

# Journal of Rural Social Sciences

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Volume 30  
Issue 1 *Volume 30, Issue 1*

Article 6

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12-31-2015

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### Recommended Citation

Owens, Nicole, and Amy Donley. 2015. "The Impact of the Farmers' Market Nutrition Program on Participating Florida Farmers: A Research Note." *Journal of Rural Social Sciences*, 30(1): Article 6. Available At: <https://egrove.olemiss.edu/jrss/vol30/iss1/6>

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*Journal of Rural Social Sciences*, 30(1), 2015, pp. 87–101.  
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## **THE IMPACT OF THE FARMERS' MARKET NUTRITION PROGRAM ON PARTICIPATING FLORIDA FARMERS: A RESEARCH NOTE**

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### **ABSTRACT**

The Women, Infants and Children (WIC) Farmers' Market Nutrition Program (FMNP) is a federally funded program designed to increase fresh fruit and vegetable consumption among WIC participants. Research to date has examined the effectiveness of this program in reaching that goal. The current study measures the impact this program is having on some farmers that participate in the program. Farmers are an overlooked group that not only must agree to participate for programs like this to be successful but also are often living below the poverty line as are their customers. Using survey data collected by the Florida Department of Agriculture and Consumer Services, we assess the program's success from the perspective of the farmers. Results show that the responding farmers were overwhelmingly satisfied with the program and that their overall sales increased significantly.

The Women, Infants and Children (WIC) Farmers' Market Nutrition Program (FMNP) was designed to address two serious social problems concomitantly: poverty and food insecurity. This program attempts to provide supplemental nutritious food and education to women, infants and children living at or below 185 percent of the United States poverty guidelines. The WIC FMNP also attempts to support small farmers who are not eligible to receive Farm Bill commodity subsidies because they grow "specialty" crops, otherwise known as fruits and vegetables.

Academic research examining how these public policies directly affect the millions of people involved in the Farmers Market Nutrition Program is critical. While some research to date has examined the impact of this program on the women and children who participate in this program as customers, the current study examines another important and often overlooked group: the farmers. Specifically, this study analyzes data from a survey sent by the Florida Department

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of Agriculture and Consumer Services to Florida farmers who participated in the WIC FMNP during 2012. This is the first study of its kind to focus on the perceptions and experiences of the people who grow and sell the food to program recipients. Their opinions and levels of satisfaction are vital if programs such as this one are to be implemented properly and are going to achieve what they set out to accomplish. Moreover, farmers who participate in this program often have incomes under the federal poverty line. Thus they themselves constitute a group in need, just like many of their customers. Assisting farmers in increasing their income while increasing access to fresh fruits and vegetables to WIC recipients can potentially benefit two groups simultaneously.

#### LITERATURE REVIEW

WIC is a Federal grant program, not an entitlement program. In other words, not every person who is eligible to receive funds receives them. Congress determines how much money will be appropriated to WIC each year (USDA 2011). WIC currently operates in all 50 states. In 2010, there were 9.17 million women, infants and children using WIC (USDA 2013). Nationwide, approximately 62% of eligible WIC participants participate in the program (USDA 2013).

The aim of the program is to provide nutritious food and education on food to eligible participants. Pregnant, postpartum and breastfeeding women, as well as infants and children less than five years of age, who are deemed nutritionally at risk by a health professional, are eligible to participate in WIC (FDOH 2006). Further, applicants must fall at or below 185 percent of the U.S. poverty line (USDA FNS 2014c). The WIC Program assists 370,000 Florida residents every month and is operating in all 67 counties in Florida. In Florida, \$260 million was spent providing food to WIC participants (FDOH 2006). Florida WIC participants cannot use their WIC checks on fruits and vegetables at certified farmers' markets and roadside stands. In some states, eligible WIC recipients are provided the option to purchase locally grown fruit and vegetables, but must apply for a separate fruit and vegetable voucher to purchase these items.

#### *Farmers' Markets*

Farmers' markets have grown in number and popularity in the United States over the past several decades. The United States Department of Agriculture's Agricultural Marketing Service (2014) started recording the growth of farmers' markets in 1994. There were 1,755 farmers' markets in the United States twenty years ago. In 2014, the number rose to 8, 268 nationally (USDA AMS 2014).

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Farmers' markets are just one entity of a larger local food movement. The local food movement also includes community supported agriculture, urban gardening, and urban farming, among several other practices. At the heart of the movement is a concern for the environment, however, local food has also been romanticized. For instance, a common idiom floating around farmers' markets and other local food venues suggest the importance of "looking the farmer in the eye" (Guthman 2004). While this idiom appears benign, there is wide variability in farmers markets. In other words, although consumers want to believe they are supporting their local farmers, the person selling the produce behind the stand may not be a farmer at all but someone who sells resale food (Smithers, Lamarche, and Joseph 2008). It is often hard for the farmers to compete with the variety offered by vendors who do not sell their own produce and this may be a reason over half of Florida farmers supplement the income they earn from farming with additional sources of revenue (Gaul et al. 2015).

As local food overall and farmers' markets specifically gained popularity, meanings for local food grew fuzzy. Perceptions of local differ between farmer and consumer. Ostrom (2006) found that farmers had a wider range of what they considered local. Some farmers included the entire world to be their local market. On the other hand, consumers' perspectives were more limited to their yard or city. Smithers et al. (2008) similarly found meanings of local at farmers' markets to be highly fluid.

The federal government is not so interpretative in their categorization of local food at farmers' markets. The USDA substantially increased federal spending on local food and farmers' markets in the most recent farm bill, the Agricultural Act of 2014, but they assure that meanings of local do not extend greatly beyond state lines (USDA 2014). Farmers must meet rigorous standards to participate in many federally-funded local food programs as discussed later. The Federal Government's spending on local food and farmers market programs demonstrates the effort to address both food and farm security concomitantly. Guthman, Morris, and Allen (2006) found that 81.4 percent of farmers' market managers in California believed that it is important to address food security through farmers markets, despite their perception that more than 90 percent of their customers are either middle or high income.

*Farmers' Market Nutrition Program*

The WIC FMNP was established by the WIC Farmers' Market Nutrition Act of 1992 (Becker 2006). Due to limited funding, the WIC FMNP is only available in

selected areas. Selected locations of the markets and transportation to markets are a barrier for spending WIC FMNP coupons (Racine, Smith-Vaughn and Laditka 2010). This bill established that WIC participants could use \$10-\$30 worth of FMNP coupons at farmers' markets per year (USDA FNS 2014a). States have the authority to exceed the federal grant money to provide more vouchers to WIC participants for fresh fruits and vegetables at farmers' markets at their discretion (USDA 2012).

The WIC FMNP aims to supply nutritious food to low-income women, infants and children, but also to help farmers' markets generate more sales. In 2011, 1.9 million WIC participants (USDA FNS 2012) and in 2013, 1.5 million WIC participants received FMNP coupons (USDA FNS 2014d). Participating farmers slightly decreased from 18,487 in 2011 to 17,713 in 2013 (USDA FNS 2012; 2014d). Similarly farmers' markets decreased from 4,079 in 2011 to 3,322 in 2013 (USDA FNS 2012; 2014d). Roadside stands followed the same pattern with a decrease from 3,184 in 2011 to 2,758 in 2013 throughout the United States, U.S. Territories, and Indian Tribal Organizations (USDA FNS 2012; 2014d). Checks and coupons redeemed through FMNP resulted in \$16.4 million in revenue to farmers during FY 2011 (USDA FNS 2012) and \$13.2 million in revenue to farmers in FY 2013 (USDA FNS 2014d). FMNP coupons are given to WIC participants besides the WIC coupons they receive. WIC FMNP coupons can only be used at farmers' markets and roadside stands approved by the state (USDA 2012).

#### *Florida Farmers' Market Nutrition Program*

According to the Florida Department of Agriculture and Consumer Services (FDACS) (2012), WIC FMNP is operating in 16 counties with more than 200 growers participating. The FDACS operates the FMNP part of WIC as they monitor the program through visits and investigations, select and authorize farmers' markets to participate, create FMNP coupons, administer surveys and write reports on the program, and provide training to farmers participating in the FMNP (FDACS 2012). The Florida Department of Health also conducts surveys and program reports, determines which counties will participate, issues coupons, and is responsible for the nutrition education (FDACS 2012).

According to FDACS (2012), there are many rules and regulations that Florida farmers must follow to participate in the WIC FMNP. First, farmers must be authorized by the FDACS, sign a contract, obtain a proper vendor stamp and sign and agree to inspections. Fruits and vegetables must also be locally grown. By locally grown, FDACS states food must be grown within the state of Florida or 50

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miles from a FMNP location, which provides some room for Alabama and Georgia farmers to participate in Florida's program. All fruits and vegetables must be unprocessed. That is to say, food cannot be dried or cooked whatsoever (FDACS 2012).

There are 16 counties currently participating in Florida's WIC FMNP (FDACS 2012; 2013). Most of these counties are in the northwest, more rural parts of the state<sup>1</sup> (FDACS 2012; 2013). Gaul et al. (2015) assessed the characteristics of 304 small farm operators in Florida and found some revealing demographic information. Their survey compared Florida farmers with the national Census of Agriculture. Most of the Florida farmers (53%), earn less than \$10,000 per year, consistent with the 2007 Census of Agriculture. Most small farmers must earn income from a second occupation (USDA 2007). Florida farmers have relatively high levels of education (24% earned a graduate degree and 20% earned a Bachelor's degree). Most of Florida farmers, 58%, were between the ages of 45 and 64 years of age. There was little diversity in racial composition; 95% of Florida farmers were white. Florida farmers have higher numbers of female farmers than the Census of Agriculture. In Florida, 65% were male compared with 78% nationally. Although historically farming was a family business, about 60% of Florida farmers did not have anyone else in their family that farmed besides them (Gaul et al. 2015).

## METHODS

Data for the present study were collected by the FDACS. The FDACS works with the Florida Department of Health (FDOH) to implement the WIC FMNP. Together, the FCADS and the FDOH survey farmers who participate in the WIC FMNP each year. The data utilized in this analysis comes from surveys given to farmers participating in the WIC FMNP in 2012. The survey was designed by the FDACS and FDOH to measure the satisfaction levels of the participating farmers.

The FDACS mailed surveys to all farmers who participated in the WIC FMNP. Participants were given a stamped, addressed envelope to mail the survey back. The FDACS mailed the surveys on September 1, 2012 because farmers were required to turn in all of the WIC FMNP coupons collected at the farmers' markets by August 31, 2012. The FDACS sent out 195 surveys to Florida farmers participating in the FMNP. Of these 195 surveys mailed, 73 were completed and returned to the FDACS resulting in a response rate of 38 percent.

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<sup>1</sup>These counties are: Alachua, Bay, Escambia, Gadsden, Gilchrist, Holmes, Jackson, Leon, Okaloosa, St. Johns, Santa Rosa, Sumter, Suwannee, Union, Walton and Washington (Florida Department of Agriculture and Consumer Services 2012).

FINDINGS

Survey participants were not asked general demographic questions. However, they were asked some basic questions regarding their experiences in the program (Table 1). Most of the respondents (73.6%) have participated in the program before. Overall, respondents are extremely satisfied with the program. Nearly 96% stated that their market sales have increased. While some of this is due in part to the coupons, 45.1% stated that they see coupon participants shopping in the farmer’s market even when they do not have coupons, meaning it is increasing their overall customer base. Nearly 99% of respondents would recommend participating in this program to other farmers in their area.

TABLE 1. GENERAL PARTICIPATION INFORMATION (*n*=73)

	%	<i>n</i>
Participated in the program previously. . . . .	73.6	54
Participation increased market sales. . . . .	95.7	67
Would recommend this program to other farmers in the area. . . . .	98.6	71
Plan to participate in the program next year. . . . .	100.0	70
Coupon customers continue to shop at the market even without coupons. . . . .	45.1	32

NOTE: Some questions were omitted by some respondents which is why the *n* is provided for percent stating yes.

Participants were presented with a list of ways they may have changed their farming or marketing practices from participating in the WIC FMNP (Table 2). Respondents could select as many as apply. The most common change was growing a wider variety of fruits and vegetables to sell at market (58.9%), followed by an increase in fruit and/or vegetable production (46.6%), and changing display signs to make it easier to identify food type/prices (45.2%). Beyond these changes, some participants have also begun to sell at additional farmer’s markets (39.7%), offer more recipes or information on how to prepare fresh fruits and vegetables (70.3%) and gave out more free samples (60%) because of participating in the WIC FMNP.

Correlations were run among the six variables that measure change from participating in the WIC FMNP. As shown in Table 3, most of the behaviors asked about are moderately correlated with one another. The strongest correlation was found between farmers reporting that they have increased fruit and/or vegetable production and that they are growing a wider variety of fruits and/or vegetables to sell at the markets (*R*= .612, *p*<.001). While this is logical, as increased variety can result in greater sales, it also means that consumers are having more variety to choose from. Farmers that are a growing a wider variety are also doing more

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TABLE 2. CHANGES RESULTING FROM PARTICIPATING IN THE WIC FMNP  
( $n=73$ )

	%	n
Growing a wider variety of fruits and/or vegetables to sell at market.....	58.9	43
Increasing fruit and/or vegetable production.....	46.6	34
Changed display signs to make it easier to identify food type/prices.....	45.2	33
Doing more nutrition education with market customers.....	43.8	32
More active in organization or operation of the market.....	35.6	26
Increased the number of hours or days selling at market.....	30.1	22
Sell at more markets.....	39.7	25
Offer more recipes or information for preparation.....	70.3	45
Give more samples to customers.....	60.0	39

TABLE 3. CORRELATION MATRIX OF RESPONSES TO CHANGES IN PARTICIPATION  
QUESTIONS ( $N=73$ )

	Growing a wider variety of fruits and/or vegetables to sell at market	Increasing fruit and/or vegetable production	Changed display signs to make it easier to identify food type/prices	Doing more nutrition education with market customers	More active in organization or operation of the market
Increasing fruit and/or vegetable production.....	.61**				
Changed display signs to make it easier to identify food type/prices.....	.26*	.20			
Doing more nutrition education with market customers.....	.40**	.39**	.47**		
More active in organization or operation of the market.....	.27*	.34**	.42**	.38*	
Increased the number of hours or days selling at market.....	.31**	.28*	.36*	.38**	.38

NOTE: \* $p < .01$ ; \*\* $p < .001$



nutrition education with customers ( $R = .40, p < .001$ ), which may also result in customers expanding their diets and trying new foods.

These variables measure the farmers' practices regarding all customers, not just those participating in the WIC FMNP. To get a sense of how much WIC FMNP participants are being affected by changes that farmers are making, the farmers were also asked what percentage of their overall sales was from WIC FMNP coupons (Table 4). The median response was 25% of overall sales, indicating that WIC FMNP customers are benefitting from the changes that the farmers are making because of participating in the program.

TABLE 4. DESCRIPTIVE STATISTICS FOR PERCENTAGE OF SALES FROM WIC FMNP COUPONS

N	Mean	Mode	Median	Max/Min
66	29.88	25	25	100/0

For the farmers, a main motivation for participating in the WIC FMNP is to increase their overall sales. To determine if the changes they are making are accomplishing this goal, independent sample *t*-tests were performed to measure the potential impact on mean differences in the percentage of sales from WIC FMNP participation. The results indicate that farmers who are growing a wider variety of fruits and/or vegetables to sell at the farmers' market because of participating in the WIC FMNP have a higher percentage of sales from WIC FMNP coupons ( $t = 3.88, p < .01$ ). The results also show that farmers who are increasing their fruit and/or vegetable production because of participating in the WIC FMNP also have a higher percentage of sales from WIC coupons ( $t = 4.69, p < .01$ ). Further, farmers who became more active in the organization or operation of a farmers' market once participating in the WIC FMNP also had higher sales from WIC coupons ( $t = 2.15, p < .05$ ). Besides the increase in revenue and production, most of the farmers with higher mean sales from WIC coupons also indicated that they offer more recipes and information for preparation ( $t = 1.96, p < .05$ ). This has the potential to expand the diets of WIC coupon users that may be more apt to try new fruits and vegetables that they may currently be unfamiliar with.

## DISCUSSION

The results of this study show that Florida farmers participating in the Women, Infants and Children Farmers' Market Nutrition Program in 2012 would like to

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TABLE 5. INDEPENDENT SAMPLES T-TESTS: MEAN DIFFERENCES IN PERCENTAGE OF SALES FROM WIC FMNP PARTICIPATION

		N	MEAN	<i>t</i>
Participation in WIC FMNP increased market sales. . . . .	Yes	62	31.16	
	No	2	2.50	1.66
See the coupon customers at the market without coupons. . . . .	Yes	31	30.87	
	No	11	24.82	0.76
More active in organization or operation of the market. . . . .	Yes	25	37.84	
	No	41	25.02	2.15*
Increasing fruit and/or vegetable production. . . . .	Yes	33	42.00	
	No	33	17.76	4.69**
Growing a wider variety of fruits/vegetables to sell at market. . .	Yes	42	37.79	
	No	24	16.04	3.88**
Increased the number of hours or days selling at market. . . . .	Yes	21	33.14	
	No	45	28.36	.75
Changed signs to make it easier to identify food type/prices. . . . .	Yes	31	31.97	
	No	35	28.03	.66
Doing more nutrition education with market customers. . . . .	Yes	31	34.87	
	No	35	25.46	1.60
Sell at more markets. . . . .	True	25	35.88	
	False	38	26.32	1.53
Offer more recipes or information for preparation. . . . .	True	45	33.84	
	False	19	21.00	1.96*
Give more samples to customers. . . . .	True	39	24.93	
	False	26	22.87	1.47

NOTE: \* $p < .05$ ; \*\* $p < .01$

continue participating in the program in future years. All but one farmer would recommend participating in WIC FMNP to other farmers. Past research indicates that 53% of Florida farmers earn less than \$10,000 annually from selling specialty crops and that most of the farmers must work second jobs to increase their income to a livable standard (Gaul et al. 2015). Unfortunately, this survey does not ask respondents to report their total sales, and therefore we cannot measure whether participation in the program results in a net increase in overall income. What we can do was examine differences among experiences of participants as related to the percentage of sales earned from participating in the WIC FMNP. First, farmers who grow a wider variety of fruits and vegetables to sell at farmers' markets have a higher percentage of sales stemming from WIC FMNP coupons. Second, farmers who increase their fruit and/or vegetable production have a higher percentage of sales stemming from WIC FMNP coupons. Third, farmers who become more active in the organization or operation of farmers' markets have higher percentage of sales stemming from WIC FMNP coupons. Finally, farmers who have a higher percentage of their sales stemming from WIC FMNP coupons report giving customers more recipes and information on preparation. Since all farmers surveyed would like to participate in the program next year, the FDACS should educate farmers on how they can increase their sales, based on these findings.

There were also many statistically significant relationships found between farmers doing more nutrition education with farmers' market customers and several other variables (e.g., growing more variety of fruits and vegetables and increasing production of fruit and vegetables). This directly supports past literature indicating that people do not necessarily know how to cook with fresh fruits and vegetables (Nestle 2012). Farmers can help change the health, nutrition and well-being of nutritionally at-risk populations by sharing ideas on recipes and preparation techniques. Knowledge shared between farmers and women on WIC can benefit both groups. The current study provides support for past research suggesting that women on WIC are more likely to shop and buy fruits and vegetables at farmers' markets if they participated in the FMNP (Racine et al. 2010). Furthermore, there was a significant relationship between spending more hours and days selling at farmers' markets with several other variables (e.g., growing more variety of fruits and vegetables and increasing production of fruit and vegetables). This would be the most simple and clear-cut recommendation FDACS and FDOH could offer to Florida farmers: spend more time in the farmers' markets and several positive outcomes are likely to occur. The more time farmers spend in the farmers markets,

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the more potential opportunities exist for educating potential WIC buyers and building more permanent relationships with people/customers in the community.

## CONCLUSIONS AND IMPLICATIONS

Past research shows that farmers' market managers and small operation farmers need additional assistance from the federal government. "In spite of the major limitations of both current FMNP and food stamp programs for farmers' markets...many managers...pointed to entitlements as the best sources of subsidy for low-income customers" (Guthman et al. 2006: 676). In addition, small farmers often fall on the lower rungs of the socioeconomic ladder and are among the most food insecure in the country (Alkon and Agyeman 2011). Public policies supporting farmers who grow fruits and vegetables locally should allocate more funds to assist farmers' markets become technologically capable of accepting electronic benefits. It is well documented that the inability of farmers' markets to obtain wireless EBT terminals is hindering people on WIC and other food assistance programs (e.g., SNAP) from using benefits at farmers' markets (Markowitz 2010; Racine et al. 2010).

The newest farm bill, the Agricultural Act of 2014, signed into law on February 7, 2014, increased funding for programs like WIC FMNP (USDA ERS 2014). For instance, the new bill that has been newly named the "Farmers Market and Local Food Promotion Program," which includes farmers' market nutrition programs, with an additional \$20 million annually on top of the \$10 million these programs were receiving previously (USDA 2014). It is yet to be seen whether the funding will benefit the farmers participating in these programs.

In addition we found that in Florida, the most vulnerable counties are not necessarily being the ones positively affected by this program. According to Feeding America's (2014) Hunger Study, the five most food insecure counties in Florida are the counties of Gadsen, Hamilton, Hendry, Leon and Madison. However, only two of these counties (Gadsen and Leon) participate in this Florida WIC FMNP. The findings from this study overwhelmingly show farmer support for this program and therefore expansion into other rural counties where food insecurity is the highest is imperative.

The present study is of course not without limitations. Besides the small sample size, our biggest limitations are a result of the design of the survey questionnaire. The survey did not ask basic demographic information and specifically did not ask how much income the respondents earned through farming. In addition, most of the questions were categorical greatly limiting the types of analyses that could be

performed. Surveying or interviewing the women participating in the program besides the farmers is important for the FDACS and FDOH. Future research directions should include determining whether farmers' markets that accept WIC FMNP coupons are in locations with the highest rates of people on WIC and whether those on WIC have access to the farmers' markets. Past research shows that one of the biggest obstacles of increasing success of the WIC FMNP is public transportation for WIC participants and geographic location of farmers' markets (Guthman et al. 2006; Racine et al. 2010). Geographic information systems mapping is available to assess these recommended research directions in the future.

This study supports other past research federal policy recommendations for the United States Department of Agriculture, Food and Nutrition Service. Instead of allowing states to determine whether certified farmers can accept cash-value vouchers instead of just WIC FMNP coupons, the federal government should mandate that all states implement this option. As of June 4, 2014, less than half the states authorize farmers to accept WIC cash-value vouchers (USDA FNS 2014b). If farmers could earn income from the cash-value vouchers WIC participants receive, their incomes would likely increase. Whereas the WIC FMNP allocates \$10-\$30 per year to WIC participants (USDA FNS 2014a), the cash-value vouchers give WIC participants \$6-\$10 dollars per month to spend on fruits and vegetables at grocery stores (Tessman and Fisher 2009). These programs should work together in a more comprehensive way to benefit farmers and women, infants and children. Farmers' markets in low-income communities have a lot to gain by accepting WIC's cash-value vouchers (Markowitz 2010).

#### AUTHOR BIOGRAPHIES

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