




Article

Use and benefits associated with state marketing programs

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Abstract

Many states devote to state-based marketing programs with goals of increasing demand for local products. Utilizing data from a survey of northeastern U.S. producers, we evaluate producer and farm characteristics that affect awareness and participation in state-based marketing programs. Increased sales were the main reason for program participation by producers. Main nonuser barriers to Buy Local participation is small production and believing there is no benefit in the program for both Buy Local and Farmers' Market participation. Furthermore, agricultural activities as well as farm characteristics are significant determinants of marketing program participation. Notably, business type and type of operation were consistently significant indicators of awareness and participation across marketing program. States that are wanting to increase local food consumption need to increase awareness of these programs, clarify the benefit to the farmers, and be more targeted to the farmers that the program may benefit.

Keywords: Buy Local, Farmers' Markets, State Seal of Quality, Farm and Wine Trail

JEL codes: Q13

Government programs at the state and federal level play an important role in the profitability of agricultural producers throughout the United States. As local food sales topped \$6 billion in 2012 (Low *et al.* 2015), states have devoted more efforts toward increasing local food sales by offering a variety of mechanisms for producers to access consumers. Notably, all states offer some type of state-level marketing program that attempts to increase consumer access to “local” products (Onken and Bernard 2010); thereby, attempting to increase profitability at the farm level. Initiatives include Buy Local programs, operating or licensing Farmers' Markets, Farm/Wine Trails, and a plethora of quality labeling programs. Examples of Buy Local programs include Connecticut Grown, New York State Grown, and Jersey Grown.

In order to evaluate these efforts and better understand how consumers perceive local food, there is extensive literature on consumer purchasing, perception, and willingness-to-pay. For instance, high-income consumers have been shown to be more likely to purchase local, though gender and educational effects vary (Jekanowski, Williams, and Schiek 2000; Brown 2003; Fernández-Ferrín *et al.* 2017). Furthermore, better quality, supporting the local

community, and environmental benefits are frequently cited reasons for purchasing local (Seyfang 2006; Darby *et al.* 2008; Durham, King and Roheim 2009; Hand and Martinez 2010; Onozaka, Nurse and McFadden 2010; Sharp *et al.* 2011). With respect to willingness-to-pay, price premiums for local have been shown to exist for a variety of local foods (Darby *et al.* 2008; Yue and Tong 2009; Onozaka, Nurse and McFadden 2010; Campbell *et al.* 2015). As noted by Osburn, Holcomb, and Neill (2020), there is heterogeneity between states and their willingness-to-pay for own state labels. However, price, inconvenience, lack of product choices, and limited accessibility have been shown to be barriers to purchasing local food (Chambers *et al.* 2007; Hardesty 2008).

On the supply side, Govindasamy *et al.* (2004) note that there can be “substantial economic benefits” to use a state-marketing program. For instance, the potential for receiving higher prices and shifting demand can lead to increasing producer surplus that would benefit producers (Carpio and Isengildina-Massa 2010). Furthermore, these benefits may not only benefit producers, but could positively impact the overall economy as well, including increasing social welfare (Carpio and Isengildina-Massa 2010, 2016). Hughes *et al.* (2008) found Farmers’ Markets in West Virginia generated \$1.725 million in output, and \$0.653 million in gross state product. Henneberry, Whitacre, and Agustini (2009) valued Oklahoma Farmers’ Market contributions at \$6 million in total economic output. Govindasamy *et al.* (2004) found for every dollar spent on the Jersey Fresh Program, the produce sector received \$31.54 in increased revenues. As such, understanding the barriers to state-marketing program awareness and the factors that may indicate which producers are using the programs is essential. As noted by Xie, Isengildina-Massa, and Carpio (2014), understanding participation of state-marketing programs can identify ways for state governments and private investors to efficiently allocate funds toward these programs.

This study looks to fill this gap by utilizing a unique regional dataset of northeastern agricultural producers to examine which farm characteristics impact awareness and participation of state-level Buy Local programs, Farmers’ Markets, Farm/Wine Trails, and State Seal of Quality programs. While some studies have addressed the issue of producer participation in state marketing programs (Govindasamy *et al.* 1998a; Davis, 2012; Velandia *et al.* 2014; Dudacek and Berning 2015; McLeod *et al.* 2018), their focus were mainly on specific agricultural products (e.g., fruits and vegetables) for a specific marketing program in a specific state. By using a regional dataset of producers of various agricultural products we are able to capture the heterogeneity in producer behavior across different marketing programs. Further, we examine and discuss the barriers associated with using these programs and the benefits gained by producers. This study adds to the literature by examining awareness and participation across both a diverse group of states and types of production (e.g., produce, dairy, livestock, etc.). In comparison, similar studies have focused on one state and/or one commodity.

1 Literature review

Many state marketing programs are designed to promote state grown agricultural products and increase state producer income (Carpio and Isengildina-Massa, 2016). There is a considerable amount of research exploring the impact of state marketing programs on consumer awareness and buyers’ willingness-to-pay. However, research into the producer awareness and participation of state-marketing programs is limited in comparison to demand side research. Age and education of producer, operation location, size of operation, and use of extension information are among the characteristics that have been shown to increase the probability of participation of a state-based local labeling program (Govindasamy *et al.* 1998a; Davis, 2012; Velandia *et al.* 2014; Dudacek and Berning 2015; McLeod *et al.* 2018). With respect to Farmers’ Markets, size of operation and crop grown were found to impact the probability of selling through a Farmers’ Market (Govindasamy *et al.* 1998b).

[Govindasamy et al. \(1998a\)](#) explored New Jersey agricultural grower's willingness to participate in the Jersey Fresh Program. Their study found that farmers were more likely to participate in the Jersey Fresh Program if they believed consumers were aware of the program. Regarding farmers' demographics, they found that farmers with high gross sales and higher levels of education were more likely to have used the logo, and also, more likely to use the logo in the future. The number of acres being farmed, and the age of the farmers had a negative impact on current usage and willingness to use the logos in the future. The farmers indicated that the main reason for participating in the Jersey Fresh Program was to add to the locally grown value and freshness value to their produce. Among the most cited reasons for not participating in the program were not wanting their produce to be inspected, not knowing about the program, and believing that the logo did not generate enough premium for their produce.

[Velandia et al. \(2014\)](#) evaluated the factors affecting Tennessee fruit and vegetable producers' willingness to participate in two state-funded programs, Tennessee Farm Fresh and Pick Tennessee Products (PTP), who were already aware of these two programs. Their study results showed that younger age, having greater than some high-school education, lower percentage income from farming and attending extension education events increased the likelihood of producer awareness. They also found that higher education, a lower percentage of household income derived from farming, a higher percentage of product sold as fresh and attending extension educational events increased the likelihood of participation in the PTP program. The survey respondents indicated increased sales as the primary benefit from participation while producers that did not participate in either of the programs perceived these programs to be beneficial for larger operations only. Some producers who were aware of the programs and chose not to participate reported that they did not have enough information regarding the programs to understand how they could benefit from them.

[McLeod et al. \(2018\)](#) surveyed Tennessee beef cattle producers' willingness to participate and supply beef in a hypothetical Tennessee Branded Beef Program. The results from the study suggested that more than half of the survey respondents were willing to participate only if the program was profitable. Younger producers, who were more willing to take risks in finding newer markets, were more likely to participate in the program.

As the demand for local food has increased among consumers, there has been a rapid extension of state-sponsored agricultural marketing programs. State Seal of Quality programs in the United States started with Vermont launching the Vermont Seal of Quality program in 1980 ([Onken and Bernard 2010](#)), with many other states following suite. States have different slogans and requirements for a minimum percentage of the product being produced within the state. Since participating producers must meet certain standards to be able to use a state seal on their products, the logo is believed to convey a quality assurance to consumers (see e.g., [New Hampshire Department of Agriculture, Markets and Food 2021](#)).

Another initiative to increase the consumption and access to locally and regionally produced agricultural products is the Farmers' Market Promotional Program that was established by the Congress in the Farm Security and Rural Investment Act of 2002 (farm bill). Farmers' Markets are designated locations where producers/farmers can sell their products directly to consumers. [Low et al. \(2015\)](#) reported an increase in the value of local food sales through direct-to-consumer (e.g., Farmers' Market) and intermediate marketing channels in recent years. From 1994 to 2016, the number of markets listed in the USDA National Farmers' Market Directory has increased by 394 per cent to over 8,600 markets ([USDA, AMS 2017](#)). The value of local food bought directly from farmers by consumers doubled between 1992 and 2012, with sales reaching \$1.4 billion in 2012 ([USDA, AMS 2017](#)).

Several other voluntary programs, like a Farm/Wine Trail, exist to highlight the farms that use locally grown grapes and other fruits in the production of wines at state levels.

The requirement for a producer to participate in a trail varies across states. For example, in Connecticut, all licensed wine producers are required to use a minimum of 25 per cent Connecticut grown grapes in their wines ([Connecticut Department of Agriculture 2019](#)). A survey of wine trail participants in New Zealand reported that for wineries the main benefits of participation were mainly economic, including diversification of their business ([Fraser and Alonso 2006](#)).

2 Materials and methods

During September through November 2014, an online survey was administered to agricultural producers throughout the northeastern United States (Connecticut, Maine, Massachusetts, New Hampshire, New Jersey, New York, Rhode Island, and Vermont). The survey focused on the state-level regulatory climate, participation in various state programs and costs of regulatory compliance. Since there is no definitive list of agricultural producers to use for distributing the survey, we utilized lists and distribution capabilities of state-level Farm Bureaus, university extension agents, regional agricultural associations as well as contact information from online databases. No financial incentives were provided for participation. A total of 701 surveys were attempted (not all were complete), however there is no way to calculate a response rate as the total number of surveys distributed could not be attained due to generic solicitation for participation (i.e., distributed through extension contact lists, farm bureaus, etc.). A total of 382 complete and usable responses were obtained.

With respect to the sample, 33.82 per cent of producers had their main operation in New York with only 3.40 per cent from New Jersey ([Table 1](#)). Most producers (45.34 per cent) in the sample were a sole proprietorship with limited liability company (LLC) the second most used form of business organizational structure (24.81 per cent). Fruit and vegetable production constituted the majority of agricultural production, 31.23 per cent of producers in the sample, followed by “other” (which includes timber, beekeeping, aquaculture, equine, etc.) at 28.84 per cent and dairy at 11.26 per cent. Most of the surveyed farms (47.52 per cent) had farm sales less than \$50,000 in 2013–2014, with 56.33 per cent having less than \$100,000 in sales.

We compare key characteristics of our sample to the farming population in the northeastern United States based on data obtained from 2012 Census of Agriculture. The average age of our sample and the farming population are 57 years old. However, our data contains more female operators with 67 per cent reporting male, compared to 77 per cent being male in the northeastern United States. With respect to distribution by state, our sample has relatively more responses in Connecticut, Massachusetts, and New Hampshire, compared to the farming population in the region. We also have more dairy producers, less fruit and vegetable producers, and less livestock producers compared to the farming population. Given these differences, one needs to recognize the caveat that any generalizations of the results should be to the sample and not population as a whole.

The main question of interest for this study was “What state-organized marketing programs are you aware of and do you participate in?” focusing mainly on the four state-level marketing programs described above. Producers could choose among the following options: (i) “yes aware—participate,” (ii) “yes aware—do not participate,” or (iii) “not aware.” We assume that awareness and participation is dependent upon various business characteristics as found for state-based labeling programs ([Govindasamy *et al.* 1998a](#); [Davis, 2012](#); [Velandia *et al.* 2014](#); [Dudacek and Berning 2015](#); [McLeod *et al.* 2018](#)). For example, awareness (and the decision to participate) may depend on the size of the business, type of farming activity, location of the business, and interaction with state agencies, among other factors.

Given that the question of interest was categorical in nature, we estimated a multinomial logit (MNL) model, where the probability of the i th producer selecting the j th choice of

Table 1. Descriptive statistics for the sample.

	Mean	SD	2012 Census of Agriculture (mean)
<i>State of main farming operation^a</i>			
Connecticut	15.6%	36.37%	7.52%
Maine	3.99%	19.58%	10.28%
Massachusetts	15.65%	36.37%	9.76%
New Hampshire	17.28%	37.84%	5.52%
New Jersey	3.40%	18.12%	11.41%
New York	33.82%	47.34%	44.71%
Rhode Island	4.72%	21.23%	1.56%
Vermont	4.58%	20.91%	9.23%
<i>Type of business organization^b</i>			
Sole proprietorship	45.34%	49.81%	75.33%
General proprietorship/limited partnership	7.53%	26.41%	7.79%
Limited liability company	24.81%	43.22%	7.78%
Corporation	14.18%	34.90%	6.78%
Other	5.76%	23.32%	2.33%
<i>Main agricultural product produced</i>			
Dairy	11.26%	31.64%	
Greenhouse/nursery	8.19%	27.44%	
Field crops	7.51%	26.37%	
Fruit/vegetable	31.23%	46.38%	
Livestock (beef)	5.46%	22.74%	
Non-beef livestock	7.51%	26.37%	
Other (includes timber, aquaculture, equine etc.)	28.84%	45.34%	
<i>Farm sales 2013–2014</i>			
Less than \$50,000	47.52%	49.98%	78.37%
\$50,000–\$99,999	8.81%	28.37%	6.31%
\$100,000–\$349,999	17.06%	37.65%	15.32%
\$350,000–\$1,000,000	10.09%	30.15%	–
Greater than \$1,000,000	16.51%	37.16%	–
Total number of full-time employees ^c	5.98	13.47	6.25
<i>Firm profitability trend since 2010</i>			
Profit decreased	22.33%	41.69%	
Profit unchanged	26.80%	44.33%	
Profit increased	48.35%	50.02%	
Gender (male = 1) ^b	67%	47%	77%
Mean age (years) ^b	56.95	10.21	57.74
Race (Caucasian = 1) ^d	92%	27%	98%
<i>Percentage of household income from farming</i>			
Farm income less than 25%	38.78%	48.77%	
Farm income 25–75%	26.5%	44.19%	
Farm income greater than 75%	34.75%	47.68%	

^aUnited States Department of Agriculture—National Agricultural Statistics Service (2016a).

^bUnited States Department of Agriculture—National Agricultural Statistics Service (2016b).

^cUnited States Department of Agriculture—National Agricultural Statistics Service (2016c).

^dUnited States Department of Agriculture—National Agricultural Statistics Service (2016d).

awareness and participation is estimated given a set of characteristics x_i for each producer. The probability of selecting choice j by producer i can then be modeled as

$$Prob(Y_i = j | x_i) = \frac{e^{\beta'_j x_i}}{1 + \sum_{k=1}^a e^{\beta'_k x_i}} \text{ for } j = 1, 2, 3. \quad (1)$$

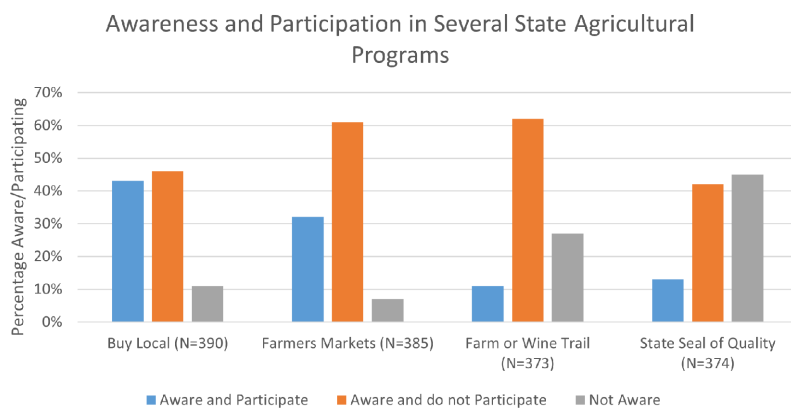


Figure 1. Awareness and participation in several state agricultural programs.

where Y_i is the observed outcome (choice), x_i includes the farm characteristics and producer's demographics, and β is the set of parameters to be estimated (Greene 2003: 721). For identification purposes, it is necessary to set $\beta_1 = 0$, thus estimating the model relative to this reference category. Log-odds ratios are then computed; however, these are often difficult to interpret. Thus, we calculate and report the marginal effects by taking the partial derivatives with respect to each explanatory variable.

In addition to the awareness and participation, we also asked producers that were aware and participated about the benefits they received from participating in each of the marketing programs. The producers were given the following choices to select from "increased sales," "a price premium over usual prices," "access to new markets," and "no benefits." Producers that were aware but did not participate were asked why they did not participate in the marketing program and were given the following as answer choices; "not enough information about the program," "lack of time to sign up," "production is too small to participate," "do not believe the program provides any benefits," and "the fee to participate is too high." We report summary statistics of these responses.

3 Results and discussion

This section is organized as follows. First, we will give an overview of the participation and awareness farmers have of several state agricultural programs, reasons for not participating in these state agricultural programs, then the perceived benefits of participating in such a program. Lastly, the factors and farm characteristics that are associated with awareness and participation of Buy Local, Farmers' Market, Farm/Wine Trail, and State Seal of Quality programs will be examined using the MNL model.

3.1 Awareness and participation

The Buy Local program had the largest percentage of producers participating followed by the Farmers' Market program. For example, 43 per cent of respondents participated in the Buy Local program, while 46 per cent were aware but did not participate in the program (Fig. 1). For the Farmers' Market program, 32 per cent participated in the program, while 61 per cent did not participate despite being aware. As expected, given the size and scope of the Buy Local and Farmers' Market programs, these programs had few producers that were not aware of them (11 and 7 per cent, respectively). The Farm/Wine Trails program and the State Seal of Quality program had few participants, ranging between 11 and 13 per cent, with a large percentage aware but not participating.

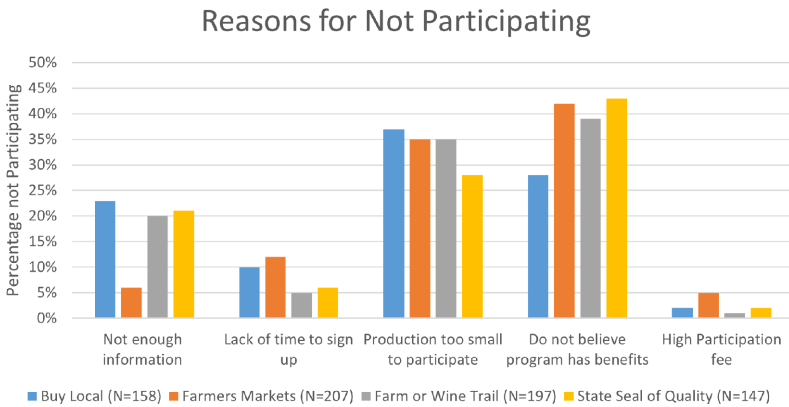


Figure 2. Reasons for not participating in various state agricultural marketing programs.

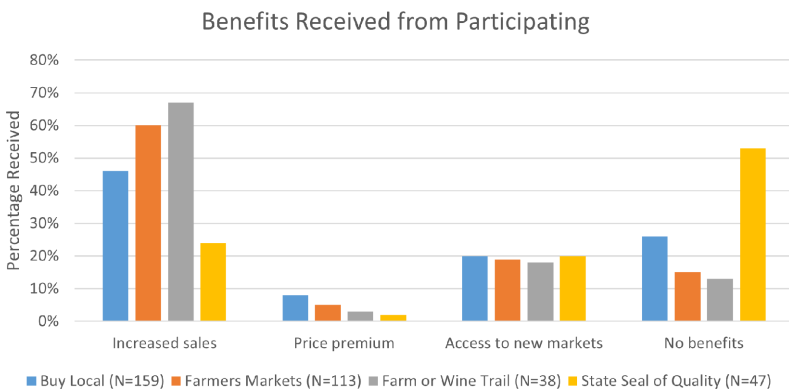


Figure 3. Benefits received from participating in various state agricultural marketing programs.

3.2 Reasons for not participating

The main reason for not participating in a Buy Local program is the producer belief that production is too small (37 per cent) followed by a belief the program does not offer any benefits (28 per cent) (Fig. 2). A considerable number of producers (23 per cent) stated the lack of information as a reason for not participating in the Buy Local program that was also one of the most cited reasons found in Govindasamy *et al.* (1998a) and Velandia *et al.* (2014). For the Farmers' Market, Farm/Wine Trails, and State Seal of Quality programs, we find that producers primarily do not believe that these programs provide benefits with production being too small as the second most cited reason. Based on these results it is clear that state agencies and other stakeholders wanting to increase producer participation in these programs should focus on highlighting program benefits and finding ways to incorporate smaller producers into the programs.

3.3 Benefits of participating

The primary reason for participating in the Buy Local, Farmers' Market, and Farm/Wine Trail programs is increased sales (Fig. 3). Access to new markets was also a commonly cited benefit to these programs. For Buy Local, our results are similar to that of Velandia *et al.* (2014). Interestingly, 26 per cent of the producers that participate in the Buy Local program indicated there was no benefit. Similarly, 15 and 13 per cent of Farmers' Market

and Farm/Wine Trail participants indicated they found no benefit in the programs they were participating in, respectively. With respect to State Seal of Quality programs, more than 50 per cent of the producers that participate in these programs indicated there was no benefit to participation. So in essence, these producers are putting resources toward a program that they believe provides no benefit. The reason for this is not exactly known and is worth researching in more depth. One hypothesis is that the producers feel that they need to be a part of the program just so they can be seen as participating even though it is perceived to have no direct benefit. It is also possible there was an expected benefit when they first started to participate in the program but have been unable to subsequently achieve that benefit.

3.4 Marginal effects associated with Buy Local

The marginal effects for if a farmer is aware and participates, aware and does not participate, or if they are not aware of a Buy Local program are in [Table 2](#). Notably, Vermont producers were more likely to be aware of and not participate in the state Buy Local program compared to Connecticut. We hypothesize that this state difference is the result of saturation of local messaging in Vermont compared to Connecticut so that Vermont producers do not feel the local label adds to their sales strategy. With respect to business type, corporations were 22.7 per cent more likely and general proprietorships were 37.5 per cent less likely to be aware and participate in the Buy Local program compared to a sole proprietorship. This result differs from [McLeod *et al.* \(2018\)](#) as they found sole proprietorship did not affect participation in the program. The reason for the difference could be [McLeod *et al.* \(2018\)](#) aggregated all nonsole proprietorship categories whereby our analysis categorized them separately or the makeup of their sample (i.e., small scale beef cattle producers).

Nurseries and equine operations were 32.5 and 43.7 per cent less likely, respectively, to participate in Buy Local compared to dairy operations. This is not surprising as most local programs tend to be geared toward foods and not plants. Even though consumers tend to perceive the benefits of local labeling similarly for food and plants ([Zaffou *et al.*, 2017](#)), the frequency of purchase of equine and nursery products (less frequent compared to dairy) could be driving producers to not see a perceived return on participating in the Buy Local programs. Of key interest is the role of the department of agriculture and state/regional development agencies in assisting farmers dealing with state regulations and support for agricultural expansion. Farmers that responded that they received help from the department of agriculture to deal with state regulations and regulatory agencies “all the time” are 25.5 per cent more likely to participate and farmers that responded they received assistance from state/regional agencies for agricultural expansion “all the time” are 27.4 per cent more likely to participate in a Buy Local program. This result is consistent with [Govindasamy *et al.* \(1998b\)](#), [Davis \(2012\)](#), and [Velandia *et al.* \(2014\)](#) in that obtaining educational resources from extension or government increase program participation.

When examining those firms that are aware but do not participate, we see that general proprietorships are more likely to not participate in Buy Local programs for which they are aware. Meanwhile, corporations are less likely to be aware of the program and not participate. Furthermore, equine operators are more likely to not participate. With respect to not being aware of the Buy Local program, business organization type came out to be the only determining factor with limited partnership and others (including community garden, hobby farms, nonprofit, etc.) being less likely to not be aware of the program.

3.5 Marginal effects associated with Farmers' Markets

With respect to Farmers' Market participation, business organization type and type of products grown on farms were the major determining factors ([Table 3](#)). Farm operations established as limited LLCs and corporations were 19.7 and 17.8 per cent more likely than sole proprietorships to sell at a Farmers' Market, respectively. This could be the result of LLCs

Table 2. Marginal effects from the MNL model for aware/participation in the Buy Local program.

	Buy Local					
	Aware/ participate		Aware/ do not participate		Not aware	
	Marginal effect	Standard error	Marginal effect	Standard error	Marginal effect	Standard error
<i>State of production (baseline = Connecticut)</i>						
Maine	0.141	0.94	-0.182	-1.25	0.041	0.43
Massachusetts	-0.020	-0.19	-0.052	-0.50	0.072	1.18
New Hampshire	0.066	0.58	-0.108	-0.95	0.042	0.71
New Jersey	-0.156	-0.96	0.029	0.17	0.127	1.03
New York	-0.051	-0.54	-0.018	-0.19	0.068	1.33
Rhode Island	0.177	1.18	-0.220	-1.58	0.043	0.45
Vermont	-0.261*	-1.81	0.314**	2.16	-0.053	-1.44
<i>Business organization type (baseline = sole proprietorship)</i>						
General proprietorship	-0.375***	-8.64	0.436***	5.13	-0.061	-0.77
Limited partnership	0.139	1.07	-0.016	-0.12	-0.123***	-3.58
Limited liability Company	0.125	1.63	-0.131*	-1.70	0.006	0.09
Corporation	0.227**	2.55	-0.178**	-2.01	-0.049	-0.85
Other	-0.082	-0.64	0.205	1.59	-0.123***	-3.58
<i>Main farm activity (baseline = dairy)</i>						
Greenhouse	-0.116	-0.78	0.022	0.14	0.094	0.75
Field crops	-0.058	-0.37	0.143	0.90	-0.085	-1.37
Fruits and vegetables	0.119	1.12	-0.165	-1.54	0.047	0.67
Livestock (beef)	-0.021	-0.12	-0.118	-0.70	0.138	1.05
Equine	-0.437***	-4.65	0.425***	3.04	0.012	0.10
Other activities	0.035	0.28	0.030	0.24	-0.065	-0.99
Livestock (non-beef, non-dairy)	-0.060	-0.42	0.073	0.50	-0.013	-0.15
Nursery	-0.325**	-2.43	0.308*	1.91	0.018	0.15
Aquaculture	-0.002	-0.01	0.087	0.29	-0.085	-1.37
Timber	0.064	0.30	-0.279*	-1.73	0.215	1.15
Total full-time employees	-0.001	-0.22	-0.001	-0.32	0.002	0.80
<i>Sales range in 2013–2014 (baseline: below \$100,000)</i>						
Between \$100,000 and \$350,000	0.083	0.85	-0.000	-0.00	-0.083	-1.57
Between \$350,000 and \$750,000	-0.035	-0.27	0.017	0.14	0.018	0.19
More than \$750,000	-0.079	-0.66	0.116	0.95	-0.036	-0.46
<i>Farm profitability trend since 2010 (baseline = decreasing profits)</i>						
Profits unchanged	0.083	0.98	-0.029	-0.36	-0.053	-0.94
Profits increased	-0.004	-0.05	0.040	0.53	-0.036	-0.66
Age	0.002	0.90	-0.002	-0.74	-0.000	-0.23
Female	0.042	0.60	-0.067	-0.95	0.025	0.49
<i>Percentage of household income from farming (baseline = less than 25%)</i>						
Between 25 and 75%	-0.044	-0.57	0.0449	0.58	-0.00127	-0.03
Greater than 75%	-0.028	-0.29	0.0444	0.47	-0.0168	-0.28
AgencyHelp (= 1 if received help from Department of Agriculture all the time to deal with regulatory agencies)	0.255**	2.22	-0.167	-1.41	-0.0882	-0.95
AgencyHelp (= 1 if received help all the time from state/regional agency to support agricultural expansion)	0.274**	2.40	-0.268**	-2.22	-0.00517	-0.07
N	271					

$P < 0.1$, ** $P < 0.05$, *** $P < 0.01$.

Table 3. Marginal effects from the MNL model for aware/participation in the Farmers' Market program.

	Farmers' Market					
	Aware/ participate		Aware/ do not participate		Not aware	
	Marginal effect	Standard error	Marginal effect	Standard error	Marginal effect	Standard error
<i>State of production (baseline = Connecticut)</i>						
Maine	-0.107	-0.92	0.103	0.74	0.004	0.05
Massachusetts	0.081	0.91	-0.097	-0.97	0.017	0.27
New Hampshire	0.153	1.58	-0.105	-1.00	-0.047	-0.87
New Jersey	0.034	0.20	-0.102	-0.57	0.068	0.47
New York	0.019	0.23	0.024	0.26	-0.042	-0.80
Rhode Island	0.016	0.12	0.058	0.42	-0.074	-1.56
Vermont	0.058	0.36	-0.115	-0.67	0.058	0.49
<i>Business organization type (baseline = sole proprietorship)</i>						
General proprietorship	-0.138	-1.19	0.126	0.86	0.012	0.12
Limited partnership	0.068	0.51	0.023	0.17	-0.091***	-2.71
Limited liability company	0.197***	2.82	-0.170**	-2.15	-0.027	-0.50
Corporation	0.178**	2.12	-0.088	-0.98	-0.091***	-2.71
Other	0.223	1.50	-0.133	-0.88	-0.091***	-2.71
<i>Main farm activity (baseline = dairy)</i>						
Greenhouse	0.063	0.42	-0.103	-0.58	0.041	0.21
Field crops	-0.253***	-3.04	0.447***	4.15	-0.193*	-1.83
Fruits and vegetables	0.224**	2.29	-0.087	-0.74	-0.137	-1.30
Livestock (beef)	0.048	0.33	0.069	0.41	-0.117	-0.92
Equine	-0.253**	-3.04	0.328**	2.23	-0.075	-0.52
Other activities	0.039	0.37	0.136	1.07	-0.175	-1.61
Livestock (non-beef, non-dairy)	0.099	0.74	0.064	0.42	-0.164	-1.49
Nursery	-0.253***	-3.04	0.154	0.81	0.010	0.54
Aquaculture	0.143	0.56	0.051	0.19	-0.193*	-1.80
Timber	-0.120	-0.83	0.248	1.47	-0.128	-1.02
Total full-time employees	-0.001	-0.36	0.001	0.32	0.000	0.01
<i>Sales range in 2013–2014 (baseline: below \$100,000)</i>						
Between \$100,000 and \$350,000	0.088	1.00	-0.018	-0.20	-0.069*	-1.73
Between \$350,000 and \$750,000	-0.011	-0.09	0.094	0.78	-0.083**	-2.36
More than \$750,000	-0.169*	-1.72	0.188	1.61	-0.020	-0.23
<i>Farm profitability trend since 2010 (baseline = decreasing profits)</i>						
Profits unchanged	0.025	0.33	0.058	0.69	-0.084*	-1.68
Profits increased	0.041	0.59	0.041	0.53	-0.082*	-1.69
Age	-0.000	-0.08	0.002	0.65	-0.002	-1.06
Female	0.002	0.03	-0.010	-0.15	0.008	0.20
<i>Percentage of household income from farming (baseline = less than 25%)</i>						
Between 25 and 75%	-0.022	-0.31	0.036	0.48	-0.014	-0.40
Greater than 75%	-0.125	-1.52	0.126	1.42	-0.001	-0.03
AgencyHelp (= 1 if received help from Department of Agriculture all the time to deal with regulatory agencies)	0.224**	2.55	-0.182*	-1.81	-0.042	-0.76
AgencyHelp (= 1 if received help all the time from state/regional agency to support agricultural expansion)	-0.027	-0.26	-0.063	-0.58	0.090**	2.17
N	267					

P < 0.1, **P < 0.05, ***P < 0.01.

having limited liability at the personal level for producers, thereby, lowering the risk of selling direct-to-consumer. Furthermore, we find that field crops, equine and nursery productions are less likely to sell at a Farmers' Market, while fruit and vegetable producers are 22.4 per cent more likely to sell at a Farmers' Market compared to dairy producers. Compared to producers with sales below \$100,000, producers with sales above \$750,000 are 16.9 per cent less likely to sell at Farmers' Markets. Similar to the Buy Local program, producers who received help from the department of agriculture all the time to deal with state regulations are 22.4 per cent more likely to participate in a Farmers' Market program.

On the other hand, LLCs are less likely to sell at Farmers' Markets even though they are aware of them compared to farms that are operated as sole proprietorships. Field crop and equine producers are more likely to not participate in Farmers' Market program even if they are aware. Regarding not being aware of the program, business organization type and financial situation of the producers were the major determinants. Producers who had sales in the range between \$100,000–\$350,000 and \$350,000–\$750,000 were less likely to not be aware of the program compared to the producers with sales less than \$100,000. Also, producers who had an increasing or unchanged trend in profits since 2010 were less likely to not be aware of the program. Both observations indicate that producers with lower income and decreasing profitability are more likely to not know about this program and therefore, could potentially profit from more information about the benefits of participating in the program.

3.6 Marginal effects associated with Farm/Wine Trail and State Seal of Quality programs

The participation rate for other state programs, Farm/Wine Trail and State Seal of Quality, is very low, ranging between 11 and 13 per cent. The location of the producers, the business organization type and the type of agricultural products grown on farms were the major determinants of participation (Table 4 and Table 5). Producers in Vermont and Rhode Island were less likely to participate in the Farm/Wine Trail program while producers in New York were more likely to participate in the State Seal of Quality program compared to the producers in Connecticut. General proprietorships were less likely to participate in the Farm/Wine Trail program while LLCs were more likely to participate in the Farm/Wine Trail and the State Seal of Quality program compared to sole proprietorships. Focusing on agricultural production, the Farm/Wine Trail has the most significant differences as the other programs are generally similar to fruit/vegetable producers. Among agricultural products, fruits and vegetable producers were 9.85 per cent more likely to participate in the Farm/Wine Trail program, and 14.7 per cent more likely to participate in the State Seal of Quality program. Further, we see that as the number of total full-time employees increases, the probability of participating in the Farm/Wine Trails increases. We also see that as the percentage of household income from farming increases, the respondents become more likely to not participate in the State Seal of Quality program, despite being aware of the program.

In comparison to the Buy Local and Farmers' Market results, the other program results have a lot of state variation around awareness (Table 3). For instance, Maine, New Hampshire, and New Jersey producers are less likely to be aware of but not participate in a Farm/Wine Trail than Connecticut producers, while Maine, New Jersey, and Rhode Island producers are more likely to not be aware of this program. In comparison, Massachusetts, New Hampshire, New York, and Vermont producers are more likely to be aware of but not participate in State Seal of Quality programs than Connecticut producers, while Massachusetts, New Hampshire, New York, and Vermont producers are more likely to be not aware of the program. The exact reason for these differences are unknown, however, these results capture some state specific variation (compared to Connecticut) that is not captured by other variables in our model.

Table 4. Marginal effects from the MNL models for awareness and participation in Farm/Wine Trail program.

	Farm/Wine Trail					
	Aware/ participate		Aware/ do not participate		Not aware	
	Marginal effect	Standard error	Marginal effect	Standard error	Marginal effect	Standard error
<i>State of production (baseline = Connecticut)</i>						
Maine	0.005	0.06	-0.388**	-2.39	0.383**	2.42
Massachusetts	0.039	0.66	-0.165	-1.62	0.125	1.35
New Hampshire	0.065	0.92	-0.203*	-1.86	0.138	1.35
New Jersey	0.088	0.77	-0.422**	-2.58	0.335**	2.01
New York	0.083	1.45	-0.038	-0.43	-0.044	-0.59
Rhode Island	-0.082**	-2.05	-0.180	-1.11	0.262*	1.65
Vermont	-0.082**	-2.05	-0.226	-1.15	0.308	1.58
<i>Business organization type (baseline = sole proprietorship)</i>						
General proprietorship	-0.043**	-2.14	0.008	0.04	0.035	0.18
Limited partnership	0.121	1.18	0.029	0.19	-0.150	-1.03
Limited liability company	0.168***	3.35	-0.112	-1.40	-0.056	-0.74
Corporation	0.126**	2.03	0.081	0.88	-0.207***	-2.68
Other	0.040	0.51	0.081	0.59	-0.121	-1.01
<i>Main farm activity (baseline = dairy)</i>						
Greenhouse	-0.063*	-1.73	0.093	0.63	-0.029	-0.20
Field crops	-0.063*	-1.73	0.072	0.51	-0.010	-0.06
Fruits and vegetables	0.100**	2.01	-0.152	-1.44	0.053	0.52
Livestock (beef)	-0.063*	-1.73	-0.103	-0.64	0.166	1.05
Equine	-0.063*	-1.73	0.079	0.49	-0.015	-0.10
Other activities	0.216**	2.72	-0.142	-1.19	-0.075	-0.73
Livestock (non-beef, non-dairy)	0.055	0.53	0.026	0.18	-0.081	-0.71
Nursery	-0.063*	-1.73	0.031	0.17	0.0329	0.19
Aquaculture	0.076	0.56	-0.531***	-2.92	0.455**	2.03
Timber	-0.063*	-1.73	-0.263	-1.33	0.326*	1.66
Total full-time employees	0.002*	1.70	-0.000	-0.08	-0.002	-0.44
<i>Sales range in 2013–2014 (baseline = below \$100,000)</i>						
Between \$100,000 and \$350,000	0.149**	2.38	-0.065	-0.75	-0.084	-1.13
Between \$350,000 and \$750,000	0.174*	1.88	-0.313***	-2.65	0.139	1.11
More than \$750,000	0.085	1.13	-0.097	-0.81	0.013	0.11
<i>Farm profitability trend since 2010 (baseline = decreasing profits)</i>						
Profits unchanged	-0.081	-1.38	0.200**	2.36	-0.119	-1.62
Profits increased	-0.068	-1.40	0.102	1.29	-0.034	-0.45
Age	-0.003	-1.47	0.004	1.56	-0.002	-0.67
Female	0.037	0.77	-0.096	-1.39	0.058	0.93
<i>Percentage of household income from farming (baseline = less than 25%)</i>						
Between 25 and 75%	-0.084	-1.33	0.126	1.61	-0.042	-0.64
Greater than 75%	-0.109*	-1.69	0.141	1.57	-0.032	-0.42
AgencyHelp (= 1 if received help from Department of Agriculture all the time to deal with regulatory agencies)	0.063	1.14	0.170	1.62	-0.233**	2.35
AgencyHelp (= 1 if received help from state/regional agency to support agricultural expansion all the time)	0.082	1.33	-0.057	-0.55	-0.025	-0.25
N	261					

P < 0.1, **P < 0.05, ***P < 0.01.

Table 5. Marginal effects from the MNL models for awareness and participation in State Seal of Quality program.

	State Seal of Quality					
	Aware/ participate		Aware/ do not participate		Not aware	
	Marginal effect	Standard error	Marginal effect	Standard error	Marginal effect	Standard error
<i>State of production (baseline = Connecticut)</i>						
Maine	0.016	0.16	0.096	0.56	-0.112	-0.66
Massachusetts	0.044	0.61	0.298***	2.78	-0.342***	-3.24
New Hampshire	0.048	0.67	0.202*	1.71	-0.250**	-2.13
New Jersey	-0.050	-0.84	-0.116	-0.91	0.166	1.23
New York	0.143**	2.29	0.182*	1.89	-0.324***	-3.28
Rhode Island	0.117	0.91	-0.002	-0.02	-0.115	-0.72
Vermont	-0.083*	-1.77	0.436**	2.52	-0.353**	-2.01
<i>Business organization type (baseline = sole proprietorship)</i>						
General proprietorship	0.005	0.05	0.295*	1.78	-0.300**	-2.09
Limited partnership	0.223*	1.66	-0.034	-0.23	-0.189	-1.52
Limited liability company	0.181***	2.96	-0.204***	-2.62	0.023	0.29
Corporation	0.120	1.76	-0.094	-0.94	-0.027	-0.28
Other	0.148	1.23	0.027	0.16	-0.175	-1.28
<i>Main farm activity (baseline = dairy)</i>						
Greenhouse	0.035	1.42	-0.165	-1.18	0.130	0.89
Field crops	0.073	0.85	0.044	0.28	-0.118	-0.79
Fruits and vegetables	0.147***	2.88	-0.010	-0.10	-0.136	-1.36
Livestock (beef)	0.167	1.32	-0.060	-0.39	-0.107	-0.69
Equine	-0.053*	-1.71	0.265	1.59	-0.212	-1.27
Other activities	0.173**	2.30	-0.013	-0.11	-0.160	-1.42
Livestock (non-beef, non-dairy)	0.104	0.99	0.038	0.27	-0.142	-1.02
Nursery	0.104	0.99	0.171	0.99	-0.275*	-1.83
Aquaculture	-0.053*	-1.71	-0.034	-0.12	0.091	0.29
Timber	0.137	0.74	-0.136	-0.73	-0.001	-0.01
Total full-time employees	0.001	0.41	0.001	0.14	-0.001	-0.33
<i>Sales range in 2013–2014 (baseline = below \$100,000)</i>						
Between \$100,000 and \$350,000	0.046	0.69	0.132	1.29	-0.178*	-1.84
Between \$350,000 and \$750,000	0.070	0.75	-0.122	-0.96	0.051	0.39
More than \$750,000	0.119	1.32	-0.024	-0.19	-0.095	-0.77
<i>Farm profitability trend since 2010 (baseline = decreasing profits)</i>						
Profits unchanged	0.012	0.16	0.021	0.24	-0.034	-0.40
Profits increased	-0.075	-1.24	0.050	0.63	0.025	0.31
Age	-0.001	-0.24	0.001	0.49	-0.001	-0.33
Female	0.044	0.75	-0.086	-1.20	0.042	0.60
<i>Percentage of household income from farming (baseline = less than 25%)</i>						
Between 25 and 75%	0.058	0.87	0.140*	1.81	-0.198**	-2.53
Greater than 75%	-0.027	-0.40	0.215**	2.31	-0.188**	-1.96
AgencyHelp (= 1 if received help from Department of Agriculture all the time to deal with regulatory agencies)	0.232***	3.31	0.100	0.89	-0.332***	-2.92
AgencyHelp (= 1 if received help from state/regional agency to support agricultural expansion all the time)	-0.015	-0.19	-0.125	-1.14	0.140	1.36
N	260					

* $P < 0.1$, ** $P < 0.05$, *** $P < 0.01$.

4 Conclusions

Many studies have focused on the demand side of state programs, such as Buy Local campaigns and Farmers' Markets. This study attempted to gain a better understanding of the supply side by examining producer awareness and usage of several state-sponsored programs. Using a sample of agricultural producers from the northeastern United States, we evaluate usage and reasons for usage of these programs.

Our results find that state, type of business organization, and the main agricultural product produced played a role in the usage of state marketing programs. The effects of these characteristics varied by program. Further, we find that a large percentage of nonparticipants cite no benefits as one reason why they do not participate. Similarly, a large percentage of participants see no benefit in their participation, but they still participate. Producers that do find a benefit indicate that increased sales are the primary benefit of their participation. These results should be of interest to state agencies as they evaluate program participation and benefits of such programs. Additionally, it is recommended that increased education of programs and finding new opportunities for small producers can bolster the usage and benefits of these state programs. As noted by Govindasamy *et al.* (2004), an increase in state expenditures on promoting local programs increases revenue for producers, but also increases economic activity. However, caution is noted that potential benefits of state-based marketing programs may suffer from a "beggar-thy-neighbor" effect that in some cases can create a spillover effect, either positive or negative, from neighboring state marketing programs (Neill, Holcomb, and Lusk 2019).

With respect to specific recommendations, state agencies and other entities that want to increase local food consumption should focus efforts on identifying firms that can benefit from the programs. Using the results from this study, these entities can more effectively focus their efforts on increasing awareness and usage. Notably, the state-based local marketing programs are usually inexpensive to participate in and have the potential to generate sales. Efforts to emphasize this point to producers could not only increase awareness but offset some of the reasons why producers do not utilize the program. Entities wanting to get producers to utilize Farmers' Markets should work to identify producers that have capacity to participate but are either unaware or perceive themselves to have too small of production.

Conflict of interest

The authors certify that they have no conflicts of interest associated with this manuscript.

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Data availability

Data is available from the authors upon request.

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