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Matching missions: hunger relief programs and impact of food donation partners in Northwest Arkansas

*Amy M. West** and *Jennie S. Popp†*

ABSTRACT

In 2012 and 2013, Arkansas ranked first in the nation in food insecurity in both categories of “low food secure” (21.2%) and “very low food secure” (8.4%). The Cobblestone Project developed a hunger relief donation partner, The Farm, in order to help address food insecurity in Northwest Arkansas. In spring 2014, The Farm partnered with the University of Arkansas to 1) better understand the demographics and need of hunger relief organizations, 2) calculate the impact of donations to hunger relief organizations, and 3) assess satisfaction of donations from The Farm to hunger relief organizations. A series of surveys were targeted to hunger relief organizations that The Farm serves to meet these objectives. Statistical analyses of survey data provided the following results: 1) Demographics and needs of hunger relief organizations: there were no significant differences in demographics served (age and gender) among organizations that put different values on hunger relief in their mission statements. Additionally, there was no significant difference between the number of people served and the functional type (pantry, soup kitchen, in-house) of the organization. 2) The impact of donations: during the 2014 harvest, 10,863 kg of food were donated by The Farm impacting a total of 12,598 recipients. 3) Satisfaction regarding the quality, quantity and diversity of the commodities donated: there is a difference in usefulness of produce that is easily prepared with known recipes and for large amounts of people. This survey showed bell peppers, cabbage, potatoes, zucchini, tomatoes, and lettuce to be considered most beneficial.

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† Jennie Popp is the faculty mentor and a professor in the Department of Agricultural Economics and Agribusiness.

MEET THE STUDENT-AUTHOR



Amy May West

I am the daughter of Michael and Nancy West of Gravette, Arkansas, and have graduated with a degree in Agricultural Business with a focus in Agricultural Economics. Active in Student Government, I was a member of Fresh H.O.G.S., Senator for Dale Bumpers College, served as the Chair of Senate and Vice-President. I have served as a college ambassador for the Dale Bumpers College, Vice-President for Agricultural Business Club, Jr. Panhellenic Delegate for Kappa Kappa Gamma, Director of Awards for the Honors Student Board and am a member of the AgriBusiness/Agricultural Economics Quiz Bowl Team. For two years, I worked for Dr. Goodwin as a research assistant. After my freshman year, I studied abroad in Belize.

After my junior year, I interned for Cargill in commodity merchandising and am pursuing a career in commodity trading with Lansing Trade Group in Overland Park, Kansas.

I would like to thank Dr. Jennie Popp for serving as my mentor for this project and Dr. Curt Rom, Dr. Kevin Fitzpatrick, and Mrs. Angela Oxford for serving on my thesis committee. Additionally, I would like to thank the Cobblestone Project for all of their inspiration and help with this study.

INTRODUCTION

In 2012 and 2013, Arkansas ranked first in the nation in food insecurity in both categories of “low food secure” (21.2%) and “very low food secure” (8.4%) (Lilley, 2013; Coleman-Jensen et al., 2014). In some counties in the Eastern Delta (Lee, St. Francis, Desha, and Crittenden), 25% of households reported having been food insecure at one point in 2013 (Gundersen et al., 2012).

Northwest Arkansas (NWA), defined as Benton, Washington, Madison and Carroll counties, also experiences food insecurity. In Benton county, 13.7% of households were food insecure at one point in 2011 (Gundersen et al., 2012). Washington (16.8%), Madison (15%), and Carroll (14.7%) counties were all above the national average (Gundersen et al., 2012). Furthermore, in real 2010 dollars, per capita income has fallen from \$22,508 to \$20,840 (The Central Arkansas Library System, 2015; USCB, 2014). As the number of people earning an income above the poverty level declines, the need for nonprofit food aid increases. The goal of this study is to assess efforts of one non-profit agency to alleviate hunger in NWA.

The consequences of hunger are great. Children who experience food insecurity are more likely to develop chronic conditions such as asthma or anemia, experience oral health problems or conditions that require hospitalization, have stunted growth, and be unable to fully

engage in daily life (Nord, 2009). These children may develop physical and intellectual impairments that will stay with them for the rest of their lives. Additionally, these children cannot learn as quickly, are less likely to have high academic achievements, and will be less competitive in obtaining jobs. Eventually, this disability leads to a cycle of food insecurity (Cook and Jeng, 2009).

While many Arkansans benefit from federal food aid programs, not all Arkansans who are food insecure are eligible for these programs. To catch these remaining food insecure households and to supplement those who are already enrolled in federal aid programs, Arkansas and NWA in particular have many organizations, many of which are non-profits, that strive to end hunger locally (Fayetteville COC, 2014). Nonprofits experience challenges along with the successes in relieving hunger. Programs that distribute food (either meals or raw produce) directly address the need, but because they generally have high implementation costs, they are often viewed as inefficient (Hidrobo et al., 2012). Nonprofits often struggle to pay the heavy overhead that is necessary to run a successful organization (Gregory and Howard, 2009). Often they skimp on overhead (including paying individuals to conduct impact reports), that leads to a lack of communication between funders and organizations, which can leave nonprofits underfunded and challenged in fulfilling their missions (Gregory and Howard, 2009). Nonprofits typi-

cally include soup kitchens, pantries, or in-house meal servings. Studies suggest that these methods of alleviating hunger are more likely to lead to waste than voucher or cash programs (Hidrobo et al., 2012; Gentilini, 2007).

Because both sectors of hunger relief (governmental and nonprofit) in the U.S. have experienced their challenges and successes, impact assessments have an important role. Performance measurements are essential to determine management strategies, and increase relative understanding of effectiveness (Cunningham and Ricks, 2004; Bryson, 2011). Performance measurements increase donors' confidence levels and the organizations' abilities to obtain grant funding. Many studies have focused on the use of performance measurements for non-profits (e.g., Forbes, 1998; Garcia et al., 2013; Kaplan, 2003; Sharp and Brock, 2010; Zimmerman and Stevens, 2006). These studies suggest that traditional financial assessment alone may not truly measure performance, and both quantitative and qualitative performance measurements should be used.

Founded in 2008, the Cobblestone Project is a non-profit organization that serves those in NWA who are living in poverty. The Cobblestone Project developed a hunger relief donation partner, The Farm, that has provided tens of thousands of kilograms of food to hunger relief programs in NWA (J. Watts, pers. comm.) including soup kitchens, prepared meal programs, and food pantries (Cobblestone Project, 2013; J. Watts pers. comm.). The purpose of this study is to better understand the demographics and needs of the hunger relief organizations to which The Farm donates produce and to explore ways that The Farm can positively impact the ability of hunger relief organizations to meet their own goals of reducing hunger in NWA.

MATERIALS AND METHODS

Three types of surveys (an introductory survey, harvest season surveys and a final survey) were developed for 17 hunger relief organizations in NWA with whom The Farm collaborated. The first survey had 11 questions that focused on general characteristics of each organization. A second survey comprised of 8 questions was sent

to hunger relief organizations each time they received a donation from The Farm from May 2014 to October 2014. This survey was used to assess the hunger relief organization's impact and ability to use a given donation. The third survey had eight questions that gauged overall satisfaction with donations from The Farm during the 2014 harvest. Upon receiving the University of Arkansas Internal Review Board approval (number 14-04-686), the surveys were built into the Qualtrics electronic survey software (Qualtrics, Provo, Utah) and distributed to organizations' representatives.

Once data were collected, statistical tests were conducted in Statistical Analysis System v. 9.4 (SAS software, Cary, N.C.) using Fisher's exact tests, student's *t* test, and analysis of variance to look for significant differences among organizations who rated hunger relief as of primary (PG) or secondary (SG) importance to their missions and among different functional types of organizations: pantry, soup kitchen and in-house.

RESULTS AND DISCUSSION

Introductory Survey Results

The survey population consisted of 17 organizations that The Farm identified as potential donation recipients. Of those, 14 (82%) completed the introductory survey (Table 1). Participants included four soup pantries, four churches, four shelters, and two elementary schools. Five of the 14 (36%) organizations ranked the importance of hunger relief as part of the organization's mission as a low priority (ranking it three or lower on a scale of one to five). These organizations will be called "secondary goal organizations" (SG). Nine organizations, known as "primary goal organizations" (PG), ranked hunger relief as a high priority for their organizations (ranking it a 4 or 5). Additionally, organizations were divided into three functional type categories. Soup kitchens are those organizations that serve meals at their own facilities for non-residential client use, pantries are those organizations who give away food to be prepared by the recipient elsewhere, and in-house organizations are those who take in clients for a longer time than a single meal service.

Table 1. Number of organizations by functional types and hunger relief importance.

Hunger Relief Importance	Functional Type of Organization			Total
	Soup Kitchens	Pantries	In-House	
PG ^a	3	5	1	9
SG ^b	1	0	4	5
Total	4	5	5	14

^a PG = organizations that consider hunger relief as a primary goal in their mission.

^b SG = organizations that consider hunger relief as a secondary goal in their mission.

Fisher's exact tests were conducted to determine if certain characteristics differed between PG and SG organizations. These characteristics included quantity and age of people served, how the organization serves their recipients, and who they believe considers efficiency important in their organization. Results of the testing are summarized in Table 2.

No significant differences existed between PG and SG organizations for most categories of individuals served. However, significant differences did exist ($P = 0.0291$) between the two types of organizations for men ages 65+: a statistically greater percentage of PG organizations served men ages 65+ compared to the SG organizations. As expected, a higher percentage of PG organizations served at least 600 people annually compared to SG organizations. However, statistical tests revealed no significant ($P = 0.5671$) difference in these results.

Respondents were asked whether they served food in a central location, distributed food to individuals for consumption at home, or both. They were also asked

how they prepared food for consumption: 1) raw food, 2) canned food and/or 3) a prepared meal. There were no significant differences between PG and SG organizations regarding where, or type of food, served.

Finally these respondents were asked who, among four groups, would be interested in their impact numbers: 1) donors, 2) their own workers, 3) benefactors, 4) members of their boards. No significant differences were found in the answers provided by PG and SG organizations. All organizations believed that donors would find impact numbers compelling.

Second Survey Results

During the 2014 harvest, 10,886 kilograms of food were donated by The Farm to 13 organizations impacting a total of 12,598 recipients. Of those 13 organizations, 8 completed surveys after each donation. This survey focused on the impact of the donation, the number of people served per donation and the donation's help in meeting the organization's weekly food needs. Student's *t*-tests were

Table 2. Testing for significant differences between organizations where hunger relief is highly important to their mission (primary goal organizations) and organizations where hunger relief is not highly important to their mission (secondary goal organizations).

Characteristic	Primary Goal Organizations		Secondary Goal Organizations		P value
	Yes (%)	No (%)	Yes (%)	No (%)	
Serve Boys 18 Years Old and Younger	100.0	0.0	83.3	16.6	0.4615
Serve Girls 18 Years and Younger	100.0	0.0	83.3	16.6	0.4615
Serve Males 18-64	85.7	14.2	33.3	66.6	0.1026
Serve Females 18-64	85.7	14.2	83.3	16.6	1.0000
Serve Males Over 64	85.7	14.2	16.6	83.3	0.0291
Serve Females Over 64	85.7	14.2	50.0	50.0	0.2657
Serve More Than 600 Annually	66.6	33.3	33.3	66.6	0.5671
Serve At Central Location	85.7	14.2	100.0	0.0	1.0000
Send Food Home To Be Served	57.1	42.8	33.3	66.6	0.5921
Serve Fresh Foods	71.4	28.5	66.6	33.3	1.0000
Serve Canned Foods	85.7	14.2	100.0	0.0	1.0000
Serve Prepared Meals	85.7	14.2	83.3	16.6	1.0000
Donors Consider Efficiency	83.3	16.6	100.0	0.0	1.0000
Workers Consider Efficiency	33.3	66.6	60.0	40.0	0.5671
Benefactors Consider Efficiency	0.0	100.0	40.0	60.0	0.1818
Board Members Consider Efficiency	33.3	66.6	60.0	40.0	0.5671

conducted to determine if the kilograms received from The Farm and the number of people that organizations were able to serve with this produce differed between PG and SG organizations. No statistical difference existed (Table 3) between the kilograms PG and SG received from The Farm during the 2014 Harvest ($P = 0.5719$). Additionally, no statistical difference existed (Table 4) between the number of people PG and SG organizations were able to serve with donations ($P = 0.2089$).

Analysis of variance tests examined whether the number of kilograms received differed by pantry, soup kitchen or packed for in-house/resident consumption and people served. No statistical differences ($P = 0.9329$) existed in kilograms received across functional type of organization or as an interaction with number of people served ($P = 0.5535$) (Table 5). Statistical difference (at the $P < 0.1000$ level) did exist between the kilograms received and the number of people served ($P = 0.0597$).

Final Survey Results

Nine organizations completed the final survey that asked questions concerning organizations' use of the food donations, satisfaction with the donations and donation processes, usefulness of donations, and likelihood that the organization would work with The Farm in the future. Three organizations reported that they usually prepared meals with donations, three reported repackaging their donations, and three reported doing both.

On a scale of 1-7 (very dissatisfied to very satisfied), seven organizations were satisfied or very satisfied with The Farm staff, donation timeliness, food quality, food quantity, and food type. Organizations rated bell peppers, cabbage, potatoes, and zucchini as most beneficial while

beets, Brussel sprouts, chives, rosemary, and Swiss chard received no votes (Table 6). Seven organizations (78%) reported they were "very likely" and two (22%) reported that they were "likely" to partner with The Farm again.

Recommendations for The Farm

Based on the results of the surveys and statistical testing, the following recommendations are offered for the farm:

Because survey results showed that NWA hunger relief organizations have different missions, The Farm could target organizations that strive to increase the quantity of food consumed by recipients knowing that this is where their impact might be most effective.

Because statistical tests showed that impact is not related to importance of hunger relief to the partner organization (i.e., PG vs SG), The Farm can continue to donate to a diverse set of organizations and maintain effectiveness.

While all farm donations seem to result in a positive impact, the largest impacts are in organizations with the largest numbers of people to serve. To ensure all organizations can use all food provided, The Farm could consider making smaller donations more frequently to organizations that serve smaller amounts of people.

The Farm could plan their annual production based on the commodities of greatest use by the partnering organizations.

Recommendations for Future Studies

The following recommendations are made to improve future studies. Surveys were not an effective means to reach all organizations. To improve response rates in future studies, face-to-face contact with organizations may be necessary.

Table 3. Kilograms (kg) received by organization vs. importance of hunger relief by organization.

Characteristic	Value
PG Organizations (mean kg received)	284.2
SG Organizations (mean kg received)	223.4
t value	0.6
P value	0.5719

n = 13; data from the Cobblestone Project Social Impact Report 14.

Table 4. People served vs. importance of hunger relief by organization.

Characteristic	Value
PG Organizations (mean people served)	1731.6
SG Organizations (mean people served)	793.8
t value	1.43
P value	0.2089

n = 8; data from the second survey.

Table 5. Analysis of variance tests.

Characteristic	F Value	P Value
Received vs. Functional Type of Organization (in kg)	0.07	0.9329
Received vs. People Served (in kg) ^a	4.68	0.0597
People Served vs. Functional Type of Organization ^a	0.65	0.5535

^a In these tests, n = 8, other test n = 13.

Table 6. Food items considered most useful by hunger relief organizations.

Food Item	Number of Votes
Bell Peppers	8
Lettuce	5
Tomatoes	5
Cabbage	4
Potatoes	4
Zucchini	4
Banana Peppers	3
Broccoli	3
Onions	3
Squash	3
Cucumbers	2
Eggs	2
Acorn Squash	1
Arugula	1
Basil	1
Collard Greens	1
Eggplant	1
Kale	1
Radishes	1
Turnip Greens	1
Turnips	1
Beets	0
Brussels Sprouts	0
Chives	0
Rosemary	0
Swiss Chard	0

Second, additional efforts may be needed to clarify the meaning of some questions and answer choices provided on the survey to ensure that all respondents can interpret questions similarly.

Finally, this study was based on a small number of organizations. This small sample can limit the robustness of the statistical testing as well as the ability to generalize these results across all hunger relief organizations in NWA.

SUMMARY AND CONCLUSIONS

This partnership between the University of Arkansas and Cobblestone Project's The Farm set out to 1) better understand the demographics and need of hunger relief organizations, 2) calculate the impact of donations to hunger relief organizations, and 3) assess satisfaction

of donations from The Farm to hunger relief organizations. A series of surveys were targeted to hunger relief organizations that The Farm serves to meet these objectives. Statistical analyses of survey data provided the following results: 1) there were no significant differences in demographics served (age and gender) among organizations that put different values on hunger relief in their mission statements. Additionally, there was no significant difference between the number of people served and the functional type (pantry, soup kitchen, in-house) of the organization. 2) During the 2014 harvest, 10,863 kg of food were donated by The Farm impacting a total of 12,598 recipients. 3) There is a difference in usefulness of produce that is easily prepared with known recipes and for large amounts of people. This survey showed bell peppers, cabbage, potatoes, zucchini, tomatoes, and lettuce to be considered most beneficial.

This study was a case study and the surveys used in this study can be extended to a larger sample in order to truly determine impacts of food donations in NWA. As all organizations surveyed agreed that impact reports, such as the one generated here, can be useful in informing their boards and soliciting donors, studies such as these could be continued to assess and improve the impact of food aid partners in Northwest Arkansas.

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