hubs" and increasing soil and plant health via vermicompost to capturing methane through the anaerobic digestion of food waste, students have been integral in our efforts toward sustainable land stewardship.

Student involvement with the College Farm continues to grow. Each semester we host more and more classes for labs, lectures, course work and service learning at the farm. This collaborative relationship has helped more students connect with the farm, increasing the level of student participation in volunteer work and academic pursuits. Dickinson College students, as well as other area colleges and universities regularly engage in the work and projects taking place at the College Farm.

This year the College Farm has included monthly community workshops in collaboration with the Pennsylvania Association for Sustainable Agriculture (PASA). Our Sustainability Schools provide students, local residents and avid gardeners an opportunity to learn some of the basics in sustainable food production. College Farm staff, along with student farmers, lead these educational programs providing our community with useful information from lessons learned through trial and error at our farm.

Spring is in the air at the Dickinson College Farm! Our spring peas are popping out of the soil and our garlic shoots are a vibrant green against the straw mulch. Baby peeps are growing in our brooder and will soon move out to pasture; the future supply of eggs and meat for our farm community. The final touches are being made to our new 18 acre pasture to make room for the herd of beef cows we will soon be purchasing. The College Farm is thriving and bustling with activity.

While 2011 was our most challenging season yet, we learned some hard-earned lessons that continue to inspire us and direct our future plans for the College Farm. Student research and innovations play a key role in helping us develop systems that ensure the farm's ability to endure the seasonal fluctuations: those foreseeable and unforeseeable. From improving the farm's biodiversity through "biodiversity
We are very grateful for the students who have contributed their good energy and hard work to the College Farm. The College Farm is what it is because of them! In addition to our soil loving students, the Farm Program is very proud to have two new staff members join the team. Ali Frohman, the Farm’s Program Assistant helps spread the good word about the farm! Her savvy social media skills help get the word out plus her campus outreach initiatives are doing the job to grow awareness among Dickinson students.

Kevin Harper-McCombs, our Packing House Coordinator is that plus so much more! Kevin ensures that our produce gets where it needs to go with efficiency, training students in food safety standards. Kevin is also transforming our produce into new product lines, from Red Devil Hot Sauce to pickled beets and more!

We would love to show you around! If you find yourself in the neighborhood, please stop by! There are self-guided tours of the farm available on site plus organized tours on the calendar! We look forward to seeing you!

Our self-guided walking tour audio and brochure are available for download:

http://go.dickinson.edu/farmtour
http://go.dickinson.edu/farmtourbrochure

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“Student research and innovations play a key role in helping us develop systems that ensure the farm’s ability to endure the seasonal fluctuations; those foreseeable and unforeseeable.”
Weathering

As a geology student at Dickinson College, you could say that I study rocks. Rocks tend to be a pretty straightforward idea in most contexts. They play a relatively simple role in real time, whether standing firm as a human-processed construction material, or outcropping in the rugged beauty of their natural state. They are still and silent, waiting to be broken, sculpted, or washed away by the world around them. In geologic time, however, rocks can get a lot more complicated. In almost all of their aspects, rocks are confined and concrete, as it were, but the illustration of their history and the devising of the mechanisms for how they change over time can become a rather abstract art.

In my three or so years of trying to decipher the ways of rocks, I have become convinced that I am about as dumb as a rock when it comes to the bewildering maze of chemistry, geometry, optics, and thermodynamics that needs to be negotiated in order to define and describe their characteristics. This maze scares me. Whenever I have entered it, I have done so reluctantly, without venturing far before swiftly retracing my steps back to the entrance. An academic comprehension of rocks has therefore remained out of sight and out of mind, as far as I’m concerned, behind the kaleidoscopic walls of scientific expression.

My fear of rocks has made my existence in Dickinson’s geology department a furtive one. Without the understanding that would have made me more confident among my professors, I have relied on alternative perspectives from which to work around my problems. One of these perspectives has been gained by working at the College Farm. On several occasions at the farm, I have been paid to dig holes to plant trees into, but on several more occasions, I have been allowed to dig holes simply to look beneath the surface, and try to figure out its contents. I had done this sort of thing before on geology field trips, looking at rocks, but the soil that I unearthed grabbed my attention in a new way.

Soil is alive, so I guess that makes it more exciting, but that’s not all that made it so appealing to me. You see, soil is mostly composed of weathered rocks. That is, rocks broken down, digested, and easier to understand. The minerals that make up each rock have been encapsulated in the seemingly unbreakable code of lithification, locked inside and unreachable. In the soil profile, though, minerals settle themselves in layers distinct by texture and color, available for you to hold and crumble between your fingers. The characteristics of quartz and clay were suddenly so much easier to see and made so much more sense, now that I was looking at them in smaller pieces. When I discovered soil, I saw rocks for the first time again.

I believe that working at the farm has helped me break down other challenges, less literally, but just as mindfully. The tasks that I perform as a worker may be simple and repetitive in one sense, but they are also therapeutic, contemplative, reaffirming, and invigorating. For me, farm work has been a weathering process that has left me with fewer unbroken obstacles in my life. Rocks remain largely incomprehensible to me, and there are other challenges on my horizon that look just as daunting. But just as all rocks can be weathered, given enough time, so too can problems be broken down and seen more simply for what they are.

With a change in perspective, whether by farming or doing another insightful activity, I believe I can always figure out how to look at things in a way that makes more sense.
PERSONAL REFLECTION

Worms have surrounded me this year, invading my thoughts, circling my head almost every night. It seems like it would be frightening, but I do not see it like that. I am doing research on the farm relating to worms and all that they can create; they helped to create some of the lettuce and pak choi that I grew last semester! We are trying to use their excrement, or castings, in effective potting soil mixes and liquid fertilizers. The more I learned about worms in preparation for and while doing my research, the more I began to appreciate them and actually enjoy their presence. I started caring for the worm bed we have at my house, so they became like pets to me. Are they happy? Do they need to be fed? What even makes a worm happy? I like when they are in my hand (though they are probably not keen on this), I like feeding them and watching them live and move. I literally become overjoyed when I get to feed them a banana peel or melon rinds. Oh, do they love melon rinds. Yet worms are so different from us biologically, closer to us than the microbes that also break down organic material, but still far. Should I think of them as animals or as components of the soil? I suppose scientists usually go through these conflicts when studying a species; is that particular species special or am I just making it special by choosing it as my subject? Perhaps the answers to these questions are not mutually exclusive, at least I hope not. Calling all worms! Keep doing what you do because you are extraordinary.

CONSTRUCTING A SIMPLE WORM BED FOR VERMICOMPOST

Materials
2 pieces of 5/8" plywood-35-5/8" x 12" (sides), 2 pieces of 5/8" plywood-23-3/8" x 12" (sides), 2 pieces of 5/8" plywood-24" x 36" (bottom and lid), about 40 2" nails, hammer, drill with ½" bit (OR a recycled bathtub, barrel, trunk, etc.)
Netting, newspaper, 1-2 handfuls of soil, earthworms (can purchase or collect from ground), water, food scraps, leachate collection container.

Directions
Nail the sides together with 4-6 nails per side. Nail the bottom panel to the sides with 5-7 nails per side. Drill 12 half-inch holes in the bottom and 6-9 holes on each side for ventilation and drainage. Place the bed in an area with temperatures close to 55-77°F. Raise the worm bed off the floor with bricks or blocks for air circulation and leachate collection/usage.
Place netting on the interior for ventilation and in order to prevent pests from entering, worms from falling out. Shred newspaper for the bedding and fill ½ of the bed with this bedding. Add 1-2 handfuls of soil. Mix in the soil with the newspaper. Place the lid on top and let the bedding sit for a couple of days to make sure it does not get too hot before adding the worms. Aerate the bedding by turning it.
Add semi-composted organic material, earth worms, and water to moisten thoroughly. The amount of worms needed to process all produced food waste is twice the weight of the food waste produced per day.
Place bedding over the worms. Replace the lid to retain moisture, keep out light, and pests like centipedes. Most insects, spiders, and true bugs are not harmful. Wait 1 week before feeding the worms.
Water the worm bed everyday by hand or by setting up a drip irrigation system. Keep the bedding moist; the excess will drain, but be careful not to overwater and drown the worms. Collect the drained water in a container to use it as liquid nitrogen fertilizer. Alternatively, put plants under the bed so that the drainage drops directly on them.

Feed the worms with organic food scraps once per week or as needed. Avoid overfeeding the worms to prevent mold and odors. Cut up the food in order to speed up the breakdown process for them. Bury the food under the bedding with the worms. When handling the worms, make sure to have wet hands.

Monitor the worm bed for pests and maintenance issues.

Add fibrous material once a month to a new section of the worm bed. Harvest the vermicompost when the worms move to the new bedding with fresh food waste. Alternatively, wait about 2-3 months until the bedding disappears. Remove the vermicompost, still including the worms. Separate the worms from the vermicompost by hand or with a sifter. Otherwise, place the vermicompost in small piles in the sun; the worms will move to the bottoms of the piles because they do not like sunlight. Wait a few minutes, remove the tops of the piles, and repeat this process until an adequate amount of vermicompost has been harvested. Once the vermicompost is harvested and separated from the worms, mix it with potting soil, and apply it to crops.

“Keep the bedding moist; the excess will drain, but be careful not to overwater and drown the worms.”
The Silent Orchards and Their 22-Day Buzz

The new year rolls in. Twenty-foot tall trees, each almost identical, stand in neatly placed and maintained rows over 740,000 acres stretched across California. The trees are accompanied by little more than grass. It is a neat, orderly, and—most of all—quiet sight.

Two weeks later, in the middle of the night, the orchards of the “healthiest specialty crop in the world” are suddenly no longer quiet. Truckers roll in from all over the continent, from Mexico to Florida to as far away New England. As they unload in the cool cover of darkness, the sounds of millions of bees take over the serenity of the almond orchards of California.

Because of the almond monoculture in this area there is little other vegetation, creating a situation where there are no local bees to pollinate the vast expanses of crops because there is nothing for them to eat in the offseason. The pollination process has to occur in just 22 days across the entire span of the crop—an area that provides 80% of the entire world’s almond production. Because of the land cover and the time constraints of the operation the pollination requires the importation of over half (40 billion) of the honeybees in the United States.

This process has had horrific effects for the country’s honeybee population. At the last Pennsylvania Association for Sustainable Agriculture Conference (PASA) I watched a screening of the documentary Queen of the Sun, which explained this new honeybee colony collapse disorder phenomenon, of which many claim this bee importation practice is the root.

The merging of honeybees from all over the world in one place once a year allows for the easy transfer of diseases, parasites and fungi from one bee colony to another. Over the last 30 years, the country has lost more than half its bee colonies. However, almond growers (as well as apple, cherry blueberry, cranberry and melon farmers) are still extremely reliant on these little insects for the entirety of their production. In fact, 1 of every 3 bites you eat is only possible because of honeybees.

Queen of the Sun called for almond producers to stop this transportation and merging of bee colonies. It asked them to use their capital and set aside land to create a biodiverse area for bees to stay past pollination time. This would be beneficial for both the producers and the bees. The movie then called on the rest of the country to participate in the home beekeeping movement that is exploding across the country. The practice is not difficult and can be implemented anywhere. We owe these insects for their services in producing our food, so why not show some support?

References:

http://www.sfgate.com/cgi-bin/article.cgi?f=/c/a/2007/10/12/CM2SS2SNO.DTL&ao=all
And Queen of the Sun

Sweetest Cornbread:

1 cup all-purpose flour 1 cup heavy cream
1 cup yellow cornmeal 2 eggs, lightly beaten
1/4 cup white sugar 1/4 cup honey
1 tablespoon baking powder
1/4 cup vegetable oil

Preheat oven to 400 F, grease 9x9 baking pan.
Stir together flour, cornmeal, sugar and baking powder.
Stir in cream, oil, honey and eggs.
Bake 20-25 minutes, or until knife comes out clean.
We got off the interstate and passed the train-tracks, where we turned onto a dirt road that rose and quickly descended into the Pacos River Valley. There was lush, green vegetation on one side of the street and a rocky outcropping on the other. We approached the house and knocked on the door. Out came Armand Saia, the man with whom I would be staying for the next three weeks. We talked and ate and went on a tour of the farm. He showed us the beds and greenhouses and explained how he did things on the farm: Aside from a water pump, the work on the farm was done by hand. He weeded and planted without machines and, for the most part, without tools. He had food growing year round because of the way he built up the soil, using various manures and leaving the pulled weeds to decompose and to create soils rich in organic materials. He was practicing farming the old fashioned way: with the brunt of his labor.

How he stumbled upon this career is astounding. He first lived the high life in New York City as a sculptor. He then worked for a time as a chef and a restaurant owner. As a result of various misfortunes, he was forced to reinvent himself. He founded Infinity Farms and has been living there for four years. A man very improbably ended up doing it as his career.

Not having the background in the field, he had to pick farming up on the fly from books and from others in the trade. From my volunteering on the Dickinson College Farm, I have learned how every three years, the beds are allowed to rest so as to rebuild the soils. Having that as my only farm experience prior to New Mexico, I was curious as to why he had beds he was using year round. As he put it, if you take care of the soils and build them up, there is no reason that you can’t use them year round. The produce coming off the farm surely reflected the care that was put into the soil, as you could pop the cherry tomatoes like candy.

Armand’s unique background meant he

“*His mantra was that good, nutritious food is a right that all people should have, no matter poor or rich.”*  

approached farming in a unique way. By practicing local, organic farming he saw himself as an activist. His mantra was that good, nutritious food is a right that all people should have, no matter poor or rich. Hence, he created Desert Grows, a non-profit organization that buys local farmers’ produce and donates it to food banks and churches. Through Desert Grows, he also leads cooking demonstrations and teaches about the value of the good food he is creating. He is working to create a culture of good food.

While he had his mantra, he would often splurge and buy himself Pringles, ice creams and candy. For all his talk about good food for all and how he hated the giant corporations like ConAgra for running small farmers out of business, he went on munching on his Pringles or devouring his Smarties.

The experience, aside from allowing me to get to know Armand well, allowed me to experience the life of a farmer. We woke up at 6 am every day and worked until the New Mexico heat became unbearable. Besides the challenges of the physical labor and the work hours, there is variability and uncertainty. There had been little rain prior to my visit, meaning not much was growing. Just to keep the crops from dying, Armand would have to water everything twice a day. To add insult to injury, the water pump was broken at this point, meaning it had to be done entirely by hand. All by himself. As nothing was growing, there was little to harvest. To go through several weeks without making much money can easily dampen one’s spirits and cause excessive amounts of stress. Even through the hardships, Armand found a way to scrap by and maintain a positive outlook.

This experience has given me a newfound appreciation for the job of a farmer. Not only is it demanding both mentally and physically, but it is an uncertain profession. Year to year there are new challenges. Some years the weather cooperates and crop sales are good and other years the weather is uncooperative, making it hard just to scrape by. What makes it even harder is the delayed gratification. It takes months from seed to harvest, meaning there is much that could go wrong. It is a job at which only a select few can excel: those who are determined, mentally strong, patient, adaptive, and who enjoy the challenge.

I would encourage anyone to take advantage of a chance to work on a farm. It was a life-changing experience for me. Nutritious food should be a right and this is what small farmers are trying to do. Without your support, farmers like Armand Saia will soon disappear. Is that something that we want?
The sun is a unique wonder that our universe draws on in so many ways. If the sun did not exist, human, plant, and animal life on this earth would have no potential for survival. Plants sprout from deep in the soil under the sun’s warming rays, weather and climate are driven by the sun, and now this renewable resource is being used as energy to support human interests on earth. Personally, I’ve adopted the sun as a type of feel-good therapy. On an emotional level, I feel a sense of tranquility and peace while in its presence. However, I have recently acquired knowledge of the vast potential our sun has to transform America’s goal of a clean-energy future. This knowledge is the best feel-good therapy of all.

Sustainable technologies should be developed whenever possible because it is our responsibility as global citizens to better the outlook for future generations to come. Dickinson College’s largest effort to increase its sustainability initiatives, in my opinion, is the operation of the College Farm. Nestled among the College Farm’s fields are solar panels that vary in size and purpose. Until my employment at the farm, I had little knowledge as to how solar panels really capture the sun’s renewable energy, then donate it back with a minimal environmental footprint. The solar panels are also used as educational devices, prompting the surrounding local community and Dickinson students to learn about the future’s search for alternative energy solutions. As a student, I was given the opportunity in my Environmental Science class to travel to the farm to study the workings and purposes of the farm’s solar panels. This remarkable experience benefited me in more ways than one. The College Farm turned into my classroom as I worked side-by-side with my peers in a setting that, though familiar, became unknown territory.

The College Farm acquired its electricity from solar energy, with its goal to reduce purchased energy from the region’s coal and nuclear plants. The barn, set as a gleaming focal point of the farm, is powered off of two separate grid-tied solar panel systems. The farmhouse is tied to this system as well. The greatest source of solar energy is used by the farm’s largest greenhouse through a solar water heating system during the cooler months. As a student at the farm, I was able to see the panels up close and visualize how they supplied their energy. As an employee, I am now more knowledgeable about the technologies the farm fosters and how these technologies play a role in the work that is completed at the farm. The College Farm has a bright future in solar technologies. A hands-on solar intensive workshop and new solar pump house installation at the College Farm is planned for the near future. It only takes one organization to make a difference that, overall, benefits the whole. I am motivated as a student and an employee to share my experiences with others in the hopes that they, too, will harness a desire to work towards a clean-energy future. As a member of the farm team, I am constantly being exposed to new green practices, and I can honestly say that I am proud to be a part of an organization that is putting nature as a whole, first.

Resources on solar energy to check out:
- Solar Energy Facts: http://www.alternative-energy-resources.net/solarenergyfacts.html

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It’s 5:50 am and I have to quite literally roll myself out from under my bed net, the cocoon that has held me in dreams for the past eight hours. I slumber out of the net and slip my feet into my mud-caked boots before I walk to the bathroom and brush my teeth. After one look in the smudged mirror I see the toothpaste residue on my sun-kissed face and quickly wipe away the mess. I walk out of the dorm onto the front porch, where three hammocks sway hypnotically in the wind, luring me to lie down and fall back to sleep. Resisting the temptation, I continue down the winding steps of the dorm to find the steps that are carefully carved into the muddy Earth that is ever-changing in the height of Costa Rica’s rainy season. Beyond the slippery slope I can hear the clucking of the hens and the cheerful chirps of the baby chicks that are eager to be let out to roam the world and start another day. I escape many attempts of pecks at my fingers and arms as I try to replace the empty water bins inside the chicken’s house but I have to make a self-note to practice my reflex skills to avoid all future injuries.

“The slippery slope I can hear the clucking of the hens and the cheerful chirps of the baby chicks that are eager to be let out to roam the world and start another day.”

The baby chicks test the speed of their legs as well as their curiosity as they run around to new patches of grass and chirp at this and that. Their self-awareness and understanding of the world around them increases with each questioning peep. The yellow, white, and brown feathers cushion their fragile, weightless bodies. As I stand alone with the chicks and hens surrounding me, I feel the importance of each of their lives. The chicks will soon grow into bigger, stronger creatures and they will one day produce food that will energize my body as their mothers provide for me now. I look to each of them and can almost feel their little heartbeats echo with the rhythm of the wind. My gratitude for these beautiful animals is expressed every morning that I wake up to feed and nurture them. In the habitat established for them on our farm, I must take care of them or else they will not survive. It is my duty, my obligation as another creature of this Earth to make certain these animals have the utmost healthy and successful lives. They need me to take care of them just as much as I need them to help me take care of myself.
The Dickinson Farm is a 50-acre working and educational farm that is Certified Organic and Food Alliance Certified. Located just 6 miles from campus, the farm maintains six to eight acres in food production in a given year. The majority of the harvest is delivered to the campus dining hall.

A significant portion of the harvest is earmarked for the farm’s Campus Supported Agriculture (CSA) Program, which feeds over 130 families. The Farm also maintains a thriving stand at Carlisle’s producer-only Farmers On The Square market and donates thousands of pounds of fresh produce to Project S.H.A.R.E throughout the growing season.

Dickinson College students assist with all aspects of the farm’s food production as employees or volunteers. In addition to raising Certified Organic produce, the farm supports the academic interests of students and faculty, promotes renewable energy through solar applications and builds a greater awareness among students about how food is generated using techniques that help sustain natural ecosystems.