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NFS 2130

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Honors Option Service Report

Gleaners Food Bank

For my HON 3000 Service Learning course, I have partnered up with Gleaners Community Food Bank to fulfill my service requirement. Gleaners is a local food bank in our Detroit community that serves to feed hungry people. I volunteered over 25 hours this semester at their warehouse distribution center, as well as in other service projects that they offer. The service work consists of sorting and packing nonperishable food and fresh produce, folding plastic food drive bags, and filling partner orders. This paper will discuss in detail the service I have completed at Gleaners, as well as include a report of the connection that this service has with the material I have learned in this course throughout the semester. Over the course of this semester, we have learned about food packaging and nutrition of various food groups, such as meats, dairy, fruits, and vegetables. These topics go hand in hand with the work that I have done at Gleaners. Gleaners not only serves to feed the hungry, but they also make sure that the food they provide is healthy and nutritious, in order to promote a healthy and happy lifestyle.

One of the most memorable service projects I have been involved with through Gleaners was the My Neighborhood Mobile Grocery (MNMG). MNMG is a nutritionally focused, mobile pop-up grocery retail model that provides SNAP (food stamp) recipients with a new and innovative shopping option in their communities. The mobile food mart provides a select variety of food products that are competitively priced, in order to ensure that the customers are getting the most food for their money. EBT shoppers have the opportunity to purchase canned fruit and vegetables, rice, beans, cereal, canned tuna and chicken, frozen meats, cheese and milk at very low prices. Aside from nutritional products, MNMG provides customers with educational programming as well as food give-a-ways to incentivize increased consumption of fruits and vegetables. MNMG extends the purchasing power of SNAP shoppers, and together with the educational component drives better health outcomes. While volunteering for MNMG, I did multiple things. Upon arriving, I, along with the other volunteers, helped set up the mobile grocery mart. We placed all of the racks in their designated areas and filled them with food products. It was important that the products looked presentable to the customer. As the coordinator explained to us and as we learned in class, the way food is presented to customers affects whether or not they will want to buy the products. The coordinator of the event told us that when their set up is not as organized or nicely put together, they get less customers buying items from their pop-up grocery room. There were strict guidelines as to how the products were to be set up and displayed. When the mobile grocery store opened, I worked as an order filler. I used a copy of the customer’s printed order, and took food from racks rolled into the pop-up grocery room and placed them on to the pick-up table for the shopper. I confirmed with the shopper that the order was complete and correct by obtaining the shopper’s signature on the order form.

Many of the food items available at the mobile grocery were packaged foods able to be stored on shelves. Shelf life is very important to consider to ensure product freshness and quality. Shelf life and expiration dates are two different things; shelf life refers to food quality, while the expiration date refers to food safety. The actual length of shelf life of any given product will depend on a number of factors including processing methods, packaging, and storage conditions. Factors that affect shelf life can be classified into three categories: chemical deteriorative changes (i.e. rancidity of fat-containing foods), physical deteriorative changes (i.e. bread turning hard by losing moisture), and microbial deteriorative changes (i.e. changes due to spoilage organisms and pathogens). Growth of spoilage organisms is often readily identified by sensory changes. Examples of this are visual mold growth, generation of off-odors and flavors, and changes in texture of the food. It is important to note, though, that the growth of food-poisoning organisms and pathogens will not always necessarily be accompanied by changes in appearance, odor, flavor, or texture that could be detected by the human senses. Examples of these types of organisms are the *Salmonella* species or *Listeria monocytogenes*. There are more than 200 known diseases transmitted through foods. Symptoms can range from mild gastroenteritis to life threatening symptoms; bacteria, mold, viruses, parasites, and prions cause these problems. According to the Center for Disease Control and Prevention, there are 76 million cases of foodborne illness a year, of which there are 325,000 hospitalizations and 5,000 fatalities.

From firsthand experience, I saw that meat and poultry were top items that many customers tended to buy at MNMG. Meats are an important part of a person’s diet. They are high in protein—from 15-20%. Other nutrients available in meats are fat (which depend on the species, cut, and amount of trimming, minerals (i.e. potassium, magnesium, and iron), vitamins (i.e. B vitamins and folic acid), and are low in carbohydrates and have no fiber. Inspection of meats is mandatory by the USDA, so, of course, the meat sold at MNMG is inspected and approved. The protein quality of meats is referred to as the biological value of a protein in satisfying the nutritional requirement. It is determined by assessing amino acid score: the composition of amino acids and how well a protein is digested. There are many factors customers look at before buying meat. Cost, color, tenderness, bone and connective tissue, and fat and marbling are key characteristics that are considered. High quality steak has a lot of marbling, while a lean cut of meat has very little or no visible marbling. At the mobile grocery, the meats and poultry were always stored in freezers at all of times. This is to prevent spoilage and microbial growth in the meats. Practicing safe-handling methods can reduce the risk of foodborne illnesses and keep the consumers healthy.

While I was a volunteer at MNMG, there was an ongoing promotion. If a customer spent $20 in EBT benefits, they received free fresh produce and a gallon of milk for the reduced price of $1.00. Milk and dairy was another significant topic we covered throughout the course of this semester in NFS 2130. Milk contains many lipids including phospholipids, sterols, pigments, and fat-soluble vitamins. The primary fat in milk is milk fat and it contains trigylcerides-palmitic and oleic acid. A fat globule is coated by phospholipids and lipoproteins to aid in emulsifying and prevent coalescing. Triglycerides make up 98% of milk fat, phospholipids made up 0.8% of milk fat, and cholesterol makes up 0.3% of milk fat. Carbohydrates are another component of milk fat. There is about 12 grams of CHO per cup. Most carbs are in the form of lactose, while glucose and galactose are found in small amounts. Protein is a major component of milk, as well. The most abundant type of protein found in milk is casein, as it makes up 80% of the total proteins. There are four major types of casein: alpha-s1, alpha-s2, beta, and kappa forms. 20% of the proteins in milk are whey proteins. They are found in liquid fraction after casein proteins have been participated. Micronutrients are yet another component in milk. Water soluble proteins such a thiamine, riboflavin, niacin, and B vitamins are present. The minerals included in milk are calcium and phosphorus. Fat-soluble vitamins present include vitamins A and D – which is dependent on the fat content of the milk. Proper care and handling of the milk is important in order to ensure safety and freshness of the product. Milk pasteurization eliminates pathogens and some spoilage microorganisms; it inactivates enzymes. There are many different types of pasteurization. Conventional pasteurization is at 62˚C for 30 minutes, High-temperature short-time (HTST) pasteurization is done at 72˚C for 15 seconds, and the highest intensity pasteurization, called ultrahigh-temperature (UHT) is done at 138˚C for just 2 seconds. Milk pasteurized using the UHT method should be stored at room temperature until opened. In order to test milk for proper pasteurization, the alkaline phosphatase test is used. The enzyme catalyzes hydrolysis of organic phosphates to alcohol and phosphoric acid. It is destroyed during pasteurization and its absence is used as an indicator for proper pasteurization. Along with milk, multiple varieties of cheese are sold at MNMG. Milk is made into cheese by the following steps: mild pasteurization, composition adjustment, coagulation and cutting, removal of whey, additions, and, finally, aging/maturing of the product. The cheese was also stored in a fridge, in order to preserve it. The variety of foods offered to the SNAP customers at My Neighborhood Mobile Grocery provides them with a balanced and nutritious diet, for very low prices. It enables them to shop for their whole family and buy the fresh foods they would have normally cut back on due to cost. MNMG is very economical and therefore helps people shop better by spending less money on food without compromising the nutritional benefits they would get from more expensive foods.

Along with MNMG, a couple of the service projects I have done at Gleaners included packaging apples to be sent to many groups in need – including senior citizen centers and elementary schools throughout Southeastern Michigan. Fruits was yet another topic we focused on in NFS 2130. We weighed the apples and put the appropriate amount into bags to be sent off to their destinations. The recommended daily intake of fruits is 2 cups, according to the 2010 US Dietary guideline. Fruits are composed of nearly 75-90% water. Besides water, the main component that makes up fruit is carbohydrates, which includes sugars, starches, cellulose, and pectins. Fruits also consist of some vitamins and minerals, but are low in protein and fat. Apples contain malic acid, and so they have a relatively low pH – about 3-3.4. Apples are harvested first, and then ripened and are considered to be a “climacteric” fruit. This means that the ripening of the fruit is associated with increased ethylene production and a rise in cellular respiration. Ripening of fruits causes many changes to the food – including changes in taste, aroma, color, and texture. In order to slow the ripening of fruit, several things can be done. These include holding the fruit at low temperatures (above freezing), holding the fruit in an atmosphere with limited oxygen and high carbon dioxide (such as plastic packaging), and using irradiation on the fruit. The irradiation process uses ionizing radiation to create free radicals that inactivate enzymes. When picking the apples to be packaged, they were examined for quality. Any apples that had soft bruises on them were set aside to be donated and used to make for other food products, like applesauce. Bruised fruits turn brown due to a process called enzymatic browning. When fruit is bruised or ruptured, oxygen is allowed in. This causes a chemical process involving polyphenol oxidase, catechol oxidase, and other enzymes that create melanin and benzoquinone from natural phenols, resulting in a brown color. Severely damaged apples that were virtually unstable were thrown out. By the end of each shift, I, along with the other volunteers present that day, packaged over 5,000lbs of apples for those in need.

In addition to working with fruits, I had the opportunity to participate in service events packaging vegetables—specifically potatoes. Similar to the project dealing with apples, we sorted through thousands of pounds of potatoes, picking out the acceptable potatoes and packaging them into bags to be sent out to those in need of them. We learned a lot about vegetables throughout the course of this semester. Vegetables are low in fat and protein but high in water content. They are a better source of vitamins and minerals than fruits. The green, leafy vegetables are high in iron, riboflavin, ascorbic acid, and carotene. There are a large variety of different acids in vegetables, but they have a less overall acid concentration of organic acids than fruits. They have an average pH of 5-5.6. Vegetables are a good source of carbohydrates.; most vegetables have sugars like glucose and starch. Additionally, vegetables have a higher fiber content than fruits. Storage conditions and temperature are crucial in the safe storage of vegetables. Vegetables, like potatoes, should be stored in a cool, dry area to minimize loss of moisture. The principle glycoalkaloids found in potatoes are a-solanine and a-chaconine. They contribute flavor to potatoes by causing bitterness and are toxic to humans at higher concentrations. Light and temperature conditions are responsible for changes in potatoes. For example, light would cause increased production of solanine, consequently causing increased levels of toxicity in the vegetable. Additionally, too cold storage temperatures cause accumulation of sugar in potatoes. In order to maximize quality, potatoes should be stored in appropriate conditions. The potatoes are packaged raw at Gleaners and delivered to their destination. There, the potatoes may be cooked and prepared to eat. Cooking vegetables affects many properties of the food. One thing that is affected is the texture of the vegetable. Heating the vegetables causes loss of crispness due to the loss of water; heat denatures cell membranes, and so water diffuses out. Steaming allows retention of structural integrity over boiling. The starch granules in potatoes absorb water when cooked, causing pasting. Along with texture, there is an effect on the pigments of vegetables when cooked. Chlorophyll is a primary pigment in many vegetables that produces a porphyrin ring with magnesium. Initial contact with boiling causes intensification of color; this is called blanching. This changed the configuration of chlorophyll, but keeps the color the same. Under continued heat, organic acids begin to be released, and react with the chlorophyll, displace magnesium, and produce an olive-green color (pheophytins). Vegetables with lower acid levels retain more chlorophyll when heated. Moreover, nutrients are also lost when vegetables are cooked. When cooking, vegetables lose vitamins, minerals, and sugars due to them dissolving in the cooking water. Steaming and pressure cooking is shown to retain nutrients more effectively; therefore, this is a more beneficial way of cooking vegetables.

Gleaners does not only work with fresh produce. Another great project I had the opportunity to partake in was fulfilling agency orders in the Detroit warehouse. Multiple different companies, organizations, and agencies make orders from Gleaners, and I aided in preparing these orders. I, along with my team, used the order form to guide us and ran around the warehouse collecting the correct amount of items for each order. Once the products were collected, the order was checked for accuracy, and then we proceeded to seal the order with saran wrap. The order was then immediately shipped out of the warehouse and sent to the manufacturing warehouse, and from there the orders were sent to their final destinations. Accuracy and carefulness in each order is imperative to ensure that each agency receives the exact amount of products they asked for, not more and not less. Both of the opportunities I got to participate in this service project, my “team” and I won for having fulfilled the most orders and having prepared and packaged the most pounds of products when competing against the other teams in the warehouse. The last time I participated in this “competition” my team won with about 16 orders and over 15,000lbs of products in total.

Aside from working directly with fresh produce and foods, during my time at Gleaners I was able to help for other causes. For a few visits, I helped prepare for their annual food drive. I folded plastic food drive bags in order to turn them into “post cards” to be delivered to mailboxes all over Southeastern Michigan along with a flyer with information about their annual food drive. The bag in the postcard is used by the recipients to fill with cans and left outside their door for Gleaners workers to come by and pick up. This food drive is the largest one that Gleaners runs. In 2015, Gleaners distributed more that 36 million pounds of emergency food to over 484 partner soup kitchens, shelters, and pantries in Wayne, Oakland, Macomb, Livingston, and Monroe counties. Additionally, I participated in preparing the bags to be made into emergency food kits.

For more than 37 years, Gleaners Community Food Bank has been “feeding hungry people and nourishing our communities.” It was a great opportunity to be involved in such an active nonprofit organization. I chose Gleaners because I have been involved with the organization since my 9th grade of high school, making it a very personal and welcoming place for me. I most definitely plan on continuing to support the organization, whether it be by donating my time with service or monetary contributions. Of every dollar donated, Gleaners uses 94 cents for food and food programs for the needy. Just one dollar provides three meals for a hungry neighbor. Gleaners is one of the few places where your service truly and directly impacts millions of lives around your community. I am extremely content that I chose to complete my service hours with Gleaners. The work I did here related directly to the information I learned in NFS 2130, and for this reason Gleaners Food Bank was the perfect organization to volunteer at to fulfill my service-learning requirement.

Works Cited

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