The term “gleaning” dates back to Biblical times, when farmers were encouraged to leave crops in their fields for the poor or for travelers. Today, food is gleaned — harvested after the commercial pick — by nonprofit organizations that channel produce to food banks and emergency meal kitchens. In addition, food recovery organizations and for-profit wholesalers contribute as gleaners through donations from manufacturers, schools, supermarkets, and restaurants.

Hunger and food insecurity remain rampant in the US, despite our abundant food supply. Approximately 150,000 charitable food providers, including food banks and food pantries, supply 10 percent of the US population with a portion of their nutrition needs.

Arizona has established a program, the Arizona Statewide Gleaning Project, that sends out volunteers or prison inmates to collect vegetables and fruit from the state’s farming fields. These foods are then donated to a regional food bank. “Gleaned” vegetables and fruits can be an important supplement to the diets of low-income families, who have limited access to healthful foods. Project GLEAN demonstrates the success of gleaning programs on a smaller scale.

**PROJECT GLEAN**

Project GLEAN was established to increase access to fresh vegetables and fruits among a predominantly Hispanic school community. The purpose of the project was to evaluate the effort and effectiveness of a school-based, gleaned-food distribution program, and to assess its impact on the nutritional status of a school community.

**INNOVATION/CREATIVITY**

Project GLEAN represented a partnership between a university (Arizona State University), a community elementary school (Crockett Elementary School, southeast Phoenix), and a food bank (St. Mary’s Food Bank). Gleaned fruits and vegetables were delivered to the elementary school biweekly by St. Mary’s on Friday afternoons over a five-month period. Fridays were selected to allow the students to take home foods to eat over the weekend, when school breakfasts and lunches were not available. University student volunteers bagged the produce for distribution to the students. Prior to the start of the program, school administration verified that students or their parents would be able to walk home with the bags of produce.

The program was unique in that it collected biochemical data from participating parents to evaluate compliance with and the effects of increasing fruit and vegetable consumption. A random group of 17 parents provided blood samples for assessment of serum vitamin C, folate, and lipid hydroperoxides (an inverse indicator of antioxidant consumption) before and during the intervention. Blood samples were processed and analyzed shortly after collection.

**THEORY BASE/RATIONALE**

Cost is a major barrier to eating fruits and vegetables. The Health Belief Model holds that perceived susceptibility to and severity of a disease motivates individuals to change their behavior. In this instance, however, members of the target audience do not consume adequate fruits and vegetables because of financial constraints. Gleaned food distribution would lower this barrier and enable the inclusion of fruits and vegetables in the diet. This model may also promote healthy behaviors, such as increased fruit and vegetable consumption thereby reducing the risks of diseases associated with a diet that lacks the nutrients produce provides.
The Social Cognitive Theory states that personal factors, influences, and behaviors themselves are the determinants of behavior. Project GLEAN modified the environment of its target market by delivering gleaned food to the school by using a local food bank and by engaging the entire school community to promote the importance of eating fruits and vegetables. Teachers, school staff, and parents were invited to take home bags of and eat more fruits and vegetables as a way of modeling behavior for the children.

OUTCOMES/EVALUATION DATA

Project GLEAN distributed over 79,000 pounds of fresh fruits and vegetables in its five months of operation. The fruits and vegetables were of highest quality, and included items like grape tomatoes and yellow, red, and orange peppers that otherwise were out of financial reach of the target families.

Biochemical markers showed significant improvement. At the start of the program, 76 percent of parents were depleted in vitamin C, with serum levels < 0.50 mg/dL. Serum vitamin C and folate levels increase significantly over the course of the project. A drop in serum hydroperoxides represented increased consumption of antioxidants.

The project demonstrated additional benefits. Students became more willing to eat fruits and vegetables. Volunteerism within the school community — students, parents, and school staff — increased over the course of the project.

REPLICABILITY

The US food environment offers abundant opportunity for gleaning. According to the Economic Research Service of the USDA, 96 billion pounds of food, or about 27 percent of the available food supply, is lost to human use each year by retailers, consumers, and food service establishments. Fresh fruits and vegetables account for one-fifth of this loss.

Food recovery programs offer benefits to producers and retailers. Unmarketable food products can be donated, at lower cost, rather than discarded or reclaimed through labor-intensive operations. Tax deductions are available for donated foods. Food donation also can reduce waste disposal costs.

Little money is needed for this type of program. Food banks historically have been receptive to partnerships. Students and community volunteers can work together to bag and distribute produce, and to clean up. The food bank may have access to spare plastic shopping bags. Otherwise, a “bag drive” could be held to collect clean plastic shopping bags. University students can apply for community service credits for participating in this type of project.

QUESTIONS

1. The definition of “gleaning” is:
   a. Food donated from restaurants
   b. Food purchased from donations
   c. Food donated by farmers
   d. Food harvested after the commercial pick

2. Approximately what percentage of Americans receives food from charitable food providers?
   a. 8 percent
   b. 10 percent
   c. 18 percent
   d. 32 percent

3. Which was a goal of “Project GLEAN”?
   a. To form a coalition of food banks
   b. To bring nutrition education to elementary schools
   c. To assist farmers in harvesting crops
   d. To evaluate the effectiveness of a school-based, gleaned food distribution program

4. Why did “Project GLEAN” collect blood samples?
   a. To screen for hypercholesterolemia
   b. To diagnose vitamin and mineral deficiencies
   c. To evaluate markers of fruit and vegetable consumption
   d. To identify which nutrients it should focus on

REFERENCES