because it has interchangeable attachments that run on a power takeoff. It’s a heavy machine, so the rototiller is safe and easy to use, and it also came with a wide brush-mower. Before anybody uses the BCS, they must have a quick training with Melissa for use and care of the machine.

With this nice new piece of machinery, it’s important to take good care of it and keep it in working shape. We have all of the manuals for the engine, tractor, tiller, and mower, and each need periodic inspection or replacement of parts. There are also a few things to check each time before use – or at least every few times, especially during the times of year that we use it most often. Gas and oil in the engine need to be full, and the air filter should be clean before turning it on. For everybody’s ease and safety, the tractor gets parked downstairs in the barn in neutral, with the fuel line closed, throttle on slow, and PTO disengaged. Whenever the attachments get particularly dirty, it’s nice to clean them off with the hose and pull out bits of plant matter and wire that tend to get tangled up. Less frequently, both attachments need to be greased and the mower gets oiled.

We also have a regular push mower and a weedwhacker. They’re both a bit temperamental, but are in working order. We pay Farm Services to come mow the big sections of the farm, because it would be an unnecessary burden on the managers to keep the whole farm mowed. However, it is our job to keep the corners and edges mowed and looking good, especially around the entrance, barn, and borders of our fields. We – the whole managing team – also have the responsibility of keeping the fenceline clear, which means weedwhacking the perimeter a few times a season, so that the fence stays structurally sound for years to come. If either of our small machines break, die, or act crazy, we can call up Campus Area Farms for help fixing them.

Pests

Like any organic farm, we were beset by legions of pests that tried to rob us of our vegetables. We do not spray any pesticides whatsoever at Dilmun Hill, mostly because we would rather try other chemical-free sustainable approaches to combating pests. Since the success of the farm does not depend on turning a profit, we’re also prepared to lose a crop, or at least suffer extensive damage, rather than spray. It’s all part of the learning experience. As one class learning scouting techniques at Dilmun during the fall discovered, the truth is that abstaining from pesticides has real benefits for natural biological control of pests. The class discovered healthy populations of native insect predators in the field that were keeping some pest populations under control. For example, Green Peach Aphids are common pests of peppers that often cause growers a
lot of trouble, both harming the plants and developing resistance to insecticides. We had no aphid problems at all, because they were under control by natural enemies.

We employed a few other pest management strategies throughout the summer. Floating row covers, made of spun plastic Reemay, were a mainstay of our system. Reemay is permeable to air, light, and water, but is a really great pest exclusion tactic when it’s used right, which is very labor and time intensive. So inevitably there are tradeoffs and costs to controlling pests the clean way. What becomes really important is the scouting process. The value of knowing what sorts of pests are on your plants cannot be overestimated. Below we’ve organized and discussed all of the pests that caused significant damage during the season:

**Insects**

Whiteflies and fungus gnats – These were both exclusively greenhouse pests, and they seemed to fluctuate throughout the season in the organic house. On occasion, Janet would spray horticultural oils to prevent their populations from growing to a damaging level. It’s unnerving to see bugs all over your seedlings, but they didn’t seem to cause too many problems.

Colorado Potato Beetle – A common and serious pest on potatoes, and to a lesser extent on eggplants. We didn’t see too many of these guys on either crop, and when we did, handpicking was an effective control.

Striped Cucumber Beetle – These were probably our most prevalent insect pest, and they were all over our cucurbit crops. We started off handpicking them, which seemed to slow them down for about a week while our transplants were just getting established. Soon there were just too many for us to crush between our fingers, but our plants were real tough and outgrew the problem. The zucchinis and cucumbers seemed like they got stressed to such an extent that they flowered and fruited early and then tapered off production early, too. We kept the last batch of squash and melon transplants under Reemay, and that took care of SCB and helped the plants get established. We had other options open to us like a rolling sticky tunnel or portable vacuum-powered bug inhaler, but never got around to bringing them out to Dilmun. As a point of suggestion, it is really awesome to have these sorts of resources available through Cornell, and managers shouldn’t hesitate to take advantage.

Flea Beetles – These came in a couple of big flushes, and chewed little shotgun-holes in all of our kale. For a few weeks at different points during the summer, the greens looked pretty shabby, but the flea beetles didn’t really threaten the health of the plants too much. Putting Reemay right away onto new transplants is the way to go to protect the vulnerable little guys.

Japanese Beetles – These are generalists who will chew on just about anything, it seems, but they were only a real problem on one variety of pole beans. The Fortex pole beans got mutilated by Japanese Beetles, but the Garden of Eden beans on the next two trellises were untouched. There could have been a trap crop phenomenon going on there, but we
definitely recommend the Garden of Eden variety for its lack of insect appeal, and its overall quality as well.

**Mammals**

Woodchucks – Woodchucks, or groundhogs, were without a doubt our greatest nemesis all year long. They lumber around the farm, flabby and brazen, and simply mow down our vegetables. Dilmun Hill is definitely marked on woodchuck maps as a bustling metropolis of underground burrows, widely known for its 24-hour organic buffet. A local exterminator that we consulted told us that it was “The year of the woodchuck!!” and that there had been vastly more woodchuck problems this year than he had seen in decades. We were very hesitant, after past accounts, to go on the offensive against them; instead we focused on protecting our vegetables against the onslaught. Peas, brassicas, soybeans, carrots, parsnips, and lettuce are all choice food for a woodchuck, and they will systematically destroy your crop if given the chance. It seemed like permanently hiding these tender crops from view under Reemay was the only way to deter the woodchucks, who were either too stupid or lazy to go inside. With the help of Campus Area Farms, we did start to eradicate the vermin later in the season, but there will certainly be woodchucks to contend with next season. Get ready to guard your veggies.

Deer – Thanks to our slick fancy deer fence, we only had two incidents where a deer snuck in an open gate and we had to chase it out. But as little as they bothered us inside, they were brutal outside the fence. Deer (with some likely help from the suburban woodchucks) chewed up many of our flower beds and forced us to keep Reemay on the new strawberries all summer. Aside from planting deer-resistant crops there isn’t much that can be done outside the fence. Suggestions: snapdragons, calendula, marigolds, aromatic herbs. Avoid: zinnias, cosmos, salvia

Mice, shrews, and other little rodents – These guys didn’t cause any huge problems, but we did have one nice overgrown corridor from the Beanlandia Jungle through the dense tomato rows where they lived and chewed on some of our low-hanging produce. The lesson learned was to keep the rows orderly and clean, rather than semi-wild.

**Disease**

Late Blight – Phytophthera infestans, the dreaded Late Blight of potatoes and tomatoes, was the greatest tragedy of the summer. Aided by wet conditions and an industrial-scale inoculant, this disease caused crop failures all over the Northeast. When we realized that it was coming to get us, we began taking experimental, preventative action. Working with some researchers on campus, we began spraying nonaerated vermicompost tea as a nutrient supplement on our tomatoes and potatoes. This was a safe way to give them a nutrient boost that would help them grow vigorously and perhaps outstrip the disease until we could get a harvest. We were also curious to see if all of the beneficial, active microorganisms in the compost would be able to outcompete any pathogens that landed on the surface of the leaves. Either way, they grew with vigor and gusto, and our plants were huge and healthy when we first identified the telltale dark splotches of late blight on our tomatoes on July 27th.
We quickly mowed off all of the potato foliage and harvested the fingerling potatoes to prevent them from getting infected. Then we set to the unsavory task of removing the tomato plants from the field as they became infected. The spread of infection was much slower than all of the literature suggested, and we were able to get a small cherry tomato harvest before the plants succumbed. It remains entirely possible that the spray itself, or the general health of the plants, helped slow the spread. We ultimately pulled all of the plants from the field, and wound up with vast amounts of unripe green tomatoes. Our kitchen became a hotbed of experimentation with green tomato recipes, and we came up with some excellent stuff – green salsa, pickles, etc.

Early Blight – This was another affliction of our tomato plants, and was a result of the rows being too close together and overgrown with weeds. The key to preventing diseases like these is to keep the rows really clean and well-spaced so that there is adequate airflow to dry out the lower leaves. Wet conditions are what really encourage the spread of fungal diseases like these, and prevention is the way to go.

Powdery Mildew – Powdery mildew is a fact of life, and fortunately by the time it swept through our cucurbits, they were big and strong enough not to get totally demolished. The big problem there was some unidentified pathogenic killer that knocked out quite a few of our cucumbers and squashes. It never seemed to line up with any descriptions of common diseases, and kept us guessing during late summer as our plants withered and died. We also had a different strain of powdery mildew on our tomatoes even as they left the greenhouse, but with all of their other problems, it seemed inconsequential.

Slugs

Few people know how slugs are classified, so they get their own section. What is known without a shred of doubt is that slugs are all about rain and mud, and they come out in force to chew holes in our hardy greens. They caused the most trouble early in the season in our kale rows, which we had mulched with straw. Unfortunately, in a season so wet, this provided perfect habitat for the slugs, who grew to gargantuan size and relentlessly slimed all of our food. Removing the mulch was ultimately the most effective strategy – when they don’t have a nice wet, protected habitat where they can hide from the sun, they cause much fewer problems.

Weeds

The weather this season provided really great growing conditions for our crops and weeds alike. Weed pressure was really heavy, and sometimes outstripped our ability to keep up. We work on such a small scale that all of our weeding is done by hand. Sometimes there are situations where you can use one of my favorite implements, the scuffle hoe. Other times there’s no other way than to bend on over and grab those little weeds with your fingers. Fortunately, weeding is something that volunteers are very good at. Even though it doesn't seem like weeding is especially fun or empowering for them, it's simple and rewarding and really easy to delegate. Always keep it in mind when you’ve got volunteers looking for work.
We also tried to work toward weed suppression whenever possible. Straw mulch is a good way to go about this. After you give the rows a thorough weeding, layer it on really thick so that weeds can’t germinate and push up through the mulch. The mulch also prevents water loss and holds a lot of water itself. This can be a really good thing during hot dry summers, but can also cause pest problems when it becomes a slug haven. On the whole, though, straw mulch is a really great idea. It diverts time and energy away from perpetual weeding, conserves water, and breaks down to add much-needed organic matter to our soil.

Bringing new land out of permanent cover, like sod, and into production also brings about greater than average weed pressure. There was a laneway section that we incorporated into Tortilla Flats this year. To do this, we plowed and disked the whole section early in the summer, and then left it to bare fallow for several weeks. As new weeds germinated or sprouted from rhizomes, we cultivated the field to destroy them. We then sowed a stand of buckwheat, which grows quickly and suppresses weeds. Even after mowing the buckwheat and plowing again, the laneway was still distinctly weedy. Hopefully by next season, after a planting of winter rye as a cover crop, we should have a workable area for production.

**Crop Species**

The cropping rotation that was designed last year informed the initial decisions that we made when we ordered seeds. By the time that the seeds arrived and it was time to plant, however, we had learned that Block 1, which was included in the spacing for the rotation, was no longer available because of contamination. We had also made the decision to leave fallow the southeast section of Tortilla Flats, so we had to work with the relatively small space that we had available. We began planting on the western edge of the field, and worked eastwards, trying to leave as much of the SE corner as we could. As a result, there was no organization to our field except for a progression that reflected when the crops were planted (a map is attached as an appendix). Hopefully next year’s managers will be able to plant into an established pattern that partitions Tortilla Flats into a similar cropping plan to the one devised by last year’s crew.

Since our seed order and first plantings were based on almost twice as much area, we were a little bit overwhelmed by some crops, and didn’t have quite enough space for others. We had varying success and frustration with every different crop and variety, so we’ve included an alphabetical list of what we planted and notes on how it all went:

**Basil**  
Genovese, Sweet Thai, Red Basil varieties  
We tried various tactics with our basil, including direct seeding, transplanting, and intercropping with tomatoes. All of them worked well, and we harvested quite a bit of basil. We could usually sell a few bunches at every farm stand, and the standard Italian Genovese variety sold much better than the others. We also thought about growing a
whole bunch of it for a sale to a dining hall, but could not ramp up our production in time.

Beans
Beanlandia planting 5/26
Fall planting 7/15 – 40 ft.
Provider, Xera, Fortex, Garden of Eden, Envy, Dwarf varieties
We had some fun with our beans this year. We sectioned off a square area at the very front of the market garden that we dubbed Beanlandia! In it we put four pole bean teepees and underneath and around those we planted edamame soybeans, string beans, and some shell beans. Surrounding the whole plot were marigolds, which may have some pest repelling properties, but also just look pretty. Once it all started to grow, though, we realized that we had planted a jungle. It was not easily accessible for weeding or harvesting, although we did pull in some serious harvests, especially from the Garden of Eden pole beans. Fortex beans were extremely long, but had bad problems with Japanese beetles. Our soybeans, in two separate plantings, got defoliated by woodchucks, and never made it to harvest.

Beets
Spring direct planting 5/22 – 15 ft.
Direct planting 6/10 – 25 ft.
Greenhouse planting 6/19
Transplanted 7/22
Chioggia, Red Ace, Golden Beet varieties
Beets will never do you wrong. They take a really long time to grow from seed on our site because they struggle against the heavy clay soil. The alternative is to transplant them, which is tricky because they need to leave the greenhouse before they really seem ready. Otherwise they get rootbound, which is particularly bad for root crops. The Chioggias were amazingly sweet, and they all sold pretty well at farm stands, the trick is to have staggered plantings for consistent yields.

Broccoli
Greenhouse starts 4/11-19
Transplanted 5/23 – 40 ft. (100 plants)
Fall planting started 7/31
Arcadia, Packman varieties
When our first planting was pretty well established, we wanted to know what sort of enemy we were dealing with in the woodchucks, so we uncovered the plants. Within a night, a full quarter of the broccolis were chewed to nubs, so we covered back up and licked our wounds. Aside from the victims, the rest produced very well. We tried to do a second succession, but started them just too late. They grew slowly because we had tilled the straw mulch from the first succession back into the rows. With all that carbon slowing down growth, they never put up heads before the days got too cold and short.

Carrots
Spring planting 5/22 – 40 ft
June planting 6/10 – 30 ft
Fall planting 8/20 – 40 ft
Mokum, Hercules varieties
Carrots are tough to grow at Dilmun because of our poor soil. It inhibits germination, which was the biggest problem for the spring planting. We had lost most hope for the July planting because they were trying to grow in a bed that felt like cement, but surprise! One day in the fall we had a decent harvest of Hercules carrots, and they sold well at the farm stand. The fall planting was too late for the carrots to get to mature size. Woodchucks like to chew on the foliage, so carrots should be covered if they become a problem.

Cauliflower
Greenhouse starts 4/11-19
Transplanted 5/23-24 – 190 ft. (125 plants)
Fall planting started 7/31
Fremont, Snowcrown, Cassius varieties
After transplanting immediately before a scary hailstorm, our cauliflowers grew up entirely under reemay. We finally uncovered them during our day with the 4-H kids and discovered rampant weed problems. With all of their help, we powered through a giant weeding endeavor, mulched both rows thoroughly, and fixed the drip lines. The cauliflowers seemed to like this treatment, and put out some hefty heads. For three weeks, we harvested wheelbarrows full of cauliflower heads that didn’t sell at our stand. We took some home, and the rest went to Loaves & Fishes, who were incredibly grateful for anything other than cabbage. The varieties that are “self-blanching” are really great because it cuts out an entire tricky step in the process. We recommend those ones in particular, as well as any variety that is purple. The fall planting ran into the same problems as the broccolis, and we never got any harvest.

Celery
Greenhouse planting 4/11
Transplanted 6/29 – 40 ft. (~30 plants)
Tango variety
Celery takes forever to get going in the greenhouse, so start early! We finally transplanted under reemay preventatively, but we didn’t actually know if the woodchucks would like to eat them. What we didn’t understand was the blanching process that keeps the stalks pale and flavorless, so our plants got full sunlight and turned a nice healthy green. This added lots of flavor, and presumably nutrients. We decided to harvest them more like greens, where we would break the biggest outer stalks off at the base, and then hydrocool and bunch them with all the leaves attached. This is atypical; they are usually sold trimmed and whole, but our method worked pretty well, too. They sold decently, but might have done better if people didn’t always have to ask what they were.

Chard (Swiss Chard)
Greenhouse planting 4/11-25
Transplanted 5/24 – 70 ft. (225 plants)
Fordhook Giant, Bright Lights varieties
Our chard was great this year, we kept it covered on and off, but it didn’t really seem to attract woodchucks. We never mulched, so it also didn’t have slug problems, although
rain splash made the leaves dirty. Our only mistake was planting too many Fordhook Giant plants, and perhaps a few too many overall. Fordhook is just very drab in comparison to the beautiful, colorful Rainbow Chard that we had growing next to it. It is still a stately, impressive leaf, but just not as exciting to grow and cook as the colors. Mandndible tends to buy lots of chard, and kale, which is great!

Collard Greens
Greenhouse planting 4/11-25
Transplanted 5/23 – 50 ft (100 plants)
Champion, Top Bunch varieties
Collards grow really well in our climate, and they are absolutely loaded with nutrients. Unfortunately, most people aren’t too interested in eating them. We simply had too many collard plants, and the ones we had were too productive for our market. Top Bunch was a better variety, but since kale and chard are pretty good substitutes, skipping the collards may be a fine course of action. If the managers really want to grow them next year, they should cut the amount of plants in half or more.

Cucumbers
Greenhouse planting 5/19
Transplanted 6/11 – 150 ft. (18 plants of each variety)
Genuine, Alibi varieties
Our cucumbers struggled against SCB (see Pests) and may not have been getting enough water, because they produced well for a couple weeks and then the plants started to rot and die from something we could not identify. Cucumbers sell pretty well, though, and it’s great to have fresh edibles in the field so volunteers, visiting groups (and managers!) can eat something right out of the garden. Nothing can quite replicate that experience. We tried to trellis some of the cucumbers, but hadn’t really spaced them correctly in order to do it effectively. Anyhow, they can climb or spread out and produce well either way.

Eggplants
Transplanted 6/2 – 75 ft. (48 plants)
Nadia, Orient Charm varieties
After starting the eggplants in large-celled flats, we transplanted them into a perfect raised bed and reemay tunnel situation, and they took off! They were our champion crop - they suffered few pests, grew huge fast, and churned out prolific amounts of fruit. They’re warm weather crops, so keeping them warm under reemay is great, as long as it comes off when they start to flower. One farmer from home says to always pick the first fruit off the plant right away, because it stimulates further production. The skinnier Japanese eggplants taste great and look pretty, but don’t sell as well at farm stands.

Flowers
First of all, flowers look amazing, and the more flowers in the Dilmun landscape, the better! Flowerbeds out front and borders in the market garden are excellent places to splash in some color, and the effect is really great. We planted some sunflowers in the northernmost row along Rt. 366, but they struggled against woodchucks – do it anyway, sunflowers are great! We surrounded Beanlandia with marigolds, and had flower beds all
around the front entrance, lawn, and barn. Finding deer resistant varieties here is important – snapdragons are excellent. Nasturtiums are very tasty, beautiful edible flowers that we sprinkled into our salad mix bags – this is very highly recommended, it’s really a Dilmun Hill tradition. We never sold any cut flowers, but rather just liked to have a nice display at the stand. Cut flowers are definitely something we could look into, especially in conjunction with the Growing Mosaic Garden.

Garlic
Planted 11/08 – 85 ft.
Continental, Rosario varieties
Garlic is fundamental to human happiness and well-being. It has a neat growth habit that requires a winter chilling period, so it goes in the ground in the fall under thick mulch and emerges in the spring. After parting the mulch to allow the stalks to grow, it suppresses weeds as the garlic sends out curly flowering stalks called scapes. They get cut off so the plants do not divert energy away from bulb growth. They are also an absolute delicacy, so we clip them to sell and eat them, too. Later in the summer, the leaves start to senesce and we pulled our garlic and hung it in the barn to dry out. We did not have altogether very much, so we weren’t able to save seed for next year. Instead, we bought four new varieties from Kingbird Farm and planted them on 11/14 at the northern end of Tortilla Flats.

Kale
Greenhouse planting 4/11-25
Transplanted 5/23 – 135 ft. (~250 plants)
Winterbor, Red Russian, Toscano varieties
Kale is an awesome plant! It is incredibly nutritious, hardy enough to withstand frost and snow, and productive throughout the entire season. Kale has also managed to get itself into some publications and hit the trendy spotlight in recent years. As great as it is, though, we were stuck with too much at times. The Winterbor variety is the one that people are used to and are most likely to purchase, but the plants are so vigorous that each week we wound up with lots of extra kale. Next year’s crew should definitely cut the numbers down, but kale is a must-grow. It also suffered some serious pest damages. Flea beetle populations built up to damaging levels several times, putting lots of little holes in the leaves. Slugs and woodchucks were also common culprits, and our plants spent much of the season under reemay, which was really irritating. The Toscano plants usually took the greatest hit, while Winterbor tended to resist pests to some degree.

Leeks
Greenhouse planting 4/11-19
Transplanted 6/10 – 80 ft. (300 plants)
King Richard, Upton varieties
Both of these varieties grew really well, and oh boy aren’t leeks just so great – they’re hardy through the fall, look so impressive, and they squeak when you cut them! We planted them in trenches, and then filled them in as the leeks grew, so that their stalks would elongate. They sell better with their leaves attached rather than trimmed, so let them all hang out!
Lettuce
Red Butterhead, Jericho (head lettuce), Encore (salad mix) varieties
People know how to eat lettuce, so it sells well at stand. We struggled to get lettuce heads to grow, because they won’t tolerate hot weather. When we did have them, though, they sold really well. The salad mix, made up of baby greens, is much more labor intensive to grow and harvest. To plant, broadcast seeds pretty densely over the area, and then immediately cover with reemay and keep moist if possible. At Dilmun, this protects against soil crusting and woodchuck attacks. We did a number of small, staggered salad plantings throughout the season, and in about a month, they are ready to harvest by cutting along just about ground level with scissors. We then put them in half-pound bags with nasturtium flowers and a Dilmun Hill sticker on top, and they were real pretty little packages. Manndible will usually buy salad mix, and we had a few large plantings that went to our CU Dining contracts. As we started to do these big cuttings, we bought a big metal tub to float the harvest and pick out the weeds. With a lot of volunteers, we can process many pounds of salad pretty quickly.

Melons
Greenhouse planting 5/26
Transplanted 6/27 – 150 ft. (18 plants of each variety)
Halona (cantaloupe), Little Baby (watermelon) varieties
We started the melons under reemay because the SCB situation was already out of hand. They got off to a really good start, were looking vigorously viney, and then at one work day we did an incredible amount of weeding and mulching. Unfortunately, the straw mulch was full of viable seeds, and soon afterwards it sprouted into a thick stand of rye. The melons battled for a while, and managed to produce some fruits, but it was disappointing. We didn’t sell too many at stand, rather we mostly split them open at work parties to munch on. There are definitely some tricks to tell when they are ripe, including visual, olfactory, and auditory inspection – one must “thunk” the watermelon with their fingers and listen for that perfect, hollow pitch. Takes a little bit of trial and error, but you too can be an expert!

Onions
Greenhouse starts 4/11-25
Transplanted 6/1, 6/4 – 90 ft. (325 plants)
Olympic, Gunnison, Ruby Ring varieties
Onions are not a trivial crop to grow. They take a long time in the greenhouse, have delicate roots, and then do not tend to transplant especially well. Many will die after the move, and many more will not reach full size. They cannot compete with weeds, and take most of the season to grow. They also don’t fetch a huge price, but people buy them up, which is really what counts. We should grow more onions, because they also store well.

Parsnips
Planted 5/22 – 50 ft
Javelin variety
We seeded the parsnips and covered the row with straw mulch to keep them moist and dark, and they germinated very well. We removed the mulch after 2 or 3 weeks, and
weeds moved in as the parsnips got established. After we weeded and thinned them, however, the woodchucks found them and chewed off their leaves. After that, we covered them with somewhat patchy reemay for the season, so occasionally they got chewed anyway. Yet our parsnips were downright tough, and we got a pretty good harvest after the frost. We only sold them at one event, and they went quick, so definitely grow them!

Peas
Spring planting 5/6 – 30 ft.
Fall planting 8/20 – 60 ft.
Sugar Sprint, Snow Sweet varieties
Peas are really difficult to grow at Dilmun Hill, mostly because they are a choice meal for groundhogs. Our first planting germinated poorly, although Sugar Sprint did considerably better than Snow Sweet. We attempted to protect the plants by putting plastic netting over top of a stake & twine trellis. While they didn’t get eaten, it was a huge hassle to weed them, especially given their measly population. They were good to snack on, but we didn’t get any significant harvests. Our fall planting, which we covered with Reemay, got in the ground too late to flower and produce fruit. However, they did germinate much better in a raised bed.

Peppers
Transplanted 6/27 – 80 ft. (48 plants)
El Jefe (jalapeño), Gourmet, Ace, Orion varieties
We tried one variety of peppers in an intercropping with nasturtiums. The peppers did not fare too well in that scenario, and we do not recommend it. The rest of the peppers did excellent. They seemed to hit a good balance between leafy growth and fruit production when grown in bare soil. Still, we never had enough peppers or patience to allow our peppers to ripen red. Next year’s managers should definitely expand pepper production, because they sell like crazy at the farm stand. Jalapeños are optional; they don’t sell very well.

Potatoes
Planted 5/6 – 120 ft. (120 plants)
Norland Dark Red, German Butterball varieties
We got our seed potatoes from Andy Leed, who runs the CALS greenhouses. Both varieties did excellent, and we planted just about the right amount to meet demand. We mounded dirt over the stalks a couple times to encourage tuber production. They got enough rain that they did not need to be irrigated. We mowed down all the foliage on 7/27-29 after discovering Late Blight, so that infection would not spread underground. We dug all of the potatoes over the next 2 weeks, rinsed off the dirt and stored them in boxes in the root cellar. Total harvest was over 200 lbs.

Radishes
First planting 5/22
Several subsequent plantings
D’avignon, Easter Egg, Cherriette, Daikon varieties
Sometimes radishes sold pretty well, sometimes they didn’t. I think a large part of the value of radishes is that they are fun to grow and only take about a month. Once they’re done, though, they have to come out of the ground. In this regard, they are good practice in staggering plantings to ensure consistent supply. The Daikons are huge and fun to grow, but they don’t sell very well at the market stand. Our first planting got destroyed by flea beetles, so after that we started growing them mostly under cover.

Scallions
Greenhouse starts 4/19-25
Transplanted 6/1 – 20 ft.
Second succession transplanted 8/17 – 20 ft.
Ishikura Improved, Deep Purple varieties
Scallions take a while in the greenhouse to germinate and get started, but once they get in the ground they are ready pretty soon. They do not need to be thinned in the greenhouse, because they can grow really close together. To harvest, we pulled them, trimmed their roots and rinsed the stalks, and then bunched them into 5’s or 6’s, grouped or mixed by color. A staggered plan could be a good way to have more consistent harvests.

Shallots
Starts in greenhouse 4/11-25
Transplanted 6/2 – 15 ft. (50 plants)
Ambition variety
Grow shallots pretty much the same way as you would grow onions, except that they can remain in the ground for a while as their bulbs split apart to make more shallots. Ours turned out to be very large (for shallots) and highly delicious, and they sold well at farm stands. They actually did much better than our onions in terms of transplant success and plant vigor, so more shallots are recommended.

Spinach
Greenhouse starts 4/19
Transplanted 5/24 – 20 ft. (160 plants)
Fall planting 8/12 – 60 ft.
Emu, Spargo varieties
Spinach may have sold much better at the market stand if we had been able to grow it more consistently. It will not grow during the heat of summer, but is a good early crop and a good fall crop. Mandible bought it up, and our customers showed interest, but with that said, it is a huge pain to harvest. We certainly did not perfect a spinach harvesting method, but that avenue shows a lot of promise. We did not encounter any pest problems, but we kept our plants under reemay just in case of woodchucks.

Squash, Summer
Greenhouse planting 5/19
Transplanted 6/8 – 150 ft. (18 plants of each variety)
Plato (Zucchini), Sunray (Yellow Squash) varieties
We decided to transplant our squashes, but this has to be a careful process, because they have very delicate roots as seedlings. We opted to grow them in large-celled flats and then transplant them very gently, which worked pretty well. The zucchinis especially got
hammered by SCB, so reemay is not a bad idea, as long as it comes off when they start to flower. Our summer squashes were done fruiting fairly early, so it might be interesting to see if a later start would yield later fruits to hit the back-to-school market.

Squash, Winter
Greenhouse starts 5/19-26
Transplanted 6/8, 6/11, 6/25 – 75 ft. (18 plants) each variety
Honey Bear (Acorn), Metro PMR (Butternut), Cornell’s Bush Delicata, Baby Pam (Pumpkin) varieties
Our winter squashes all performed well, and several had powdery mildew resistance, which is huge. The pumpkins were astoundingly sweet, and the butternut plants bordered on invasive. If we were to redo any part of it, we probably would have tried to mulch more actively around the plants to suppress weeds and keep the fruits from growing in the dirt. Having some storage crops is really convenient, because they can go straight to market without having to harvest each week during the school year. We didn’t offer any winter squashes to Manndible or other buyers, so we grew the right amount to sell at the stand and give to volunteers.

Tomatoes
Transplanted 6/1 – 180 ft. (120 plants)
Numerous delicious and colorful varieties, some cherry tomatoes, some heirlooms.
Avoid Prudens Purple – struggled with several diseases.
We had grown our tomatoes in large-celled flats in the greenhouse so they were able to get pretty large without becoming rootbound. When it came time to transplant, we prepared two raised beds, then dug individual holes into them that we filled halfway with compost for extra nutrients – tomatoes are notoriously heavy feeders. We stripped some of the lower leaves off, some of which had powdery mildew from being crowded for so long in the greenhouse, and planted the roots and bare stalks deep into the soil, up to the first set of leaves. This way, the plants can be a little slow at the outset, but really take off later on. Our trellising system was inefficient, and there are many options to hold your tomatoes upright. We have piles upon piles of tomato cages, but they crowd the plants and inhibit harvesting. The system we attempted initially was to sink tall stakes between every other plant, then use twine to “weave” all of the plants together, running the twine in front of one, behind the next, etc. and using the stakes for support. The next length of twine goes on once the plants get a little taller, in the opposite orientation, so that eventually they are all held up by a sort of alternating weave of twine. However, this requires a few things that we didn’t provide – many layers of twine, and the twine needs to be pretty tight from the beginning, because it will eventually be holding up a lot of weight. It also needs to happen while the plants are small and growing; it doesn’t work very well if you’re starting the process on large plants. We also let the weeds grow huge in our tomato rows, preventing air circulation, which is vital for preventing disease. The ultimate loss of our tomato plants was the saddest event of the summer, but during a normal year without late blight, the work you put into your tomato plants will surely be rewarded. We even saw some minor rewards – after harvesting massive loads of unripe green tomatoes, we did sell and give away quite a few, complete with recipes for green tomato salsa, which still lines our freezers.
Harvest

The biggest goal of harvesting is to bring the freshest vegetables possible to sell at the farm stand. There is a large amount of pride that goes along with the visual appeal of crisp kale and beautiful beets displayed on our table. In order to make this happen, the harvest process needs to be well-timed, efficient, and done properly. During the summer, with no classes to attend, we could harvest in the morning and have all of the vegetables ready for the farm stand in the afternoon. As we began to have larger and more diverse harvests, and especially once classes began in the fall, we had to harvest during the evening of the day before the market stand, and then put our vegetables in the cooler overnight. For either method, the first few minutes after the vegetables are picked make all of the difference as to whether they hold up and look good or wilt on the table.

Of course, we knew very little of this information when we began our harvests. We learned through time that harvesting greens, like kale and swiss chard, require the most attention to detail in order for them to stay fresh. We tend to break the biggest leaves off at the base of the leafstem against the stalk, which encourages new growth and makes it easy for bunching. Then the leaves go straight into a big barrel full of cold water. This process, where the vegetables are shaded and submerged in cool water, is called hydrocooling. It stops respiration and moisture loss, and if they can be hydrocooled for 10-20 minutes immediately after leaving the field, it really makes the difference between lasting 2 hours or 2 weeks in the refrigerator. Since not all of our customers are raging kale fiends like ourselves, it’s nice to sell them a product that will keep for a while. As the leaves finish hydrocooling, we put them into good-sized bunches to sell at the stand. The bunches usually hold about 15 leaves, but this number is really variable depending on how big the leaves are, just so long as it is a good handful that’s worth the price. Other vegetables that are good to submerge, both for hydrocooling and rinsing purposes, are broccoli and cauliflower heads, beets and radishes, and celery stalks.

After hydrocooling, the most important consideration is to keep the vegetables out of the sun. Once mostly everything is ready, we move all of the vegetables to the cooler. We have access to the walk-in cooler in Plant Science, which was an easy staging point for the Ag Quad market stands. It is good to know that greens need to be cooled to stay fresh, but refrigerated air desiccates them in a hurry. To prevent this, we keep our greens wrapped in plastic bags whenever they go into the cooler. We have a collection of harvest bins that are open to the air, so they are not ideal for cooler storage. Acquiring some different crates that restrict airflow would make life easier and cut down on our plastic use.

Other veggies, like fruit crops and roots, are much simpler and also really fun to pick. Another challenge to the harvest as a whole, though, is deciding how much of each crop to remove from the field. We had to consider the amount that was ordered by Mandler, added to the amounts of each crop that we were typically able to sell at the farm stand. It was generally okay to overharvest because we had plenty of grateful outlets for our food.
The final, extra delightful part of harvesting, which we often did at the end of our harvest work parties, was to go to the Orchards and pick blueberries! Marvin Pritts, who is chair of the Horticulture Department and a Dilmun advocate (and a generally awesome guy), gave us permission to pick blueberries at the Orchards. They have a big, productive field of blueberry bushes that don't get regularly picked, so we were able to bring some to our farmstand and just have a lovely time picking the berries at the end of the day. Many thanks to Marvin and the Orchards!
Sales & Markets

The vegetables that we grow at Dilmun go in many different directions after they get harvested and leave the farm. Most of them go to our farmstand, for which we developed a pretty specific routine. We made weekly deliveries to Manndible Café, which also had to be carried out with certain protocol and order. We had two large contracts for delivery to Cornell Dining, and we collaborated briefly with the Cornell Orchards to sell some of our produce at their store. We sent volunteers home with as many vegetables as they wanted, as thanks for working so hard out at the farm, and we brought home quite a few ourselves. Any vegetables that went unclaimed and unsold we brought to Loaves and Fishes, a soup kitchen downtown.

Farmstand

The farm stand was often a lot of frantic work to get set up, but once it begins, it’s really a lot of fun. Interacting with customers, answering questions, talking up Dilmun, and selling vegetables are all part of it. Plus, we were inevitably overstaffed because everybody was just having a good time hanging out at the stand. Friends will always stop by, you start to know the regular customers, and there’s nothing much better than being outside in beautiful weather!

Once the vegetables, flowers, fruits, and/or herbs were harvested, prepped, and bunched, we sold them either on the Ag Quad in front of Mann Library or on Ho Plaza.
Both of these spaces need to be reserved ahead of time, at the beginning of the season. Back at the farm, the process began with loading the veggies and the equipment onto our two bike trailers. We have awesome stacking crates that happen to fit perfectly on the trailers, and we secure the sometimes precarious load with bungee cords. Then came one of the most fun parts of the job: head out on bikes, vegetables in tow, and bike through campus to the farm stand location! That was an irreplaceable experience.

We tended to drop off the vegetables in the Plant Science walk-in cooler if they would have to wait at all. From week to week, we also stored a crate with some supplies that we needed at the stand, like the big colorful Dilmun Hill board, scale, display baskets, and T-shirts and fliers to lay out on the table. To set up, we borrowed tables from Mann at the circulation desk, laid down some tablecloths, and spread out our vegetables. We wrote our selections and prices on a chalkboard and set that up, and if we could cut some flowers to display at stand, we got them out there, too.

We had weekly farm stands on Tuesday afternoons during the summer, and during the fall we also sold at Ho Plaza on Fridays. Usually we held the stand outside, but if it was raining, we set up in the lobby area of Mann Library. Ho Plaza seemed to be plagued with rain, and we regrettably had no rain location. It may not be a bad idea to invest in a portable tent that could cover the stand and be easy to set up. At the end of the day, we returned everything to its place, figured out what to do with the extra vegetables, and felt really accomplished.

We sold vegetables by the pound, in premade bunches, or just singly. We have a hanging scale to measure pounds, and made any necessary bunches before going to the stand. As for pricing, it’s entirely up to the managers. Since we’re subsidized by Cornell, it’s not really fair to undercut prices of other farmers, but head down to the farmers market and take a look so that you can stay competitive. We’ve attached a price list of what we sold our crops for as an appendix, but it is by no means the only resource you should consider.

We made every effort to record our sales, although when things get busy, it can be hard not to miss a few. This is alright, because we aren’t shooting for complete accuracy, just trying to see trends in how our vegetables are selling. The easiest method we could come up with for recording sales was to make a single spreadsheet for each week, with a list of what crops we are selling. Each cell in that vegetable’s row then represented one sale, and the dollar amount of the sale went into that space. A sample spreadsheet is attached as an appendix. The spreadsheets usually underrepresented the sales by a little bit because some were missed, so we would count the money between each stand to find out the real total of what we had earned each week.

By including the vegetable prices on the spreadsheet, it was easy to accommodate volunteers who helped man the stand. This takes a big load off the managers if they do not have to staff the market stand for the whole time. By sending out an email a few weeks in advance, we could schedule people into different time slots. We had good volunteer help at almost every farm stand in the fall. Training them was important, but
pretty simple. Most of them are familiar with Dilmun, so they can answer questions, and selling vegetables is a piece of cake!

We also had recipes with us at almost every farm stand. This way, if a customer – or anyone else – was unsure of how to cook a particular vegetable, we could send them off with a recipe. This was a really cool idea, but we didn’t actively try to foist recipes upon people, and they didn’t always know to ask. We kept the recipes, so next year perhaps there can be a catchy display for them so people will be comfortable buying even the most intimidating veggies.

**Manndible**

We have an awesome relationship with Manndible Café, which is located off the lobby of Mann Library. They are privately owned, and they buy local and sustainably sourced foods. Pam and Kathleen, who run the show, are accommodating and patient, and are super helpful in getting the new managers through the learning curve. It is a good idea to meet with them in the spring to get to know them and hash out some of the details on how deliveries will happen during the season. Throughout the course of the season, they continued to help and give us feedback, and we came up with a system that worked smoothly for our weekly deliveries.

First off, we gave them an order form. We sent this to Pam, Kathleen, and Sharon on the kitchen staff on Friday before the Tuesday delivery, so that they had a few days to decide what to order. The order form included which vegetables were available in what quantity, and their prices. We generally sold produce to Manndible at a slightly lower price because they were consistently buying large amounts. If it is possible, they appreciate being told what vegetables to expect in the next 2 weeks so that they can plan ahead, understanding that for a first-time farmer, this can be kind of hazy.

As for amounts to offer, it was up to us to look in the field ahead of time and decide how much yield we could comfortably count on. We began selling mostly by the pound, before realizing that pounds don’t translate well to the kitchen. We transitioned to selling by the “case” for most crops, which was an amount we mutually agreed upon that was based more on volume. This made everybody happy. Various case sizes are included on the sample order form that is attached as an appendix.

Manndible is in a convenient spot for deliveries. After they send the order back, we harvested and prepped the vegetables, brought them on over, and walked right in their delivery door to drop them off. We decided to make deliveries on Tuesdays since we were there with all our veggies anyway. With the delivery, we also dropped off an invoice. An invoice is like a bill. We used a standard form that we inherited from last year’s farm managers. Pertinent information that must be included is address, invoice number, date, who to send the check to, a list of the vegetables sold, the amount, the individual price, and the total sum owed to Dilmun. A sample order form and invoice are also included as appendices.
Cornell Dining & Catering

Dilmun has been trying for years to establish a good relationship with Cornell Dining. They are really hard to work with, mostly because of the vast difference in scale. They feed thousands of people every day, and we grow on an acre. But the potential always seemed to be there, and we finally came up with a good plan for this season. We collectively decided that Dilmun would grow vegetables for a single event, the Fall Harvest Dinner, which is a big meal featuring local foods from many different growers. Working with Melissa was vital in this context, she did much of the communication with the Dining representatives, and she is the point person to work with on future endeavors like this one.

This event represented a different paradigm for how we were growing vegetables. This one-time contract meant that we had to have a certain amount of vegetables ready on a certain day, rather than simply harvesting what was there. Dining asked for 30 pounds of salad mix for the Fall Harvest Dinner in late September, and we entered into another contract with Cornell Catering to provide 15 pounds of salad for a Trustees Dinner the next week. We planned out the whole growing and harvesting period, setting aside the field space and buying seeds. We decided to overshoot standard yield estimates so that we could be absolutely sure we would have enough. We babied our little rows of salad mix and created invoices for the two events. When the time came we held an extra harvest work party to get all the salad out of the field and processed for sale. We wound up with nearly twice as much salad as we needed, so we sent some home with volunteers and looked for other outlets.

They took a lot of work to orchestrate, but both events were successful. The deliveries were made on time and we were complimented on our quality. It was a good learning experience for us, both in terms of working with large organizations and planning for a big single harvest. While this year we only did salad, there are other crops like basil that would fit into this sort of collaboration very well.

Orchards

With some of the extra salad that we had from the Dining event we decided to collaborate with our neighbors, the Cornell Orchards. We got in contact with Deb Clover, who manages the Orchards store, and brought them about a dozen bags of salad mix. The intention was to see how well this sort of thing might work, and we would split the profits. We got informed about two hours after the delivery that all the salad had sold off the shelves. They asked for more, but at that point we were way too busy to make it happen. Still, in talking with them later on, it seems like they would be very excited to feature Dilmun produce at their store, and it could be a great opportunity for Dilmun. Next year’s managers are encouraged to get in touch with the Orchards to open up a new outlet for sales.
Charity

The final destination for some of our produce was a soup kitchen at St. John’s Church in Ithaca called Loaves & Fishes. They had specific delivery hours that coincided with the end of our farm stands, so most weeks we would drive down and donate vegetables. Donating vegetables is really rewarding, and it is definitely in sync with the volunteer ideology of Dilmun Hill. Isaiah, who often coordinated the deliveries, is a great guy and they were always really appreciative. Over the course of the season, we estimate that we donated over 350 pounds of vegetables. When donating to Loaves, just make sure to call ahead or check online to see when their open delivery hours are.

The Volunteers

I can say with all certainty that Dilmun would be nowhere without its volunteers. The volunteer base is an integral part of the Dilmun community that anyone (anyone!) can be included in. Growing even just an acre of organic vegetables requires a tremendous amount of hard work, and this is where the volunteers are needed the most.

With the managers guiding the work, volunteers get their hands dirty by preparing beds, planting, laying irrigation, weeding, harvesting and helping out with all of the other fieldwork that needs to happen. Not only do we get hours of physical labor, but it is a continual give and take of knowledge and experience. Volunteers learn firsthand about growing food and operating a farm, and the volunteer community often provides the managers with awesome new perspectives and ideas. Coming to Dilmun as a volunteer is also the first step towards getting involved on a deeper level by becoming a student manager or leading a project. In context, the word "volunteer" is qualified by appreciation and gratitude from the managers, as well as copious amounts of free, fresh, organic vegetables. The commitment made by the volunteer base as a whole is one of the most inspiring and rewarding aspects of working at Dilmun, and it makes the farm unique and very special.

Although volunteers are welcome to come help out the managers at any time, we get most of our help during regularly scheduled work parties. During the summer, we held work parties on Monday and Thursday afternoons, as well as once a month on Saturdays. We generally publicize our work parties over our email listserv, which anyone is encouraged to join. It is never easy to predict how much help will come on a given day, but if we expect a crowd, it's nice to provide some snacks and water or juice to drink. Making the volunteers feel welcome, comfortable, and happy is a vital expectation of the managers.

We really get all sorts of different people who come to help out on the farm. The majority of the volunteers are from the Cornell student body, but amongst them, we see incredible diversity. Students studying agriculture work alongside engineers, and experienced gardeners answer the questions from people who are totally new to the process. We get local community members who come to help and bring home
vegetables, some of whom are not even affiliated with the university. We also worked with the Small Farms class during the spring, who sent us quite a few volunteers. This variety of backgrounds makes for really great interactions between everybody who works at Dilmun Hill. Some of our volunteers are incredibly dedicated and we see them every week, while some manage to show up once a season but nevertheless bring positive energy and share in the volunteer commitment. Over the course of the season, we saw over 200 different volunteers come to help us at the farm! On the whole, the volunteer community is full of awesome people who are delightful to have around.

Recruiting new volunteers is an ongoing process that needs to happen for the continued success of the farm. The annual Club Fair in Barton Hall is a huge draw, especially for freshman, so we set up a colorful display and brought a signup sheet for anyone who was interested. Our farm stand also tends to catch some eyes, and so we try to stir up interest during those times that we’re most visible on campus. Our biggest publicity effort was for the Field Day in the fall, and following that we had a good surge of volunteers. Advertisements for the Field Day got sent around on numerous listserves and posted in various locations, and we came up with pretty good methods of getting the word out. Above all, though, there is nothing that’s more effective than simply encouraging friends and classmates to come out to a work day or get involved with the farm. Direct personal interactions are very powerful, and Dilmun Hill remains a community that is built on this sort of communication.
## Governing Structure

The Market Garden managers make the decisions about vegetable production and what needs to get done on a daily basis. There are many other decisions that we make as a larger group known as the Steering Committee. For most of the school year, the steering committee meets on alternate weeks to discuss various issues regarding the farm. It is composed of managers, other students, our faculty advisor Ken Mudge, and the organic farms coordinator Melissa Madden. The committee makes decisions about the long-term goals of Dilmun Hill, facilitates interactions and collaborations with other groups on campus, and decides on major changes on the farm. The steering committee hires new managers, helps with outreach, and assists other projects that affect or involve Dilmun. We frequently invite guests to the steering meetings, sometimes for consultation on a particular subject, or to discuss and assist a collaborative project that they are interested in.

During the summer, a smaller steering committee met every week that was composed of the summer managers and Melissa. We decided on relevant issues on the farm, managed volunteer resources, coordinated the needs of the various projects and managers, and planned events and work parties. Melissa, who works with us closely during the semester as well as summer, is a great resource. She helps us to interact with the University and access its myriad resources, as well as providing continuity from year to year in things like our finances. She is also very knowledgeable when it comes to growing vegetables and running a farm and will happily respond to questions or ideas.

*Above and right: Steering committee members at a fall photo shoot.*
Collaboration and Outreach

At Dilmun Hill this year, we definitely broadened our horizons and got involved with a diverse array of other organizations and people. In addition to the collaborations below, Dilmun hosts many other tours and small events that aren’t mentioned.

**MacDaniels Nut Grove**

The MacDaniels Nut Grove is one of our oldest and dearest partners at Dilmun Hill! The Nut Grove is a forest farming teaching site in the woodlot just adjacent to Dilmun Hill. MNG and Dilmun have very similar education and outreach goals, and the grove is managed by Ken Mudge, who also happens to be Dilmun’s faculty advisor, so the partnership is very natural. During the summer, Dilmun managers and the MNG team met once a month to discuss our different collaborations. This year, they partnered with us to sell fresh and dried Shiitake mushrooms, Hosta plants, and other forest products at the Dilmun farm stand. The mushrooms and other forest products were a lovely (and delicious) addition to the stand! It was a great partnership all around; the MacDaniels folks helped us run the farm stand, and in return, selling at our market helped to bring in some revenue and raise awareness on campus about MNG. We also worked with MNG on several other educational and outreach-centered events. They partnered with us at our annual field day and several other tabling events, and we also used the nut grove as part of our teaching site with children from the Primitive Pursuits camp.

**New World Agriculture and Ecology Group**

NWAEG is a Cornell organization and generally just an awesome group of folks focused on agricultural and ecological issues. NWAEG was definitely one of Dilmun’s best buddies this year. We partnered with NWAEG at our farm stands, selling their handmade soaps and advertising for them in return for their help manning the stand. They were always reliable and fun to work with (even on the cold rainy days). In addition to business, we also had several joint social activities with NWAEG throughout the year including movie nights, potlucks, and blueberry picking!

**Cornell Classes**

Dilmun Hill is a great resource for many different classes at Cornell. It provides a space where professors can set up hands-on activities with the class, for instance scouting for insects or taking soil samples and measurements. Some classes come to Dilmun for a tour just to expose students to the fact that there is a small scale organic farm on campus, whereas others utilize the site much more intensively, do mini-experiments, or engage the students in the process of running the farm. Whenever possible, the student managers help to guide and facilitate these activities, and quite often learn a little bit along the way.
During the spring, Hort 2400 - Exploring the Small Farm Dream - made Dilmun Hill a part of its curriculum. Managers gave a presentation about Dilmun Hill in the class and each student attended a work party before the end of the semester. The HORT 2200 - Practicing Sustainable Landcare - class had activities at Dilmun nearly every week during the early fall on a variety of different topics. Other classes that used Dilmun as a resource were...

AEM 3440 - Consumer Behavior
CSS 2600 - Soil Science
CSS 4200 - Geographic Information Systems
DSOC 3400 - Agriculture, Food & Society
HORT 1101 - Horticultural Science and Systems
HORT 4260 - Practicum in Forest Farming

**Allison Jack**

Allison Jack is pursuing a PhD at Cornell in Plant Pathology, focusing partly on the use of vermicompost tea in suppressing plant diseases. Allison and her lab were the ones that we partnered with in the late blight-vermicompost tea experiment, to see if it could prevent or even just slow the spread of infection on our tomatoes and potatoes. We did a foliar application of the compost tea twice a week on both crops and documented their progress with pictures each week. Unfortunately our tomato plants did eventually become infected and we were forced to rip them all out before the disease spread. However, the experiment was most interesting and we are very thankful to Allison and her lab for all their help and support in this.

**Dilmun - MacDaniels Field day**

The field day this year was a great success! We scheduled it on the evening of September 3rd, not too long after Club Fest, because we hoped to get some of our new recruits excited and plugged in. We decided that one long massive tour and narrative was probably not the best way to engage people or reflect the spirit of Dilmun Hill. Instead, each of the three project teams at Dilmun and the MacDaniels crew planned an activity. We then had two rounds of activities with two of them happening at once so field day goers could choose one or mosey between the two. We also had snacks and T-shirt printing down around the barn, creating a good area to meet people, or just hang out and have a good chat. All in all, the activities were very well received. The Market Garden facilitated a few riveting rounds of veggie trivia which turned out to be a great way of introducing a lot factual knowledge about what it takes to grow vegetables with out it having to feel like a lecture. Bonnie and Leigh did a soil testing work shop and talked about what was happening with the contamination testing at Dilmun. Kelley and Melissa hosted a mini guild-building workshop to help demonstrate some permaculture principles up at the Growing Mosaics Garden. The MacDaniels folks definitely were the icing on the cake with a tour of the nut grove and a hands on shiitake log inoculation work shop. We found that this format for a Field day works great and would highly recommend it for next year.

**Finger Lakes Permaculture Institute**

Early in the summer, we had a collaborative work day with the Finger Lakes Permaculture Institute summer apprentices. The director, Steve Gabriel, and about ten
apprentices came out and helped us lay some drip tape irrigation in the Market Garden and sheet-mulch a section of the Growing Mosaic Garden.

**Barn: Museum**
During the spring, a Senior Art Student named Stefanie Hirsch used the barn as a site-specific gallery to display her final art thesis. The barn was not only the gallery but also an integral part of the art. It was an exciting opportunity to introduce Dilmun to a new subset of the Cornell community.

**Cornell Cinema**
Cornell Cinema graciously let Dilmun participate in the final screening of Food, Inc., which is a recent documentary focusing on our food system in America. We helped advertise the showing, and a large group of Dilmunites showed up for the movie and the panel discussion that followed. Also, in the spirit of the movie, we invaded the territory of soda-pop and candy and sold Dilmun vegetables instead at the concession stand after the show.

**Primitive Pursuits**
This fall Dilmun was lucky to be partnering with the local nature awareness educational group Primitive Pursuits. Together, we offered a new after-school program for 4th and 5th graders titled "Field and Forest". The program focused on food, what it means to grow food sustainably, and biological and ecological systems in play on a small farm. Throughout the course, Dilmun managers and steering committee members took turns facilitating learning activities at the farm with Primitive Pursuits instructors, and it was a ton of fun! The kids are really great and are full of energy and enthusiasm for learning.

**4-H Career Exploration’s Work Day**
We hosted a career explorations work day with Violet Stone from the Small Farms Program. We had about 20 teenagers come out on a 4-H trip to get a hands-on experience with small scale farming. It was an exciting opportunity for everyone involved, and for some of the teens it was their first experience on a farm or thinking about where food came from.

**Cornell Science Camp**
This summer we hosted two groups of kids from a Cornell Summer camp focusing on science and sustainability. We facilitated some biodiversity based activities and talked about the importance of sustainable food production.

**Cornell Cooperative Extension Nutritionist Conference**
This summer we hosted a break out session for the Cornell Cooperative Extension Nutritionist Conference. We had about 30 nutrition educators from all over NY State come out to the farm, get a tour and help us do a little work. We wrapped up the session with an excellent conversation about how Dilmun can incorporate more of a nutritional focus into our outreach.
**Ithaca Arbor Coalition & New York Nut Growers Association**
This spring both the Ithaca Arbor Coalition & New York Nut Growers Association hosted their conferences in the Blair Barn. Both groups were excellent; we enjoyed showing them around Dilmun and learning from them as well. The arborists brought in a huge supersonic compressed air blaster and demonstrated how to prune tree roots by blowing all of the soil away from the base of the tree. They shared this valuable technique with the Cornell grounds crew, who began remediating trees all over campus.

**Words of Wisdom**

- Enjoy Dilmun Hill! It’s a beautiful site. Watch the clouds, pick black-cap raspberries, and have a good time.

- It is OK to not know everything. Managers are not expected to be agricultural experts but, the great thing is that at Cornell you actually DO have access to expert knowledge. Take advantage of the learning experience! There are so many really knowledgeable staff and faculty that would love to answer questions and support you. Don’t be shy! My first week as a manager I was terrified, I felt like I knew so little but don’t worry, there is a lot of support and you will learn as you go.

- Being a Dilmun Manager is hard work, it really is. But by the same token it is incredibly fulfilling. I can guarantee that as much as you give to Dilmun you will get back. The Dilmun experience will be tiring and frustrating at times but it will also be educational, empowering, delicious and just downright awesome.

- On the other hand, don’t get too wrapped up – take advantage of Ithaca in the summer, because it is fantastic. The Ithaca Fest parade, Grassroots, swimming in the gorges and sleeping outside are all highly recommended.

- Cook! You have the best ingredients you can get. Be creative, feed your friends.
Money & Finances

Dilmun has a unique financial situation that enables it to be the place that it is. The market garden manager is a full-time, salaried position, so we work on an hourly schedule through Cornell's system, under the umbrella of the Ag Experiment Station. The fact that new managers can have this experience each summer without the financial burdens that accompany self-sustaining farms is incredibly fortunate. We are funded by an annual grant from the NY Farmers Association, which pays for the manager salaries. This sort of generosity is remarkable, and is deeply appreciated.

Aside from that, we have made significant progress toward becoming economically self-sufficient. What this entailed initially was keeping better track of our money. Working with Melissa, we now have a budget that we keep up to date with inflows and outflows. We generally spend money on supplies, and food for work parties and outreach activities. Our system was to keep receipts and get reimbursed, and then add up our totals from each month to put into the Melissa's central spreadsheet. Our cash inflows come from market stands, and deliveries are paid directly to Melissa. We kept track of the totals from our farm stands - including sales we made in collaboration with MacDaniels or NWAEG - in an online document that could be accessed by the three managers and Melissa.

This way, we began to have a better sense of how much money we were making through time, and how it compared to our total expenditures. In comparing our totals to last year's, it became clear that we took a serious hit when we lost our tomato crop. Tomatoes are a huge seller at the farm stand, and we had put quite a bit of our time into our plants. Another big seller that we had struggled with was our salad mix. During the summer, we had germination problems when the weather was too hot. By the time that we had lots of salad, our farm stands were winding down and people weren't used to seeing it at the stand, so it didn't sell all that well. Even still, we did well financially this year, and we're coming closer to economic viability for Dilmun Hill. All of our weekly sales are included as an appendix.
# Appendices

## Appendix A: Total Yields

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</table>
Appendix B: 2009 Crops Layout
Appendix C: Map of underground irrigation features
Appendix D: List of Contacts

All of these people are awesome Dilmun Hill proponents. Some of them we interacted with on a weekly basis, some of them cropped up once or twice throughout the whole season. Either way, they are all really supportive and willing to help. Cornell has some really great people and resources, and future managers should not hesitate to engage them.

Farm Services / Campus Area Farms
Tim Dodge
607-255-3234 (campus)
607-327-2844 (mobile)

Bill Huizinga
wh48@cornell.edu
607-257-2235

John Conklin
607-327 2842

Tim is a great guy, and he can help out with a variety of different things. John works with Tim over at the Love Lab, and each is as friendly as the other. They're the go-to guys if we're looking for straw, gas, a tuneup on our machines, or materials. Bill is the man to call if we want a compost delivery.

Dilmun's Own
Melissa Madden
mam233@cornell.edu
607-351-3313

Ken Mudge
kwm2@cornell.edu

Rachel Brinkman
rab392@cornell.edu

Melissa is the Organic Farms Coordinator, so she works with us and in Freeville and elsewhere. She's got all the connections, and we work closely together. Ken is our faculty advisor, and also manages the Nut Grove. He's an essential part of Dilmun's whole spirit, and helps to coordinate the MNG interactions. In addition, Ken and Rachel are in charge of some of the ongoing research on the hill, including the hazelnut block and the maple trees that are now part of the Growing Mosaic Garden.

Orchards Staff
Deb Clover
dc287@cornell.edu
Brian Lader  
bml9@cornell.edu  
607-255-4542  

Brian can help you turn on the water at the beginning of the season, or can certainly point you in the right direction. Deb is involved in marketing over there, and she's the one to talk to about making sales at the Orchard store.

**Manndible Staff**  
Pam Gueldner  
p.gueldner@gmail.com  

Kathleen Pasetty  
kpasetty@yahoo.com  

Sharon Corbitt  
manndiblekitchen@yahoo.com  

Pam and Kathleen are both wonderful people who were helpful all season long. Order forms should be sent to both of them, as well as Sharon on the kitchen staff.

**Communications**  
Anja Timm  
ait4@cornell.edu  

Craig Cramer  
cdc25@cornell.edu  

Anja helped maintain our website this season, and Craig works next door to Melissa. He can make giant printouts, help out with technology, and along with Anja is a crack communications expert! They are both good resources for publicity and advertising.

**Hort Department**  
Wendy Wirth (waw3@cornell.edu) and Dolores Higareda  
PS 134A  

Marvin Pritts  
mpp3@cornell.edu  

Ian Merwin  
im13@cornell.edu  

Ian Merwin was involved with Dilmun in its early days, and he can tell you some darn good stories from back then. He and Marvin hold the expertise to growing fruits, and are both really great resources. Wendy and Dolores are the dynamic duo who hold the Plant Science cooler keys, know the inner workings of Plant Science academics and administration, and are big supporters of Dilmun.
Greenhouses
Janet Myrick
jim23@cornell.edu
607-342-5344

Andrew Leed
607-227-4595

Andy oversees all of the CALS greenhouses, while Janet is the one to approach with our specific questions about our greenhouse space. Andy also grows and sells seed potatoes, and we bought some off of him during the spring.

Ag Experiment Station
Drew Lewis
Director of Operations for CUAES
all24@cornell.edu
607-423-6145

Mike Hoffman
Associate Dean of CALS
Director of CUAES
607-255-2552

Drew and Mike are both very supportive of Dilmun, and love to know about what's going on at the farm. They are attuned to our ideas for the long-term trajectory for Dilmun, and lend good advice and encouragement.

Loaves and Fishes
607-272-5457
Loaves also has a website where you can look up their open delivery times.

Janet McCue
jam7@cornell.edu
607-255-2285

Janet is the director of Mann Library who can set you up ahead of time with a reservation for the farm stand. According to last year's report, she also has some good ideas for publicity and marketing.

Jeff Gardner
jg48@cornell.edu
607-255-3032

Jeff works in Mike Hoffman's lab at the Insectary. He was super helpful on a number of occasions this year when we needed to borrow some pest management equipment. He has expertise in the field, and is definitely willing to help battle the bugs.
Appendix E: Price List

Garlic - $1/head
Scapes $2.5/lb
Onions - $1/ea
Leeks - $1/ea
Shallots - $1/ea
Scallions $2.5/bunch
Bell Peppers $0.5/ea
Potatoes $1.5/lb
Carrots - $1.5/bunch
Eggplant $3/lb
Winter Squash $1.5/lb
Summer Squash - $1-1.5/lb
Pumpkins - $3/ea
Melons - $3-4/ea
Kale $2/bunch
Collards $2/bunch
Swiss Chard $2-3/bunch
Beets $2/bunch
Radish $1-2/bunch
Turnips - $1/bunch
Daikon $1.5/ea
Parsnips - $0.5/ea
Jalapenos - 4/$1
Salad Mix - $3/bag (1/2lb)
Spinach - $3/bag
Beans - $3/quart
Blueberries - $4/pint
Celery - $1.5/bunch
Lettuce Heads $1-2/ea
Cucumbers - $1-1.5/lb
Broccoli - $1/lb
Cauliflower - $1/lb
Basil - $1/bunch
### Appendix F: Sample Sales Spreadsheet

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<th>Price/Unit</th>
<th>Max</th>
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<td>Leeks</td>
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<td>Pumpkins</td>
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### Appendix G: Sample Order Form

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<td>Potatoes</td>
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<td>Nasturtium Flowers</td>
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<td>Eggplant</td>
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<td>Leeks</td>
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Appendix H: Sample Invoice

INVOICE # 00

September 31, 2009

Manndible Cafe
Mann Library
Cornell Campus

Invoice

Dilmun Hill Student Farm Produce Delivery

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<td>5 Pounds Salad Mix $3/lb</td>
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<td>Total</td>
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Please Mail Check to:
Melissa Madden
Rt. 366 & Pine Tree Road
147d Plant Science Building
Cornell University Campus
Ithaca, NY 14853

Contact #: (515) 451-8541 (Becky)

Dilmun Hill Student Farm
Rt. 366 & Pine Tree Road
Cornell University Campus
Ithaca, NY 14850

Contact #: (607) 351-3313
## Appendix I: Total Sales

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