Collaborative Composting:

Creating Local Sustainability

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Introduction

We go through our lives day by day not necessarily thinking about the consequences of our actions. Many of our actions directly impact the environment in some way, positively or negatively. Turning the key to start the car, choosing food in the grocery store, recycling that Pepsi can from lunch; each of these actions can affect the environment around us. We are students studying the answers to questions such as: Where does our food come from? Is that really good for our soil? What does it mean to be sustainable? With population growing, resources dwindling, and our culture ever changing, it is becoming evident that we must be sure to heavily consider our decisions so our choices do not result in negative consequences. In the Monmouth community, we see untapped potential in the area of sustainability. As we walk through our proposal, we will look at how we can approach a closed circle act of sustainability here in our town and college campus; thus, doing our part to minimize those potential consequences.

Problem

Currently, Monmouth College's food service has been setting aside food scraps from the cafeteria so that they can be collected and used in compost for the educational garden. The City of Monmouth has a composting operation going on as well. The city has been using leaves as their main source of compost, but these leaves alone lack the nutrient rich items such as food scraps from the college. Our Integrated Studies 414 group has been working with Chad Braatz, the Sustainability Coordinator for the city, about forming a composting system involving the college, the city, and local business to create this nutrient rich compost that can be beneficial to the city, our school, and local gardeners in the area.

The nutrient rich topsoil which once produced some of the best crops in the world has been depleting over the years and is gone in some places. Much of this depletion could be a result of controversial agricultural practices using many unnatural fertilizers and pesticides. These chemicals, which were never meant to be in the ground in the first place, have caused that nutrient rich topsoil to vanish. Practices such as tilling have also aided in breaking up topsoil causing many farmers to choose no-till options. Farmers are beginning to choose other alternative practices that encourage proper care of our land and ecosystem.

Just as the farmers, we as a community have a problem. Also, like the farmers, it is important for us to take steps to improving our ecology in any way we can. The community is lacking the necessary materials to produce quality compost, local businesses are throwing waste into landfills, and the college lacks opportunity for students interested in sustainability. These problems may seem small, but together they can greatly impact each other. Businesses have the green waste that the community needs, and the project creates opportunity for the college. Our proposal provides not only a solution but a sustainable and beneficial answer. This solution is collaborative composting. Composting is a natural process and the product of composting can replace diminished topsoil, and provide new rich soil. Compost contains the rich natural nutrients that were once in the soil to begin with. Collaborative composting with the college, community, and businesses is a sustainable response to the problems we all share.

How It Is Done

Composting uses biodegradable waste that can be turned into rich soil through a process that is completely natural. In compost, there must be two kinds of waste; brown matter and green matter. Green matter is the waste rich in nitrogen. Items such as food scraps, grass,

flowers, and coffee beans are examples of green matter. This is the waste that the city of Monmouth is currently lacking and the college and local businesses can provide. The next kind of waste is brown matter which is waste that contains carbon. Carbon is the second key nutrient in creating this rich soil. It is crucial for there to be a proper balance of nitrogen and carbon to make the best compost. Examples of brown waste are; leafs, sawdust, hay, and corn cobs. According to Chad Braatz, the city already has more than enough of this brown matter. They use the leaf pick up from around the city to create the brown matter that is needed and currently makes up the compost piles (Braatz).

The website eartheasy.com lays out a method of composting that represents that which is similar to the process that the city of Monmouth would use once green matter is added. It is very important to note once again that this is going to be a completely natural process taking place in Monmouth. This is an important aspect of our composting operation because it means that the pesticides, artificial fertilizers, and other chemically based additives are not in the compost. These chemicals are those that can destroy the land that we all live on and composting is a method to build up that natural land makeup.

The process of composting goes as follows:

1. Create pile of green waste
2. Wait weeks or months for waste to become humus
3. Then input nitrogen and carbon rich materials (green and brown matter)
4. Shred the plant matter and add water (naturally or manually)

5. Allow animals such as worms as well as fungi to continue to break up the material
6. Spread as top soil or fertilizer
   ("Eartheasy")

In the case of our project, the complete decomposition process should take approximately eight months to complete (Braatz). Once the system is started, it will be based on a rotation that will produce compost on a consistent basis.

Overview

For this composting effort, we propose the that City of Monmouth will work cooperatively with Monmouth College and local businesses in the community to create a system that is a closed circle, benefiting all parts of the community in Monmouth. We all stand witness to small town communities struggling to function due to the current agricultural system. It is time for this small community to step up and take a stand by finding ways to sustain the agriculture in our community and this can be a great way to move this community in a positive direction.

In this proposal, we will examine the day to day procedure of our process, including the roles of the college, the city, and local businesses. Other colleges that run similar operations will be evaluated. It can be valuable to look at examples of those who are currently in operation. Next we will explain the labor portion of the proposal. The work has to come from somewhere, and without labor, this collaborative composting project will not succeed. Of course, there will be costs that need to be addressed. These costs as well as the benefits of this proposal will be analyzed. Altogether, potential opposition may occur and we believe we know just how to answer these potential problems.

Composting is a way to help the land and the people that live on the land. It is important this day in age to convert to sustainable practices to try and fix what has been demolished by

conventional practices. By connecting the community, college, and businesses of Monmouth, we can do our part to support the ecology of our beloved land. After, it is our job to take responsibility for our environment.

How will it happen?

Procedure

The procedure for this project is fairly simple. A large portion of the work and management has and will be taken care of by the city of Monmouth. The first question when thinking about the procedure is, "how will we get the waste from the businesses to the waste management facility?" Fortunately, the city of Monmouth already owns a trailer with a ramp and twenty-one 96 gallon containers with wheels on them. This trailer will be used to transport these containers. Containers will be left at each business (number and location of containers by decision of the business). In order to properly pick up and transport the waste containers, two to three individuals will be needed depending on the strength of these individuals. The workers could be individuals either from the community or the school. These workers would take the truck, provided by the school, and trailer, provided by the city of Monmouth, and go to the businesses, such as County Market and McDonalds.

Photo Courtesy of the City of Monmouth[1]

Upon arrival at each location, they will take the 96 gallon containers and replace them with clean containers for the upcoming week. Moving the loaded containers is the portion that will require two workers due to their size and weight. After loading the full containers onto the trailer, the workers will then drive the truck and trailer to the city dump, where Mr. Braatz will help the workers disperse the food scraps onto the current brown matter piles. The now empty containers will be washed at the waste management facility and placed back on the trailer for the next pick up day. The workers would have to make sure that the containers would adequately clean enough so that decomposition would not take place inside the containers. The trailer could then be stored away until the following week.

After the workers have emptied the food scraps in the compost piles, Mr. Braatz will then mix the compost piles to combine the two waste matters. This is part of a process that is already done with the brown matter at the current operation. After months of decomposition, the piles are ready to be used as valuable topsoil. With the addition of the green matter, the city of Monmouth will be able to receive grant money for a trommel screen.[2] With this piece of equipment; the finished compost can become a sellable gardening product. Workers from the school or community can then bag the product as it comes through the screen. These bags can then be sold at local businesses, or through the city and school.

Much of this project depends upon time as the compost decomposes. Moving the compost out of the containers and cleaning them is the largest requirement of labor. The workers must be available weekly in order to get the food out of the businesses to keep the smell from the food to a minimum. As this project grows and develops, more waste may be needed. This would require growing the number of businesses waste is collected from. Once revenue can be obtained through the sale of the compost, then advertising the produce would be a great

opportunity to gain more consumers to buy the finished product. This project could produce a profit that would help develop sustainable practices at the mini-farm, educational garden, school landscaping, and community projects.

Model Programs

There are many colleges around the United States that have a sustainable agriculture programs available to students. Each program is unique and has different components that make it successful, such as our proposed composting project. If Monmouth College is able to create a composting program, maybe the college could potentially expand the already established farm into a sustainability program open for all students to get involved and teach about local agricultural practices. By originally adding the farm to the available opportunity at Monmouth College, there must have been an interest in developing in such a direction of growth.

The first sample school we will look at is Evergreen State College. This college is in Olympia, Washington, has around 5,000 students, and was established in 1971. This school has been around one a few decades and has managed to create a successful organic farm ("Organic Farm"). According to the authors of "Organic Farm" on the Evergreen State College webpage, "the Organic Farm is a working small-scale organic farm that serves as a learning laboratory focused on small-scale organic agriculture." ("Organic Farm") This is an exact idea of what our college should aim toward, being a learning laboratory that allows students to grow in knowledge of organic processes. Students could turn to the Monmouth mini-farm as a place to learn about different organic crops, as well as how compost is produced. Another idea that Evergreen State College has that Monmouth College may be interested in is a manager to overlook the operations of the farm and compost. Evergreen State College oversees their

operation with a staff, student farm aides, faculty, and internships ("Organic Farm"). Looking at these ideas as an example, our college's mini farm and composting program may need someone to overlook the operations. Evergreen State College also has a closed loop compost idea, where they produce their own compost much like our proposed system ("Organic Farm"). Because the farm at Monmouth College is not as big as Evergreen State College's, our college and city is teaming up to produce the organic compost matter. This is just one example of a college that Monmouth College could resemble.

Another college that Monmouth could potentially model itself after is Skagit Valley College in Mount Vernon, Washington. This community college uses a "town and gown" system, in which the community members in the surrounding area around the college help the college and its students with the farm ("Sustainable Agriculture Education"). This is an exact model of our proposal; partnering with the city of Monmouth in order to produce the composting product. Another part of Skagit Valley College that Monmouth College could implement is an advisory committee to overlook everything that the farm would like to do ("Sustainable Agriculture Education"). This would be a great idea for Monmouth College, where decisions for the mini farm and compost project could be discussed. If this procedure would be good for the college, it could be discussed at faculty meetings. Because faculty meetings are held already, this could be prime time for the mini-farm and its initiatives to be discussed. Even though Skagit Valley College is only a community college, it still presents some ideas that make it a promising model to look at.

Lastly, Pomona College in Claremont, California may be the closest model to Monmouth College. This is in part to their enrollment of nearly 1,500, and their liberal arts education approach. Some ideas from the school's website include a program for educating the students

that are enrolled about their agricultural practices ("Pomona College"). Even though it would be a lot of work in order to launch a similar program at Monmouth College, it would develop each student's understanding different ideas, mini farm practices, and would encourage the liberal arts mindset that the students are already striving for. Pomona College's program is supervised by two professors ("Pomona College"). Instead of having a group of faculty overlook the entire agriculture program, an agriculture department may have just one or two professors that would take care of the day-to-day operations at the mini farm, as well as the composting program. Pomona has many ideas that could help jump start the development of a new concept for education at Monmouth College.

Theses colleges are not the only examples from around the country that are accurate models for Monmouth College to look at. However, these chosen institutions are some informative resources to look at. Even though these colleges have great ideas, no program will entirely fit the needs of Monmouth College. In order to fit these needs, Monmouth will have to develop its own identity. Our college is already distinct, and with the addition of a program such as our composting project, we could identify as one of the few colleges in the Midwest that is willing to actively embark on a path to sustainability.

Labor: Where it's coming from

Workforce

The backbone of this project is the labor force that will see out the process. Without someone to pick up the waste from local businesses, the project will not be operable. Manual labor for the composting project would ideally come from the student body of Monmouth College. This would give students an opportunity to learn about the composting process and what it means to create a sustainable loop within our community. Starting out, the college could give the opportunity to 2-3 students who are interested in working on composting. As discussed in the procedure section, at least two students are needed for safety purposes. This work will be in the form of work study, in which the students would be employed and paid for their services at minimum wage by the college. The student workers would be in charge of picking up the compost from the locations during the school year. Other duties would include helping Chad Braatz with upkeep and distribution of the compost to the educational garden and mini-farm.

But who will overlook these student workers? It is a certain possibility that professors overlook the process. There are several professors within the college who work closely with the mini-farm and others who have expressed interest in this project whom could be asked to look over the student's work study until a more permanent person is found. A more permanent option could be similar to some of the other colleges we have looked at. A sustainability coordinator could be hired to overlook this project and other waste management projects on campus. However, if absolutely necessary, Chad Braatz is willing to step in and take the position of overlooking the student workers and their activities temporarily.

Future Development

It is important to look at what direction this project will head in the future. We must establish a set of long term goals. There are a few options that the college could take in the future. One option is to involve multiple departments in this project. For example, the business department could use the compost as a marketing project in which students would make a marketing plan for the compost project. This student built plan could possibly be used as a method of sales and advertisement while selling our product. This would be beneficial because it not only gives the students the opportunity to create a marketing plan that provides experience for future employers, but it would also benefit the composting project. Other departments that could get involved are the chemistry and biology departments, in which a class could study the chemicals and makeup within the compost and compare it to other types of soils. This could exemplify how much healthier the composting soil really is for growing environments. There are other departments that could get involved, upon the colleges and department approval. With integration into other departments, work study interest could come from these departments and not simply from those interested in helping with the farm work. If interest dwindles, professors could integrate compost management as part of the course work. Incorporating the compost would make sure that students are helping with the compost project, and the process is being fulfilled. This would not only help students gain experience with sustainability, but also gives them hands on work with what they are studying.

Students are only in town for eight months of the year at the most. In order to fill the workload during the summer months, a city internship opportunity could be developed. Students are always searching for internship experience, and many Monmouth College students are from the town of Monmouth and surrounding areas. As part of this internship, one or two students

would work with the composting site and the city of Monmouth. This internship would be unpaid through the City of Monmouth. In addition to the usual work for the composting pickups, the intern(s) could also create an educational outreach program for the city of Monmouth, explaining the process and importance of composting. The program could be in the form of a brochure or pamphlet that has the benefits and positive attributes that composting brings. This outreach program can inspire more people to get involved with the composting project, which could lead to composting for their home gardens or donating their green or brown matter to the city operation. The program will educate families, as well as the students, on the benefits of composting. Overall, the more people that are involved with the composting project, the more interest throughout the community, the more our community will understand the importance of sustainability and waste management. Chad Braatz would be the supervisor for these interns, and it would be a great opportunity for students interested in sustainability studies.

A few years down the road, Monmouth College could expand and develop a sustainability program. A sustainability studies program at Monmouth College would have many benefits to the students of Monmouth. In our current state as a country, it is important to educate our young members of society on how to take care of our environment, not only for their own gardens and backyards, but for all functions of society. The new program at Monmouth could also attract more students who are interested in sustainability or wanting a career in an agricultural field. There is potential for the students of this program to be involved in the project's labor, as discussed with other departments.

Looking at the overall benefits of labor, several come to vision quickly. This is a great opportunity for growth within the College, as well as the city. This is growth will stem from communication between the city of Monmouth and the college. This composting project will also

get the whole community involved and working together for a common cause. Growth of sustainable agriculture education within Monmouth College will be beneficial to the students, as well as our future environment. Students working on this project will gain work experience and a new sets of skills that could be valuable to them in the future. This proposal would help students, faculty members, and townspeople learn how sustainability and composting not only betters the soil, but betters our community.

Cost and Benefit Analysis

Costs

There are many costs and benefits associated with this town and gown composting proposal. Costs are simply part of starting a new project. The two biggest costs associated with this proposal are the purchase or repurpose of a four wheel drive truck and the cost of labor to perform this project. These two financial burdens are most necessary for the execution of this project. The four-wheel drive truck will be used to haul the food scraps from the local businesses once a week. The truck will pull the aforementioned trailer and waste containers that the city of Monmouth owns. After doing some research, we found the price of the ideal vehicle would be just over $11,000 according to Kelley Blue Book ("2004 Chevrolet"). A 2004-2006 Chevrolet Silverado 1500 4x4 is the perfect truck for the job. Collecting waste is not the only function this truck can be used for. It can also be used on the Monmouth College mini-farm and educational garden for other various jobs. It is crucial we have a truck like this because the current truck for the farm is only two-wheel drive and it is in poor condition, having to be repaired many times a year.

Labor is another large cost concern. In order to successfully manage the composting project there must be funds allocated to the farm in order to pay workers for the physically demanding work done in this plan. Just how much might labor cost. We decided to run some numbers. Assuming two workers are hired, they spend an hour and a half per week picking up waste and cleaning containers, we spend 32 weeks at school, and they make minimum wage, this would cost approximately $800 per semester. (2 workers X 1.5 hours X 32 weeks X $8.25 = $792) This is may sound like a large fee to take on, but compare it to the potential profit after a year or two. This product could be bagged and sold in one cubic foot bags for $5.00 apiece.

Only 160 bags would need to be sold to make up the difference for labor costs. Currently there are 6 piles of compost approximately 150 feet long. A pile five feet wide, three feet high (estimations) would mean 2250 cubic feet of compost per pile. It seems safe to say that labor cost during the school year could be covered internally with the help of an initial investment.

If enough additional funds cannot be found, it is possible to count working for the garden (that is, helping with the composting project as well) as credits for an independent study. Many students on campus are interested in work study and are looking for jobs during the school year. It is important to have someone that can oversee this project and manage all of the workers. We believe it would be beneficial to hire a Sustainability Coordinator in the future seeing that our project passes through the proposal phase. This will also be another expense added on top of the expense of labor. The hiring of a Sustainability Coordinator is not essential for the first year of this project but it would be wise to hire one in the future as the project grows. This coordinator would also be able to oversee the expansion of a sustainability program.

Another major expense may be the purchase of a hydraulic dump trailer. According SLE Equipment a 2.5 ton trailer, perfect for the college's use, would cost just over $2,100 ("Hydraulic Dump"). This trailer would be used to haul the finished product of compost from the city dump to the educational garden and mini-farm. The trailer could also be used for other various tasks on the mini-farm such as the hauling of rocks, wood chips, or other materials. Equipment such as this can even lower current hourly labor costs that build up by doing some of these projects by hand.

As discussed in the procedure portion of this proposal, the food waste collection bins will be collected every week and will need to be cleaned out in order to reduce the creation of mold and possible smells associated with decomposing food. The process of cleaning the collection

bins could be done efficiently with a power washer. The power washer will be used to spray out the bottom of each contain after collection and removal of the composting material. That being said, a power washer will need to be purchased in order for the containers to be cleaned properly and quickly.

There will also be other miscellaneous expenses associated with this composting proposal. Fuel for the four-wheel drive truck will need to be supplied for the weekly food waste pick up, as well as, for use of the truck at the educational garden and mini-farm. Maintenance of the truck and hydraulic trailer (oil changes, tire rotations and tire changes, and other upkeep expenses) will also be another expense. All such procedures are already done for to all Monmouth College owned vehicles. Some of the local businesses have requested the purchase of small trash cans (10-12 gallon cans with lids) to keep at the front of the business for easy disposal of food scraps. All of these expenses are very feasible compared to major costs in this proposal, but must still be managed.

Benefits

We believe the benefits of this project outweigh these costs. As stated earlier, and in great detail, composting is a process of turning biodegradable goods into compost or rich soil. An apparent benefit to this composting project is the positive effect on the environment it has. Monmouth College will be recognized as an environmentally conscious institute. It is seen in the procedure section of this proposal that the college plans to co-op with the city dump in our composting efforts. In exchange for our services of picking up food scraps from local businesses, Chad Braatz is willing to provide the college all the compost we may need for the mini-farm, educational garden, lawn and flower garden projects, and sports fields. Chad has all the proper

equipment to run a large scale composting project but he needs just one thing, the green matter we collect from the local businesses. It has also been discussed that in the future the college could charge the local businesses for the removal of the composting product. We believe since these businesses are already paying disposal fees for removal of waste we could eventually charge them a fee. This fee would be another way to grow and develop this project in the future.

This proposal is beneficial for the college's image within the city and surrounding businesses. Monmouth College can be known as an environmentally friendly college with its very own organic farm and "home grown" compost to fertilize the farm. Just as the colleges we researched, we could be nationally recognized for the work that will be done through this proposal. Our proposed collaborative project could also be added to the list of attractions to Monmouth College. This attraction could lead to larger enrollment, which in turn leads to more money in form of tuition. The completed product (clean compost) could be sold in local businesses. The college, city, and business selling the compost could all receive profit from the sale of the compost. We see in the near future the incorporation of other departments in this project as well. Professor Tom Prince (Political Economy and Commerce Department) has expressed interest in allowing his advertising classes develop advertisement material for our finished compost. Being able to incorporate other departments of the college in this project is another major benefit. Not only can this proposal incorporate current departments of the college, but there is the possibility of creating a new department. That new department could be a further attraction to prospective students desiring to learn about environmentally conscious practices. We have discussed the hiring of a coordinator to oversee our project; this same person could be the department chair of Monmouth's new department. As Monmouth is a liberal arts college,

this project is exactly the kind of publicity that is desired. It will help hold Monmouth to a high prestige and can open many more doors for our small college in the Midwest.

Potential Opposition

No proposal is perfect, or a guaranteed success. We are bound to face opposition and difficulty. We are willing to confront these problems head-on. Maybe sustainability is not the direction Monmouth College wants to head. However, projects like this contain all the elements of a liberal-arts education, and Monmouth College should be no different. Institutions such as ours look for ways to stand out amongst the rest of the colleges in the nation. This type of collaborative work is an opportunity to set ourselves apart.

One may be concerned about supplying or sustaining a labor force. The best way to solve the problem of labor can be done in two ways: compensation to workers (work-study, internship, class credits) and identifying workers that either have a love for sustainability or a high interest in it. Monmouth College has shown in the past through the garden house and educational garden that there are students attracted to the idea and practice of sustainability. It will be important to publicize the composting and mini-farm jobs. Currently, many students aren't even aware of what is available to them. It is important for Monmouth College to brand itself as a school in support of sustainability in order for this project to succeed. By not attaching ourselves to this concept, we are risking being left behind in the dust by our competition. There must be outreach to future students that aligns with this project.

Major costs associated with the startup of this project and the budget for the college can appear a daunting undertaking. These problems can also be solved. Beyond the first year, few purchases must be made aside from maintenance and miscellaneous expenses. The trailer and

containers have already been acquired. The truck could quite possibly be obtained from reallocating internal resources within the college. This would leave the cost of labor as the only remaining necessity, and we have presented several other options for compensation aside from pay. We believe that many of the problems of this proposal will fix themselves with an appropriate amount of time and patience. Once this project gains full stride it can be sustainable from within.

Conclusion

Problem Solved

Now we have all the necessary components to make this project a success. We know who will do it, how it will be done, and what it will cost. With the workers from the college, waste from the businesses, and facilities of the community, this project can benefit each party positively. The college receives the chance to grow and provide students with new opportunities. The community can generate a quality compost product that could be sold to within the area. Businesses have the chance to lower waste costs, keep their waste out of landfills, and benefit the environment; ergo, setting a standard for the remainder of the Monmouth community. A unity of these three entities is a way to strengthen relationships. In a small community, each entity relies upon one another; therefore, any way that a goal can be shared, it brings everyone together. Sustainability is a perfect goal to work towards. This circle is entirely closed. The work, the waste, the process, and even the product remain right at home. As this composting project grows, it can even fund itself through the sale of the finished produce. That is the ideal process of sustainability.

What the Future Holds

Small colleges all around the nation are practicing sustainability. Collaborative community composting is a perfect place for Monmouth College to start. In today's society, it is important take responsibility for our environment. Taking action such as this will show Monmouth College is willing to take action in the field of sustainable green initiatives. If the college was to develop a sustainability program, composting is not the end of the line. Monmouth can pave a path of recycling management and teach students how to live an

ecologically mindful life. The college already funds a scholarship on in the field of sustainability, so why not continue to encourage efforts such as these with the practices of the college.

Growth can also come through additional waste collection in the local school systems. This would be an opportunity for the college to educate beyond our red brick walls. Educational programs explaining the importance of composting and other waste management programs could be implemented in the local school systems. What a better way for our college students to learn than to teach others.

Composting in this way is by no means the answer to our current ecological state, but we believe it is the responsibility of the college as an educational institution to teach students how to treat and respect our environment. Collaborating with one another to support positive ecological decisions is a perfect step towards sustainability of clean, efficient daily lives in our nation. We can easily do our part right here in Monmouth.

Notes

1. This picture was taken at the time of the trailer purchase. The trailer and recycle bins have been in use in the city of Roseville until the past year. During this time, Chad Braatz was able to acquire this equipment for use in our proposed project. It is currently in the possession of the city of Monmouth.

2. A trommel screen is a piece of equipment that sifts the finished compost product filtering out unwanted materials. By adding green matter to the current city operation, Chad Braatz has written a grant to receive this screen. The compost will be screened, and is then eligible for sale.

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