

Sweet Potatoes & Honey: A Continuation and Trial Run

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In 2014, a previous group of students wrote a proposal to help provide additional nutritious food to the students in the Monmouth-Roseville school district through the Monmouth Backpack program established by the 1st Street Armory. The students that receive the backpacks are those who are identified by the schools as being from very low-income families. Since those families have limited income, those students are considered “food-insecure”, meaning they do not know where their next meal will come from. The foods identified to be added to the Backpack program were sweet potatoes and honey. These two foods were chosen based on the nutritional value of the sweet potato and honey. Sweet potatoes provide many vitamins and minerals while local honey can help reduce allergies.

The previous proposal also stated that in order for this project to take root, there would need to be cooperation between multiple organizations in the Monmouth community. Those identified organizations were the 1st Street Armory and the Monmouth College Educational Garden and Mini-Farm. The 1st Street Armory is where the Monmouth Backpack program packs the backpacks and where the sweet potatoes and honey would be taken and added into those backpacks. The other organization involved, the Monmouth College Education Garden and Mini-Farm, would provide the sweet potatoes and honey. From these two organizations, students from the college and farm would be working within the greater community with the 1st Street Armory to provide nutritional food to the students in the Monmouth-Roseville school district that struggle to get food on a regular basis (Ring et.al.).

Our project and proposal is a continuation of the previous groups proposal from 2014. It is also a trial run of the supplement of sweet potatoes and honey into the backpacks that go home with the students. While going through the trials our group took notes about the processes and

procedures conducted in order to carry out the trial runs. This was done so that we would be able to compile an evaluation of the project to make recommendations for the future continuation of the sweet potato and honey project as well as to report on the feasibility of this project.

Once we undertook this project, there was a lot of information that we needed to figure out before actually reaching the point of adding the sweet potatoes and honey to the backpacks. The majority of that information involved logistical work. Some of the logistics were determining how to store the sweet potatoes, the dates the sweet potatoes would be sent home with the students, and where the potatoes would be cooked. At this point, we also looked into which individuals and organizations we needed to work with to get the project started.

Food Insecurity

According to Feeding America, every county in the United States has households with food insecurity. It was cited that thirteen percent of households in the United States were classified as food insecure in 2015. Food insecurity can very easily lead to malnutrition. Malnutrition, according to Orphan Nutrition, greatly impacts its sufferers, especially children. The site stated that there are both short-term and long-term consequences for young children who are malnourished for any amount of time. The short-term consequences included lower immunity and nutrient deficiency chains. Lower functioning of the immune system can put children at great risk of infectious diseases from their caregivers or other children. Nutrient deficiencies can allow for gastrointestinal infections, which in turn can lead to the inability to absorb nutrients properly once the children get them. The long-term effects of malnutrition, eventually caused by the short-term effects, were cited as being hindrance in growth and cognitive abilities. Nutrient deficiencies can hinder overall bone growth, and, if the deficiency is maintained, can prevent

children from obtaining their total growth potential. Malnutrition can also negatively affect the brain development of children, hampering both motor and cognitive development and ability. These deficits translate to hungry children's inability to focus and learn in school, worsening their academic performance, compared to children in food secure households.

Application to Monmouth

As previously mentioned, food insecurity affects people all throughout the United States and even the world. It also hits small communities that were once flourishing larger communities. This is true for Monmouth. Statistics collected by the previous group were from 2012, which was the most current data at the time. According to the Feeding America "Map the Gap" figure, 22% of the child population in Warren County, which corresponds to 860 children, were considered food insecure (Feedingamerica.com). After two years, the data has become more accurate.

The most recent data from Feeding America's "Map the Gap" figure from 2014 showed that the food insecure child population of Warren County had decreased to 21.5% corresponding to 850 children (Feedingamerica.com). Even though the number of food insecure children is decreasing, it is still alarming to see many children not having adequate access to nutritious food. Because of the number of children in Warren County and specifically those in the Monmouth-Roseville School District, all students are on free or reduced lunch. Also to help out with the least provided children, the 1st Street Armory in Monmouth started their Backpack program. This program was started back in 2008 by the Armory Director, Jack Toal. This program runs throughout the entire school year beginning during the first week of October.

Backpack Program

Children who face food insecurity are at risk for malnutrition and live with uncertainty of when their next meal will occur. This lack of food and proper nutrition leads to ravenous children who suffer academically and have trouble concentrating. One solution that has been implemented in many schools to help address this issue was to start providing reduced and free lunches for food insecure children. Some of these have also been expanded to breakfast and after school snack programs. However, even with these programs during the week, many children will return to school on Monday morning ravenous. This means that on the weekend at home children are not getting regular meals. To address this, Backpack programs were started as a way to provide food over the weekend; children receive a backpack of food that is sent home with them. The national non-for profit organization Feeding America started some of the first backpack programs 15 years ago (Feedingamerica.com). They are known for creating food banks and food recovery networks to tackle the issue of hunger and food insecurity in America. A backpack program can be started by a local group in a community and can be modified to address that specific community, such as, an after school snack program for children who have to stay later to be picked up or a breakfast program. There are a plethora of solutions that have been applied to food insecure children and weekend backpacks is one of them.

These programs send home nonperishable and easy to prepare food. Some foods like granola bars, oatmeal, and applesauce are attempts to provide nutritional foods in these programs. However, other foods like ramen and potato chips, are less nutritional. These foods are snacks not full meals. Foods similar to ramen are what have been used in the Backpack program in Monmouth. The Monmouth Backpack program director was switched over to Christin Allen

in the fall of 2016. The program is run out of 1st Street Armory where the *backpacks*, or in this case plastic grocery bag, are filled by volunteers from the Monmouth Rotary Club with food items and the week's menu.

Why Sweet Potatoes and Honey?

We chose to continue with the project of sweet potatoes and honey because both contribute to overall health. The nutrients from the sweet potatoes and honey supply brain power. Sweet potatoes and honey not only help children in school, but they can ensure attentiveness throughout the day. There are many nutrients that come from sweet potatoes and honey.

We have learned from Christin that these children lack adequate attention spans and the steadiness to get through the school day. Sweet potatoes are considered a superfood. Sweet potatoes offer a flavor that will please the sweet and savory taste buds of your palate. Due to the low glycemic index, the good carbohydrates in sweet potatoes will be converted into sugar gradually (Agriesti). This sugar will provide the children with energy that can power them through a productive and engaging school day.

Antioxidants in sweet potatoes are a huge factor in children's health. George Metaljan states:

In some studies, sweet potatoes have been shown to be a better source of available beta-carotene than green leafy vegetables. Because sweet potatoes are available in many countries on a virtual year-round basis, their ability to provide us with a key antioxidants like beta-carotene makes them a standout antioxidant food (Mateljan).

This shows that sweet potatoes are one of the simplest ways to acquire necessary antioxidants, as opposed to other methods, such as eating multiple leafy greens.

Sarah Ding further affirms the health benefits of this plant by stating, "Sweet potatoes have twice the amount of fiber, twice the calcium and over 1000x more vitamin A than white

potatoes” (Ding). Choosing sweet potatoes over white potatoes is the most logical choice when looking to supply the most nutrients possible in one serving. Sweet potatoes also help maintain homeostasis in the body. As stated by Ding, “The potassium in sweet potatoes helps to rebalance the vital mineral, and helps normalize the heartbeat. This in turn sends oxygen to the brain and regulates the body’s water balance” (Ding). Potassium is an energy source and sweet potatoes contain a hearty amount. Roughly around 400 milligrams of potassium when raw, but when cooked the sweet potatoes contain twice as many milligrams. Sweet potatoes also contain a plethora of vitamins that will aide in overall health. By choosing the sweet potato, we are ensuring these children obtain necessary nutrients to improve cognition and help with overall growth.

Just like sweet potatoes, honey contains many minerals, vitamins, and benefits. As stated by Organic Facts, “The type of vitamins and minerals and their quantity depends on the type of flowers used for apiculture. Commonly, honey contains vitamin C, calcium and iron. If you check the vitamin and mineral content in regular sugar from any other source, you will find it to be completely absent or insignificant” (@OF_OrganicFacts). Aside from providing nutrients, honey has also been known to regulate blood sugar levels. Dianna Herrington explains this further by saying, “Even though honey contains simple sugars, it is not the same as white sugar or artificial sweeteners. Its exact combination of fructose and glucose actually helps the body regulate blood sugar levels. Some honeys have a low hypoglycemic index, so they don’t jolt your blood sugar” (Herrington). Therefore expressing that honey is a healthy alternative to sugar products. These nutrients in honey will overall increase the attentiveness and concentration of the children in class by supplying the children with energy. Lizette Borreli states, “Honey is an

excellent source of all-natural energy at just 17 grams of carbohydrates per tablespoon. This natural unprocessed sugar — fructose and glucose — directly enter the bloodstream and can deliver a quick boost of energy” (Borreli). Not only is honey tasty, but it supplies children with energy that can power them through a busy day.

Sweet potatoes and honey are both extremely beneficial sources of acquiring nutrients necessary for good health. Antioxidants, along with vitamins and minerals, supply good sources of energy to the body that can increase drive as well as stamina. Pairing these two foods together, automatically gives the consumer a pick me up that cannot be acquired through artificial and synthetic alternatives. After researching how sweet potatoes and honey will without a doubt improve attentiveness as well as provided steady nutrition, it was made obvious these two foods should be chosen over all others for this project.

Collaboration

Becoming connected to the community is a major factor in developing and growing the sweet potatoes and honey program. Since the program aims at bettering the Monmouth community as a whole, local establishments and businesses are willing to help as well as get involved with the project. Forming and maintaining positive ties between the college community and Monmouth community will help provide a backbone for the future of the project. Running a program on this caliber is nearly impossible if one individual takes on all tasks. By working with the community, the project will achieve a higher success rate as well as open the floor to other ways the community can work together as a whole. Within the Monmouth community and college community, we collaborated with the following: Rotary Club, 1st Street Armory, County Market, Kellogg Printing, and the Monmouth College Educational Garden and Mini-Farm.

Without the guidance and assistance from these establishments, the project would have been quite more challenging. Expansion to other local establishments to aide in this program could help elevate the program even further as well as increase the success. As long as positive ties and consistent communication are maintained, working within the community will aide in the success of the project as well as the growth of the community as a whole.

During the project, we worked closely with the Rotary Club of Monmouth. The Rotary Club is a service organization whose purpose is to tie together business and professional leaders in hopes of providing humanitarian services. The grant from the original proposal was endowed to the Rotary Club, and the Rotary Club paid for the supplies needed for the project. Aside from the grant, the Rotary Club hosts a spring fundraiser where all the proceeds go towards the expansion and continuation of the sweet potatoes and honey project. Along with financial backing, we were able to work closely with Paul Schuytema, an officer and past president of the Monmouth Rotary Club. Paul offered valuable information, guidance, and constructive criticism to our group throughout the trial runs. Members of the Rotary club, along with Paul, volunteered to help during the preparation of the sweet potatoes and honey as well as stuffing the final backpacks. The Monmouth Rotary Club was a major contributor to the execution of both trial runs this semester.

While working on this project, we had to collaborate with many organizations in the Monmouth community. One of those organizations was the Monmouth 1st Street Armory. As mentioned before, the 1st Street Armory is where the Monmouth Backpack program was established and is operated. As we were gathering information on organizations and people, we were told to contact Jack Toal. Jack Toal is the director of the 1st Street Armory and was in

charge of the Backpack program until this fall. After first contacting Jack, he told us that the Backpack program director had changed. The new Backpack program director is Christin Allen.

As the first week to add the sweet potatoes and honey to the backpacks approached, we contacted Christin to figure out when and how we would be packing the sweet potatoes and honey. Due to unexpected obstacles, such as changes in the timeline, adjustments were made to the previous proposal. These changes included leaving the potatoes uncooked and modifying the packing process. We found out from Christin that the 1st Street Armory and volunteers pack the backpacks on Wednesday mornings. The backpack then sit out in tubs until they are delivered to the schools on Thursday mornings. When the tubs are at the schools they continue to sit in the hallways until sent home with the students on Friday afternoons. Changes were made after discovering this information and some concerns were raised by Christin.

Kellogg Printing located here in town has been an important asset to this project. They have an existing relationship with the Backpack program and print material for them already. We felt that it would be important for the children and families receiving the sweet potatoes and honey to also receive some information about the new addition to their backpacks. These families received brochures explaining the nutritional value of sweet potatoes and honey, that they were grown or purchased locally, as well as instructions for cooking the sweet potato. The families also received a questionnaire in order for us to get their feedback on this program. Kellogg agreed to print the brochures and questionnaires at no cost to us both during the pilot program this fall and in the future.

The Monmouth College Education Garden and Mini-Farm provided some of the potatoes and honey for the project. Along with the sweet potatoes and honey, harvesting and various farm

labor was given from members of the Garden Crew. When we arrived at the farm, there were two rows of sweet potatoes covered by lots of green vines. When we looked at the two rows of sweet potatoes, we were curious as to how to remove the sweet potatoes without causing damage. Professor Watson told us that we should mow the vines away in order to get a clear view of the sweet potatoes. Professor Watson assisted in mowing the vines. After mowing the vines, a problem was discovered. The problem was some of the potatoes were cut due to being too close to the surface. After the mowing, we dug the sweet potatoes out of the ground and attempted to grab the tubers of the sweet potatoes to take them out of the ground. However, we found that when we picked up the sweet potatoes, they broke away from the tubers because the soil was too hard. When we retrieved the sweet potatoes, we soon found out we had another problem: voles. Voles are a type of field mice, which live underground and eat nutritious vegetables. Due to these problems, a majority of the potatoes were unable to be used for the project.

County Market was a major contributor to this project as well. Due to the Backpack program having one hundred and thirty-five students, we were in need in purchasing more sweet potatoes. We contacted the County Market manager, Rob Ravel, who was a former Rotary Club president to see if he would be willing to donate sweet potatoes. Rob was very willing to help with providing potatoes; however, a donation was not included. County Market offered its assistance for this project in future years as the main supplier of sweet potatoes if needed.

First Run

The 2014 proposal had planned for the sweet potatoes to be cooked for this project. In the preparation for the pilot project, we realized that cooking the potatoes was not going to be

feasible or safe. First, it was difficult trying to find not only a space to cook all the sweet potato, but also when the cooking would take place. The timing of packing the backpacks and distributing them to the school was discovered to be an issue. The backpacks are packed on Wednesday morning and they are then delivered to the school the following morning on Thursday. The backpacks then sit in a hallway till Friday afternoon when they are picked up by the students. We would have to cook the potatoes Tuesday so that they would be ready for Wednesday packing. If we did cook Tuesday, we would then need the sweet potatoes refrigerated till Friday afternoon. The cooked sweet potatoes cannot sit out at room temperature from Tuesday evening till Friday afternoon. The FDA warns of food born illness and if perishable food sits out for longer than two hours they are prone to bacterial growth; this is known as the Two Hour Rule by the FDA (www.fda.gov). Furthermore, there is the “Danger Zone” which is temperatures from 40° to 140° F that are optimum to bacterial growth which can be dangerous to human health (www.fda.gov). What this means for our project was that refrigeration is a must, if the sweet potatoes were to be cooked.

The other issue is the fact that the backpacks go to several different schools; therefore, there is not a location to keep the sweet potatoes refrigerated. The director for the program did not have access to school kitchens, nor the time on a Friday to go back to the schools and get the sweet potatoes into the backpacks. This would have created a second packing of the bags and would begin to complicate the program. It was thought that perhaps someone from the school could add the cooked sweet potatoes, but we found that the school administration and staff had no involvement with the program. The sweet potato addition was not feasible the moment we tried to cook the potatoes. Therefore, the potatoes would have to be uncooked, which meant they

would last longer with no worry of spoiling. We wanted to make sure that the children receiving the sweet potatoes had a recipes to inform them how to cook the potatoes. To do this we provided an informational card that had two recipes on the back. Although the raw sweet potatoes diverted from the original proposal, we found this change was part of running a pilot project.

Heading into the first week we were adding the sweet potatoes and honey to the backpacks, we had some prep work to do. One of the things that needed to be done was to thaw out the honey. The honey had previously been stored out at the mini-farm shed which led to crystallized due to the nature of natural honey and the colder evening temperatures. The honey was brought to two of the group members apartments from the mini-farm to be thawed.

Due to the number of jars (8-32oz jars, and 9-16oz jars 17 total), we did not know how long it would take to thaw all the jars. The jars were heated up the day before the packing was to take place. All of the jars were heated in a bath of warm water on the stove at medium-low heat. While the jars of honey were being heated, two group members took a knife to stir the honey to make sure that it was heated thoroughly. The total amount of time it took to thaw the 32oz jars was 1 hour and 20 minutes. This was good to know so that if this needed to happen in the future, the honey could be thawed the day the sweet potatoes and honey are packed and added to the backpacks. Once the honey was thawed, all we had to do was wait to go pack.

The night of packing was very interesting with the 13 people there to pack the sweet potatoes and honey. There were 4 people pouring the honey into the 2oz plastic jars using funnels. We used two wide mouth funnels and two narrow mouth funnels. The wide mouth funnels worked much better than the narrow mouth funnels. Even though it was pretty slow

pouring the honey, it took under an hour to pour the 125-2oz jars of honey. It also may have gone quicker if the honey had not been sitting for a day after thawing.

During the first pilot run of the project, the sweet potatoes consisted of those provided by the mini-farm and those from County Market. The sweet potatoes from County Market were all of very similar size to each other, but those from the mini-farm were very inconsistent in sizing. To accommodate this, the potatoes were strategically paired in order for each child to have, approximately, the same amount of sweet potato. By the end of the first trial, most of the sweet potatoes were used, and all that was left were very small sweet potatoes from the mini-farm with mold on them due to voles partially eating them. Because of the time of year and need for more sweet potatoes soon, it was too late for the mini-farm to grow more potatoes, which meant that more sweet potatoes had to be purchased for the second trial run.

Once the sweet potatoes and honey were prepared, the final package to go into the backpack was assembled. The package included: two sweet potatoes, a 2oz plastic jar of honey, a brochure on sweet potatoes and honey, and a questionnaire. Since the potatoes varied in size, the packaged contained a large and a smaller potato in order to give all children the same amount. The sweet potatoes and honey were placed in a gallon size Ziploc bag, which was then placed into the backpack along with the brochure and questionnaire. Originally, we had planned to wrap the potatoes in either tinfoil or plastic wrap, but switched to Ziploc bags out of convenience. Also, we did not want to risk having the children place tinfoil in the microwave that could lead to an unfortunate incident such as a fire. By using the Ziploc bags, we were able to keep nearly all components together; whereas, if another medium was used the children may not understand that the sweet potatoes and honey were meant to be eaten together. Progressing into the future, using

Ziploc bags as opposed to other mediums will be the most efficient way to present a complete, concise package to the backpack.

Pitfalls and Adjustments

When working at the farm, three main issues arose: soil problems, voles, and storage of sweet potatoes. The soil problem can be fixed very easily. Since, sweet potatoes are native to Central and South America, a long growing season is needed. As stated by Jennifer Fishburn,

In Illinois, sweet potato plants should be planted in late May after the soil has warmed up, and harvested at the time of the first frost in the fall. They need a full-sun garden location with moderate rainfall. They grow best in a fertile, sandy loam, well-drained soil, with a pH of 5.6 to 6.5. At higher pH levels, diseases are more common. Give them plenty of room as the vigorous vines can cover three to four feet. Sweet potatoes prefer one inch of water per week; avoid over watering as they can be damaged by too much water (Fishburn).

When we looked at the soil, it did not look like the soil was getting enough water due to the hot and dry summer. Due to the climate of the North of the United States, it was suggested to cover the rows of sweet potatoes with black plastic within three weeks of planting. When planting the sweet potatoes, there should be at least twelve to eighteen inches between each sweet potato plant. When we looked at them, we saw the sweet potatoes closer together. We observed that sweet potato plants grow closer together and yielded roughly fifty sweet potatoes at the farm.

The second problem faced was the voles. The voles are annoying to the farmer because they come into to the garden and eat chunks of the crop; therefore, leaving part of the vegetable unusable. Voles can be stopped from interfering with the farm. Adopting cats or planting green peppers would be the best option. The cats would hunt and kill the voles; therefore, reducing the population of voles at the farm. Planting green pepper plants near the sweet potatoes would reduce the likelihood of voles due to the spicy scent. Applying both these methods would be

more efficient than using a poison because the poison could contaminate the soil and ultimately affect the growing of the plant.

The third problem faced was the amount of sweet potatoes and honey. Roughly fifty sweet potatoes and approximately eighteen mason jars of honey were supplied from the farm. We did not use many of the fifty sweet potatoes due to the damage of the voles. Until we solve the vole problem, we cannot guarantee a completely successful harvest of the sweet potatoes. By implementing the cats and green pepper plants in the future, we can begin to tackle the vole problem as well as produce more efficient sweet potatoes.

The last problem we faced at the farm was storage space. The sweet potatoes need to be stored in a dark, cool area. There was little amount of storage in the shed for the sweet potatoes and honey. If we want to grow more sweet potatoes as well as produce more honey, we need to plan for increased space to properly store these items. However, since this was a trial program, the amount of storage provided was enough for our small scale production. Sweet potatoes were stored temporarily in the back of the gator vehicle on top of hay because of the lack of counter space in the shed. Once boxes were acquired, sweet potatoes were removed from the gator and placed in the boxes which minimized the amount of space needed for storage. If more hives are purchased, more shelves will be required for the storage of honey. In the future, we hope to create a separate space exclusively for the storage of sweet potatoes and honey to ensure the products are stored properly and remain usable.

When preparing the packages for the first run, we did not set forth an organized way of assembling the packages. Aside from this being our first trial of the project, it was also the new director of the backpack programs, Christin Allen, first time stuffing the backpacks. Due to this,

Christin and our group had to find a way to work together as well as figure out the most effective way to complete the task at hand. When we began assembling packages, some challenges and difficulties were observed such as multiple stations performing similar tasks. For example, one group was pouring honey while two groups were packing potatoes and stuffing backpacks. Although we finished quite quickly, the environment was somewhat chaotic due to the lack of organization and delegation of tasks. Because of this, we had many people giving different orders which led to confusion amongst the volunteers and ourselves. Reflecting on the first run, we found this method of packing to be counterproductive.

In order to be more efficient during the second run, we formulated an assembly line procedure to implement for the second trial. The assembly line spanned the kitchen and side room of the 1st Street Armory and consisted of five stations. The first station had a designated area in the side room and was in charge of filling the two ounce plastic jars with honey. In the second station, which started in the kitchen, individuals strategically placed two sweet potatoes in a gallon size Ziploc bag. The bags with the sweet potatoes were then moved to the third station. At the third station, individuals were responsible for retrieving the correct number of honey as well as wiping and placing the honey into the Ziploc bag. Station two and station three shared joint responsibility of counting the number of potatoes packed, jars of honey needed, and completed Ziploc bags (two sweet potatoes and one honey).

Unlike the previous stations, station four is unique in its organization. In station four, each table was given different colored totes filled with the stuffed backpacks. The color of the tote signified the specific school where the backpacks were to be sent. Once a table was given their tote, the backpacks would be removed from the tote and the process of assembling the final

product was started. Added to the original backpack was a complete Ziploc bag, a brochure, and questionnaire. Once the final package was added, the backpack was tied and placed back into the designated tote. Each table in station four would acquire a new tote until all the totes have been packed completely. Totes that were completely packed were then placed in a specific area where they were stored until delivery. We found the assembly line to be a simple and efficient way of assembling the packages and filling the final backpacks. Gathering, assembling, and final packaging took less than forty five minutes to complete when accompanied by five volunteers plus our group members. Overall, by establishing an assembly line in the second run, we eliminated any confusion that was present during the first run as well as established a concise, speedy method of assembling final packages for the future.

In the first run of our pilot project there were issues that arose that had to be addressed for the second run. During the pouring of the honey there were two issues: the heating of honey and narrow funnels. Raw honey naturally crystallizes due to its high sugar content and due to the cold evening of being stored in an uninsulated shed. Thus for the second run we made sure to heat it up the day of pouring to obtain maximum fluidity. As for the funnels, of the four that we had, two of them had more narrow spouts. We simply cut the spout off the funnels at the neck to provide a larger opening. We had also encountered the sticky side to honey and had some issues with residue on the tables and the jars. Gloves were used to keep hands clean and ensure sanitation. Also washcloths were used to keep a clean work space and to wipe the jars down. Spatulas were acquired to scrape out the honey that had stuck to the bottom and sides of the jars. These adjustments that we made for the second run resulted in smoother pouring and utilization of all honey.

Shortly before the first pilot run, it was addressed that many of the children involved in the Backpack program could not read or write well. Even the parents struggled to read and write in English. This proved to be a significant problem since the project involved sending a questionnaire for the families to evaluate their experience with the sweet potatoes and honey as well as an informational brochure for the sweet potatoes and honey. These supplementary items were printed in English for the first run, which meant that those families were unable to understand the material. This would also affect both the quantity and quality of responses that were returned. The solution that was applied for this problem was to provide translations of the brochure and questionnaire in the most common languages spoken in Monmouth. According to various sources, the number of languages spoken in the area could be as high as forty-two, so it was agreed that the three most common languages would be used. It was decided that the languages that would be used were Burmese, Spanish, and French. For the second run, the questionnaire and brochure were translated to Spanish and French as well as accompanied with English. Burmese was neglected due to having a plethora of dialects as well as have no translators. Doing this helped to make it possible that more responses could be completed with better quality, allowing for better improvement of the project for future runs.

Long Term Goals

The long term goal of this project is to run the program successfully and smoothly for 6-weeks during the fall semester spanning from the first week of October to mid December. In order to accomplish this goal community members must be informed, costs must be calculated, and funds must be set in place. Establishing a positive reputation of the project within the Monmouth community and college community is necessary for expansion. Individuals must not

only be informed and given accurate information, but invited to participate. There are multiple ways to inform as well as invite community members to participate; however, the most effective way to accomplish both tasks would be to establish committees.

These committees would be present in the Monmouth community as well as the college community. For instance, committees in the Monmouth community could include the Rotary Club, 1st St, Armory, and County Market; whereas, college committees could include but are not limited to, the Monmouth College Educational Garden and Mini-Farm as well as Fraternity and Sorority Life. Members of the committee would be involved with the process in all aspects such as harvesting and packaging. Within these committees, a point person would be established and rotated within committee members each year. The point person from each committee would meet on a weekly basis in order to ensure all aspects of the program were running as planned. Then the point person would be responsible to relay all information from the meeting to the members of one's committee. On a monthly basis, every committee along with their point person would meet as one in order to evaluate the program and ensure its success. Once the program is more established, meetings will not have to be held as frequently. Establishing multiple committees throughout the community will ensure the flow of knowledge as well as promote the growth and longevity of the program.

Throughout this program we found communication with some of the community members to be somewhat sporadic and strained. We worked with many different people in the community as we tried to build and shape this project. Many people with whom we were working had limited to no knowledge about the sweet potatoes and honey project. As the project changed and took shape, we were able to get those involved to understand our goals and all

working together somewhat cohesively. The beginning stages of any big project with this many different moving parts is bound to be a little shaky, but as time goes on we believe many of these kinks will be worked out through structure and practice. We do recommend appointing someone or a few people to act as permanent point man for this project. While students and volunteers are excellent and necessary resources, their high turnover rate can make establishing this project difficult. Having someone in Monmouth to oversee this project in its formative years will be important.

Another obstacle, involving communicating with the schools receiving the backpacks, is getting feedback from the children who participate in the Backpack program. The intended purpose of the feedback was to see how well the students liked sweet potatoes and honey as well as see if they would like to continue receiving them. The problem that was not foreseen was not receiving any feedback back from the students.

With not getting any feedback, we still think that the language barrier is a problem. We also do not know if the parents are seeing what is inside the backpack when it gets home. Due to the lack of feedback, we believe that the papers may not even make it to the parents and end up in the trash. Another reason as to why no feedback was received, is because there are too many middle men in the delivery and handing out of the backpacks as well as the returning of the supplies.

Discussing this problem, we came up with a couple of solutions. One of those solutions is to have at least one member of the committee or committees overseeing this project help out with the handing out of the backpacks and getting simple verbal feedback from the students. This feedback would included as to whether or not the students liked the sweet potatoes and honey.

The other solution would be to establish a point person that is in contact with the school counselors to make sure that the students know that there are items in the backpack that need to be returned after the weekend.

Calculations

As stated before, the long term goal of this project is to provide sweet potatoes and honey to the students participating in the Backpack program for 6 weeks during the fall semester. After completing our two trial runs and figuring what we used and planning for the future, we have calculated the amount of supplies (land, sweet potatoes, and honey) that would be needed to carry out this project for a consistent period of time. The following calculations were done based on the number of students that were participating in the Backpack program at the time of the two trial runs (October 28th and November 18th). During the trials there were a total of 125 students registered for the Backpack program.

Potatoes

$$125 \times 2 \text{ potatoes} = 250 \text{ potatoes}$$

$$250 \times 2 \text{ weeks} = 500 \text{ potatoes}$$

Honey

$$125 \times 2 \text{ oz} = 250 \text{ oz of honey}$$

$$250 \times 2 \text{ weeks} = 500 \text{ oz} = 32 \text{ lbs. of honey}$$

The following calculations were done assuming the number of students (240) from the previous proposal would be participating in the Backpack program.

Potatoes

$$240 \times 2 \text{ potatoes} \times 6 \text{ weeks} = 2,880 \text{ potatoes}$$

Honey

240 x 2oz jars = 480oz of honey per week

480 x 6 weeks = 2,880oz = 180 lbs. of honey

Land

2,880potatoes / 5potatoes per plant = 576 potato plants

576 plants x 18in. = 864ft. (18in. is the recommended space between potato plants)

585plants x 18in. = 878ft. (safe than sorry with number of potatoes)

According to the calculations and Professor Craig Watson, there is plenty of room at the mini-farm to grow the needed amount of sweet potatoes as well as the honey needed for this project.

According to Professor Craig Watson, each bee hive is capable of producing 60lbs. of honey each time the honey is harvested. Professor Watson also mentioned that the mini-farm may be increasing the number of beehives to a total of 30. The following calculations show the total amount of honey to be produced by all hives.

Bee hive Production

30hives x 60lbs = 1,800lbs of honey

30hives x 40lbs = 1,200lbs of honey (leaving honey for the bees to survive on)

If the college was to increase the number of beehives to 30, they would be able to dedicate 9 hives specifically to this project because 9 hives at 40lbs is the 360lbs which would be double of what is needed to do a full 6-week time period.

This pilot program was funded by grant money received by the Monmouth College Rotary Club. Monmouth College also offered to chip in up to \$200 for a student fund. These funds were used to pay for the honey from the Monmouth College Garden and Mini-Farm, the

sweet potatoes from County Market, as well as all of the packaging, tools and materials necessary. Going forward this program will need additional funding in order to accommodate the increased productivity especially in the first year. This money can come from additional grants, donations, and fundraisers.

With the increased schedule this program will require a much larger amount of honey than the Monmouth College Garden and Mini-Farm can currently provide. The local sourcing of the sweet potatoes and honey for this project is an important part of its goal. By purchasing local goods this program benefits more members of the Monmouth community. While we do recommend the mini-farm purchase more hives in order to fill the demand required by this project, it is also recommended that other local sources of honey in the event that this is not possible. There are multiple honey vendors at the Galesburg Farmers Market that could be viable options.

Feasibility and Sustainability

For this project to be fully operational for the 6-week time period there needs to be a solid backbone of support for the project. That major backbone will be the Monmouth Rotary Club. This is because the Rotary Club has access to additional funds through grants that would be able to purchase the supplies needed to package and send home the sweet potatoes and honey. The grant money would also be used to buy the honey produced at the mini-farm.

Another important component to the feasibility and sustainability of this program is the Monmouth College Educational Garden and Mini-Farm. The mini-farm is where all the sweet potatoes would be grown and stored, and where the honey would be provided. The mini-farm through their Garden Crew would also be providing much of the labor for this project. The most

intensive labor that the Garden Crew would provide would be the planting of the sweet potato slips. They may do a little bit of the harvesting but most of that would be done by the groups that undertake this project in the future as well as any volunteers wanting to take part giving back to the community. The mini-farm also still has some problems to work out with growing the sweet potatoes in order to remove the need to order sweet potatoes from County Market. Figuring out an organic way to get rid of the voles would allow the potatoes to be used from the mini-farm that are not contaminated in any way.

Another group of people that would add the sustainability of this project would be translators. These translators would need to be on hand and reliable to get any printed materials translated in a timely manner to get the materials printed and ready to be packed in the backpacks. Of the three identified languages (French, Spanish and Burmese) that the information and recipes needed to be translated into, French and Spanish are readily available since the college teaches those languages. Burmese would be more difficult because it is not taught at the college and there are multiple dialects of that language. We would need to reach out to the Monmouth community to try to find someone that could translate for us. We were told by Christin that a pastor at a local church can speak one dialect of Burmese. That might be the only option that is available for this project unless the college happens to have international students that can speak Burmese.

Conclusion

As we wrap up the pilot program to a previous proposal, we learned many things about bringing multiple entities together to fight food insecurity in Warren County. Throughout this project, we, the six individuals undertaking this pilot program, learned how to work as a group

given our busy schedules. Not only did we work together as a group but we learned how to work within the college community and the Monmouth community as a whole. Along with working within the college and city communities, we learned how to manage the logistics of coordinating when the sweet potatoes and honey would be packaged to be added to the backpacks.

Aside from finances and all of the logistics, the future of this program solely relies on the collaboration with the whole Monmouth community. Maintaining ties with all collaborators as well as establishing committees with point people is extremely crucial. Everything else needed in this project will fall into place accordingly as long as individuals of the community are aware of the program as well as invited to contribute. The driving force behind this project is the desire, from all community members, to develop a better Monmouth community as a whole. Once individuals see the fruit of their labor from contributing in this project, it will create a ripple effect that will continue to elevate the project as well as grow the town of Monmouth. Providing widespread knowledge to all the citizens of Monmouth will be the ultimate factor in the continuation of this project in the years to come.

Budgets**This Year**

Item	Cost
5 boxes of sweet potatoes	\$150.00
5 boxes of sweet potatoes	\$150.00
320 honey jars	\$54.40
320 honey jar lids	\$32.00
4 funnels	\$5.00
400 ziploc bags	\$15.00
32 lbs of honey	\$160.00
Total	\$566.40

First Year

Item	Cost
2,900 sweet potato slips	\$3,500.00
480 honey jars with lids	\$129.60
2,900 ziploc bags	\$110.00
360 lbs honey	\$1,800.00
30 hives and bees	\$11,400.00
10x8 outdoor shed	\$500.00
24 30 gallon tote boxes	\$200
shelving	\$500
Total	\$18,139.60

Normal Year

Items	Cost
2,900 sweet potato slips	\$3,500.00
480 honey jars with lids	\$129.60
2,900 ziploc bags	\$110.00
360 lbs honey	\$1,800.00
Total	\$5,539.60

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