

Determinants of Effective Beginning Farmer Programming and Implications for Future Programs

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This research explores the determinants of effective beginning farmer programming and implications for emerging and established programs. We use responses from 100 interviews with participants in the Building Farmers in the West Program, one of the longest-standing beginning farmer training programs in the United States, to understand how key course principles predict improved farm profitability. Results show that specific production changes after taking the course—including the number of cultivated varieties (negative), number of farm enterprises (positive), and length of production season (positive)—are correlated with improved farm profitability. We make recommendations for future beginning farmer programming based on these results.

Key words: beginning farmers and ranchers, direct marketing, Farm Bill, program impact assessment, season extension, USDA

Introduction

U.S. policy-makers are increasingly interested in supporting education and technical assistance for beginning farmers and ranchers, defined by the USDA as principal operators who have been on their current operation ten or fewer years. In late 2015, for example, the U.S. Department of Agriculture (USDA) announced its effort to prioritize \$5.6 billion over the following two years to support beginning farmers and ranchers. This included a goal for an additional 6.6% of beginning farmers and ranchers to participate across key USDA programs, which were established or strengthened by the 2014 Farm Bill (U.S. Department of Agriculture, Office of Communications, 2015). Congress has also mandated that the Farm Credit System serve the credit needs of young, beginning small (YBS) farmers and ranchers. Accordingly, the Farm Credit Council held its first conference in 2015 for Farm Credit YBS loan officers to discuss lending to the next generation of agricultural producers (Farm Credit Council, 2015).

This policy support comes at a time when the United States reported 522,058 beginning farmers, operating 25% of U.S. farms, controlling 16% of farmland, and producing 15% of the value of agricultural products sold in 2012 (U.S. Department of Agriculture, National Agricultural Statistics Service, 2014a). These beginning farmers and ranchers play an important role given long-term trends of decreased farm numbers; the 2012 Census of Agriculture shows 2.1 million farms, down 4.3% from the 2007 Census of Agriculture (U.S. Department of Agriculture, National Agricultural Statistics Service, 2014b). Further, data from the 2012 Census of Agriculture indicate that 91.5

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million acres (almost 10% of farmland in the continental United States) will change hands before 2020; however, there were 20% fewer beginning farmers in 2012 than in 2007 (U.S. Department of Agriculture, National Agricultural Statistics Service, 2014a,c).

Despite federal government efforts to support beginning farmer programming, Niewolny and Lillard (2010) write that “beginning farmer training and program development in the United States is one of the most significant yet poorly understood areas of agriculture, food system, and community development research and practice,” and they call for “expanded boundaries of what constitutes meaningful education for beginning farmers” (p. 65).

This research explores the determinants of effective beginning farmer programming (defined as increasing net farm profitability after participating in an eight-week business development course) and the implications for emerging and established programs. We use interview results from 100 participants in the Building Farmers in the West program, one of the longest-running beginning farmer/rancher training programs in the United States, to understand how key course principles (product and market diversification, length of production season, investment in infrastructure, mentorship, and scale) predict improved farm profitability. Most of the analysis focuses on managerial practices that change following course participation. For example, results show that changes in the number of cultivated varieties is negatively correlated with improved farm profitability following course participation, and the number of farm enterprises—as well as length of production season—are positively correlated with improved farm profitability. Although we had *a priori* expectations to the contrary, the variety of market channels used, the establishment of mentorship relationships, and investment in infrastructure were not significant.

We found other enterprise characteristics that also matter. For example, farms or ranches located closer to urban centers are significantly more likely to increase net profitability after course participation, perhaps due to greater market access. Based on the results of this research, we make recommendations to improve the focus, content, and structure of future beginning farmer programming.

Literature Review

Part of the challenge in establishing and determining what constitutes successful beginning farmer training and programming is that operations run by beginning farmers and ranchers are different—both demographically and in terms of the business itself—from more established farms. In 2012, beginning farmers were on average younger than more established farmers, more likely to be female and/or minorities, more likely to spend time working off the farm, and less likely to consider farming to be their primary occupation. However, Ahearn (2011) notes that beginning farmers are a heterogeneous population, more so than the established farm population, making targeted programming difficult.

There is also a “paucity of work that investigates factors that influence the financial performance of new and beginning farm households” (Mishra, Wilson, and Williams, 2009, p. 161). Using 2005 USDA Agricultural Resource Management Survey data, Mishra, Wilson, and Williams (2009) conducted some of the only research exploring factors affecting financial performance of new and beginning farmers. Their 2009 study reports that these operators are twice as likely to be tenants and have average net farm income 5.5 times less than experienced operators, higher interest payments, and farm assets about half the size of more established farm operators. Additionally, they find that tenants, compared to full owners, have higher return on assets and that farms involved in processing the agricultural product, or value-added activities, are more likely to have a higher return on assets.

More recent 2012 Census of Agriculture data show that beginning farmers have smaller operations (both in terms of sales and acreage), have higher expense-to-sales ratios, and receive less in government payments than more established operations (U.S. Department of Agriculture, National Agricultural Statistics Service, 2014a). However, understanding beginning farmers’ financial performance is difficult, partly due to limited and inconsistent data on this population.

As an example, the definition of “beginning” farmer differs across USDA programs, the Census of Agriculture, and the Farm Credit Administration; the Census defines beginning farmers by the number of years spent farming their *current* farm operation, whereas the USDA National Institute of Food and Agriculture’s Beginning Farmer and Rancher Development program defines program eligibility by the years spent operating *any* farm (Ahearn, 2011).

There is evidence, however, that farms and ranches operated by beginning farmers use different marketing channels compared to those run by more established operators, often targeting consumers interested in buying “local” or products that are otherwise differentiated from traditional commodities (U.S. Department of Agriculture, National Agricultural Statistics Service, 2014a; Thilmany McFadden and Sureshwaran, 2011). In fact, farms and ranches operated by beginning farmers accounted for 22% of products sold directly to consumers in 2012 (U.S. Department of Agriculture, National Agricultural Statistics Service, 2014a).

Federal agencies have noted that beginning farmers use diverse markets and have worked to create policies to support the development of scale-appropriate infrastructure to serve beginning farmer enterprises. For example, food hubs—local food aggregation and distribution businesses promoted by the USDA—are incentivized specifically to create “opportunities for small and beginning farmers to scale up” (Barham et al., 2012). The 2013 National Food Hub Survey found that 76% of food hubs worked exclusively or mostly with farms with under \$500,000 in annual sales, of which 26% were beginning farmers (Fischer et al., 2013). Yet benchmark or other financial data associated with these markets is scant (Jablonski and Schmit, 2016), despite growing evidence that these marketing channels often require a modified approach to production planning and implementation that begins with changing the farm business structure and modes of production to meet food demand according to the marketing outlets used to reach consumers (Thilmany McFadden and Sureshwaran, 2011).

Despite the use and promotion of these alternative markets among beginning farmers and ranchers, there is limited evidence confirming the profitability implications of these channels. Census of Agriculture data show that the survival rate¹ among beginning farms marketing directly to consumers was higher than for beginning farms marketing their products through more traditional channels (54.3% compared to 47.4%). However, these data also show that beginning farmers who sold direct to consumers had slower sales growth than beginning farmers who used traditional channels (17.9% increased sales between 2007 and 2012 compared to 25.6% for those without direct sales) (Low et al., 2015).

Methods

To explore the determinants of effective beginning farmer programming and the potential implications for emerging programs, we assessed one of the longest-standing beginning farmer/rancher programs in the United States, the Building Farmers in the West program. We conducted interviews with 100 former program participants between January and April 2015.² Survey respondents participated in one or two levels of Building Farmers in the West courses (Principles of Business Planning and Management and/or Advanced Classes) in one of eight states (CO, OR, ID, NV, NM, WY, UT, AZ) between 2008 and 2014.³ Approximately twenty-

¹ A farm business is considered to have survived if its operator reported positive sales in consecutive agricultural censuses (Low et al., 2015).

² Note that this assessment was built on the short-term assessments, which included pre, post, and nine-month follow-up surveys, and two-to-three-year follow-up phone interviews with all program participants. Details are available from the corresponding author upon request. Furthermore, of the 400 previous program participants, we interviewed 100, for a response rate of 25%.

³ The Building Farmers in the West program received two consecutive grants from the USDA’s Beginning Farmer and Rancher Development program (2010–2012 and 2013–2015). The program operated in the pre-grant period (2007–2009) with support from Colorado State University Extension and the Western Extension Risk Management Education Center.

five programs were offered during that timeframe, and almost all followed a similar instructional approach.

The Principles of Business Planning and Management program is a series of eight two-hour classes designed to help beginning farmers and ranchers explore farming as a business and provide intermediate and experienced farmers and ranchers with tools and ideas to refine and enhance their business management, production, and marketing skills. Advanced classes are also available for individuals who successfully complete the Principles of Business Planning and Management program as well as to more established producers who advise or teach the beginning courses. These classes are structured to provide additional “advanced”-level programming in key business-planning topics.

Given the lack of best practice information in the literature for beginning farmer and rancher development and programming (Niewolny and Lillard, 2010), the Washington State University leadership of the Building Farmers in the West team conducted a survey of experts across the United States. The survey asked these key stakeholders—including Extension, small business and farm organization leaders who had worked with beginning farmers—to identify documents, presentations, and other materials adapted or adaptable to beginning farms and ranches with diverse production systems, including those who were addressing alternative markets. A listing of the subjects evaluated by survey respondents can be found in the appendix. Note that the information obtained from the Washington State survey was only used to determine curriculum for the Building Farmer program and not in its subsequent evaluation.

Thirty people representing thirty-two states responded to the Washington State survey, ranking business plan development, marketing planning, financial management and analysis, recordkeeping/accounting practices, and food safety in direct markets as the five most important topics. From the list of subjects, the curriculum committee found sufficient evidence to support the integration of several key course areas. Specific to business planning and marketing, the key stakeholders noted the importance of concentrating production on a few key varieties that could be produced efficiently and at high quality (to capture scale efficiency), while maintaining diversity in the number of farm enterprises (e.g., vegetables, livestock, flowers, orchard fruits) and market outlets (e.g., farm stands, CSAs, farmers’ markets, food hubs) to take advantage of diversification and economics of scope.

Two other notable business and marketing recommendations included limiting capital investments during the start-up phase, particularly in infrastructure and equipment, and increasing length of the production season (via high tunnels or other season extension practices) to take advantage of the limited supply of locally grown products in markets during non-summer months. These themes were addressed in presentations but, more importantly, they were shared as success stories from those community producers who taught the courses to add credibility and relevance.

In addition, many of the key stakeholders remarked that mentorship was a fundamental component of course development. Accordingly, the classroom experience was augmented with experiential learning programs. Intermediate and experienced farmers and ranchers who taught courses in the community-based programs were also integrated into the training process to share their insights and further refine the tools and ideas needed to enhance their business management, production, and marketing skills.

Empirical Methods

As the Building Farmers in the West curriculum intentionally integrated the recommendations of key stakeholders (as delineated above), the goal of the evaluation is to ascertain how adopting those principles may have affected program participants’ farm businesses. To assess whether adopting these principles had an impact on the success of participating farms and ranches, and to minimize the amount of information we had to solicit from participants, we define “success” as increasing profitability after participating in the course and use it as our dependent variable. Our

dependent variable is ordinal: participants in the Building Farmers program were asked whether their farm or ranches’ net profitability increased, did not change, or decreased after taking the course. Accordingly, we use an ordered probit model. Income is often measured categorically, given the sensitive nature of the question, and lends itself to an ordinal choice model. Given an ordinal dependent variable, the underlying information is a latent, continuously distributed random variable representing the propensity to be profitable.⁴ Although we are unable to say anything about causality per se in this empirical approach, results provide preliminary evidence of a relationship between adopting certain principles and profitability outcomes.

In our model, i indexes respondent i , $i = 1, \dots, 100$, as 100 is the sample size, and y_i is individual i ’s response to the question about changes in net profitability. Let y_i^* ($0 \leq y_i^* \leq 2$) be the underlying latent variable reported by the respondent, which can take on the integer values 0, 1, or 2 (representing reported changes in profitability). We define a vector of characteristics relevant to explaining changes in farm profitability after taking the course as \mathbf{x}_i . The ordered probit model is based on the assumption that y_i^* depends linearly on \mathbf{x}_i according to

$$(1) \quad \begin{aligned} y_i^* &= \mathbf{x}_i' \boldsymbol{\beta} + u_i \quad i = 1, \dots, 100 \\ u_i &\sim N(0, 1) \end{aligned}$$

where $\boldsymbol{\beta}$ is a vector of parameters; y^* is unobserved, but the relationship between y^* and the observed variable y is

$$(2) \quad \begin{aligned} y &= 0 \text{ if } -\infty < y^* \leq k_1 \\ y &= 1 \text{ if } k_1 < y^* \leq k_2 \\ y &= 2 \text{ if } k_2 < y^* < \infty \end{aligned}$$

where the parameters k_j are threshold parameters. The log likelihood function is constructed where $P_i(y)$ is the probability that i th respondent’s response is y . The probability is

$$(3) \quad P_i(y) = P(k_{y-1} < y_i^* < k_y) = \Phi(k_y - \mathbf{x}_i' \boldsymbol{\beta}) - \Phi(k_{y-1} - \mathbf{x}_i' \boldsymbol{\beta}),$$

where $\Phi(\cdot)$ is the standard normal cumulative distribution function.

Additionally, we estimate the marginal effects of a change in the probability of increasing profitability after taking the course when course principles are adopted by the participant. The model is estimated using the oprobit function in the statistical software package STATA version 14.

Findings and Empirical Results

Descriptive statistics for farm respondents and key variables integrated into the curriculum can be found in table 1. Note that one operational characteristic not directly related to the outcomes of the course was included to serve as a general indicator for proximity to markets—the variable labeled the rural-urban continuum code. This inclusion was motivated by what was learned in the community-based programs: in short, producers shared how important it is to understand how geographic location influences potential market opportunities and outcomes. We chose the rural-urban continuum code because it is a classification scheme that “distinguishes metropolitan counties by the population size of their metro area, and nonmetropolitan counties by degree of urbanization and adjacency to a metro area” (U.S. Department of Agriculture, Economic Research Service, 2013).

On average, program participant respondents employed 1.73 FTEs, were located in a metro county with fewer than 250,000 inhabitants, and saw their operation’s profitability increase after

⁴ As a robustness check, we also run the model using an ordered probit model with robust standard errors and using an ordered logit model. We present these results in table 2, though we do not discuss them in the text.

Table 1. Summary Statistics for Key Variables (n=100)

Variable	Description	Obs.	Mean	Std. Dev.
Year	Year class was taken	99	2,010.80	0.94
BegCl	Participated in beginning class, 1 if yes, 0 if no	100	0.99	0.10
AdvCl	Participated in advanced class, 1 if yes, 0 if no	100	0.03	0.17
ExpCl	Participated in experiential learning experience (formal mentorship or internship), 1 if yes, 0 if no	100	0.04	0.19
ExpLevel	Experience level when entered first beginning farmer program, 1=new/beginning, 2=intermediate, 3=experienced	100	1.55	0.74
FarmYes	1 if answered yes to at least one of the following: a) farming is fulltime job, b) primary occupation but have off-farm work, c) secondary occupation but have off-farm work, d) just starting farm, or e) farming as employee or manager for someone else, other 0	100	0.68	0.46
TotalLand	Sum of CropOwn, CropRent, PastOwn, PastRent, OtherOwn, OtherRent, CEOwn, CERent, continuous variable	100	100.90	486.79
GrossInc	How much was received for all commodities and products sold in 2014 (gross income)	57	\$87,616.63	\$238,277.30
NetProfit	2 if increase since course, 1 if no change, 0 if decrease	62	1.40	0.64
RUCC	rural-urban continuum code, continuous variable 1=most urban, 9=most rural	85	2.98	1.90
NumVar	number of product varieties grown, 2 if increase since course, 1 if no change, 0 if decrease	63	1.37	0.63
NumEntpr	Number of farm enterprises (vegetables, livestock, flowers, orchard, etc), 2 if increase since course, 1 if no change, 0 if decrease	63	1.43	0.56
VarMktUsed	Variety of market outlets used (farm stand, CSA, farmers' market, food hub, etc), 2 if increase since course, 1 if no change, 0 if decrease	63	1.41	0.61
Mentor	Were mentor relationships established during the class program, 1 if yes, 0 if no	97	0.27	0.45
LengProd	Length of production season, 2 if increase since course, 1 if no change, 0 if decrease	62	1.39	0.49
Infra	Infrastructure and equipment (irrigation, tractor, seeder, greenhouse, etc), 2 if increase since course, 1 if no change, 0 if decrease	62	1.56	0.56
Total Emp	Total Employment: Full time employees + 0.3*Part time employees, continuous variable	100	1.73	3.59

course participation. Program participants, on average, increased both the number of product varieties grown and the number of farm enterprises after taking the course. They had also invested in additional infrastructure and/or equipment, worked to extend the length of their production season, and expanded the variety of market outlets used. Interestingly, despite the course's emphasis on mentorship, the majority of respondents did not report establishing a mentor relationship during the class. The question may have been misworded, given that the class did not coincide with the production season. It is perhaps more likely that program participants established a resource base of potential mentors during the course upon which they could draw after taking the course (if/when they encountered issues in production).

The complete results from the ordered probit model are available in table 2. Several significant findings emerge from the analysis. In terms of business and marketing core concepts (categorical variables—2 if profits increased after taking the course, 1 if no change, 0 if decreased), we find the change in the number of product varieties grown or raised after taking the course to be significant and negative at the 10% level. This finding is consistent with key course principles, where course recommendations are to focus on planning and raising a more limited range of product(s) that allows the producer to capture gains from specialization. We also find the number of enterprises to be

Table 2. Coefficient Estimates for Ordered Probit and Ordered Logit Models

Net Profit	Ordered Probit with		
	Ordered Probit	Robust Standard Errors	Ordered Logit
RUCC	-0.198 (0.115)*	-0.198 (0.091)**	-0.433 (0.215)**
NumVar	-0.872 (0.473)*	-0.872 (0.295)***	-1.532 (0.850)*
NumEntpr	0.825 (0.515)*	0.825 (0.489)*	1.588 (0.919)*
VarMktUsed	0.145 (0.365)	0.145 (0.342)	0.430 (0.649)
Mentor	0.709 (0.508)	0.709 (0.615)	1.530 (0.986)
LengProd	0.787 (0.431)*	0.787 (0.428)*	1.767 (0.801)**
Infra	-0.933 (0.881)	-0.572 (0.452)	-0.934 (0.881)
Total Emp	0.288 (0.295)	0.075 (0.084)	0.289 (0.328)
cut1	-1.410 (0.965)	-1.410 (0.746)	-1.731 (1.709)
cut2	0.232 (0.936)	0.232 (0.878)	1.401 (1.703)

Notes: Single, double, and triple asterisks (*, **, ***) indicate significance at the 10%, 5%, and 1% level. Standard errors in parentheses. Pseudo R² = 0.1833 (ordered probit), 0.1833 (ordered probit with robust standard errors), 0.2272 (ordered logit).

Table 3. Marginal Effects for Ordered Probit Model

Net Profit	Ordered Probit with		
	Ordered Probit	Robust Standard Errors	Ordered Logit
RUCC	-0.198 (0.115)*	-0.198 (0.091)**	-0.433 (0.215)**
NumVar	-0.872 (0.473)*	-0.872 (0.295)***	-1.532 (0.850)*
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significant at the 10% level, but this time positive. Farms were more likely to improve profitability after taking the course if they had added additional enterprises (perhaps adding animal products to their CSA share or farmstand), in effect capturing gains to local food buyers’ demand for diversified offerings. So, diversification and specialization are promoted jointly, but with a nuanced discussion of where additional energy and resources were likely required to meet the unique needs of local buyers (Angelo, Jablonski, and Thilmany, 2016; Christensen et al., 2017; Conner et al., 2009). Results demonstrate that producers’ decisions to have more focused production portfolios, together with diverse income streams (through various ways to capture revenues from potential customers), may be one pathway to viability.

Two other notable business and marketing components emerged from the Washington State study and were integrated into the curriculum: (i) limiting capital investments, particularly in infrastructure and equipment, and (ii) increasing the length of the production season to take advantage of the market opportunities at times when there are limited supplies of locally grown products (non-summer months in most of the Building Farmers program region). We found no significant relationship between investment in infrastructure and equipment and changes in profitability. We did find that extending the length of the production season was significant at the 10% level and positive.

The other significant variable was the rural urban continuum code. We found it significant and negative at the 10% level. This means that the more urban the location of the farm or ranch, the more likely the operation was to have increased profitability after taking the course. Although

expected, we did not find a significant relationship between either the variety of markets used or the establishment of mentor relationships and changes in farm profitability after taking the course.

The marginal effects of changes in profitability after taking the course are presented in table 3. The predicted probability of a farm or ranch increasing profitability after taking the course declines by 7% as the location of the farm is more rural. If the number of varieties grown by the producer after taking the course increases, the probability that a producer increased profitability after taking the course declines by 34%. In contrast, if the producer increased the number of enterprises after taking the course, the likelihood that they improved their profitability increases by 32%. Finally, if the producer increased the length of their production season after taking the course, the predicted probability of the farm or ranch increasing profitability is 31%. As described above, the variety of markets used, mentor relationships, investment in infrastructure and equipment, and total employment are not significant.

Discussion and Implications for Beginning Farmer Programming

Based on our results, we infer four key recommendations for concepts that should be integrated into future beginning farmer programs: customization, diversification, season extension, and location. These concepts were originally derived from past research and opinions of key stakeholders and are further supported by our findings where adopted practices positively influence the financial viability of program participants.

Customization

In the marketing literature, customization provides a way for an operation to differentiate itself in the marketplace by allowing producers to tailor offerings to satisfy individual consumers' needs. Many beginning farmers employ this technique because they cannot effectively compete on volume or cost. Offering a wide range of specialty or heirloom varieties is a customization strategy that many beginning farmers use in direct-to-consumer markets (e.g., farmers' markets, roadside stands, Community Supported Agriculture). However, as these farms look to scale up, it may be inefficient for them to grow as many varieties. Our results reveal that increases in the number of varieties grown are significant and negatively correlated to increases in profitability after producers took the course. Given recent research that sales at direct-to-consumer markets are starting to plateau and that diversification into intermediated markets (e.g., farm-to-school, restaurants) may be key to scaling up (Low et al., 2015), we advise that beginning farmer programs recommend limiting varietal diversification.

Therefore, although a customization strategy may be important when farmers first look to access direct markets with generally lower barriers to entry, farmers need to fairly quickly find ways to focus the number of varieties and, thus, become more efficient in their production. There are examples of beginning farmers working together across the country to start multi-farm Community Supported Agriculture arrangements (CSAs, such as FairShareCSA in Madison, Wisconsin), which allows individual farms to specialize, while individuals in the group can still employ customization strategies that attract customers willing to pay the premium required to support improved beginning farmer profitability outcomes.

Diversification

Managing risk for beginning farmers is critical to long-term success. Our results indicate that one effective way to do this is through diversifying the number of farm or ranch enterprises, either through close complements (for example, selling fruit and value-added fruit products) or adding services and experiences to the farm/ranch (tourism, educational classes, custom work). In addition

to managing risk, this may provide an important opportunity for income smoothing as farms scale up. For example, a lamb operation may receive most of its revenue around key holidays, such as Easter. Yet for an operation with existing assets that might be underutilized, such as land, adding access to hunting, fishing, or camping for tourists may provide additional income in the fall. This recommendation, however, needs to be in the context of careful planning and assessment of a farm or ranch's comparative advantage based on location, complementarities to other enterprises, and existing assets (human and physical).

In contrast, the fact that the variety of markets used was not significant implies that the economies of scope in marketing channels may not be worth pursuing. Different types of markets require distinct resources and expertise in order to be successful. Accordingly, although we can propose that beginning farmer courses recommend enterprise diversification, more research is needed to understand whether diverse market channel strategies can offer producers any relative comparative advantages.

Season Extension

It makes intuitive economic sense that producers who have goods available when other local supplies are diminished will derive a premium for those products. As one would expect, our results show that farms that increased the length of their production season after participating in the Building Farmers in the West course are significantly more likely to have experienced increased profitability. Our recommendation to integrate season extension techniques into beginning farmer programming is in line with many ongoing beginning farmer programs and the literature and, more broadly, an increasingly popular production strategy for those in short-season regions. As one example, Conner et al. (2009) found that produce grown in hoop houses can support extended season local-food markets, such as farmers' markets. Further, they and others (e.g., Curtis et al., 2014) demonstrate consumer willingness to pay a premium for these extended season products because the product is sold at times when there are fewer competing suppliers in the marketplace.

Integrating season extension production and marketing techniques into beginning farmer and rancher programs is recommended in places where markets exist and consumers are willing to pay sufficient premiums to offset costs associated with extended season production. Government policies and programs to support season extension techniques—particularly for small, mid-sized, and beginning farmers—should also be promoted in order to offset additional costs and up-front capital investments in this area. The USDA's Natural Resources Conservation Service, for example, has an ongoing High Tunnel System Initiative. Grants and technical assistance may be available through this program, depending on the state (U.S. Department of Agriculture, Natural Resources Conservation District, n.d.). Integrating information about these types of programs and resources may also be beneficial to technical assistance partnerships and networks that could be developed as part of beginning farmer training programs.

Location

Unfortunately, in many cases there is not much one can do about the location of his/her farm or ranch. Sometimes land is inherited, or a farm's location is chosen for family and/or lifestyle reasons. That said, beginning farmer and rancher programs should be careful to consider and integrate information about how a particular location is likely to impact recommended best practices that may influence participants' marketing or other business-planning decisions. This research shows that farms or ranches in more urban locations are more likely to increase their profitability after participating in the course. This finding is consistent with research from Delbecq, Kuethe, and Borchers (2014), who show that farmland values are influenced by the potential conversion premium and that, accordingly, farming at the urban fringe is often marked by high-value commodity production.

Many of the beginning farmers who participated in the training program use direct-to-consumer and intermediated markets in an effort to derive a premium price for their products, regardless of their location. Yet there is clear evidence that these markets are concentrated in urban or metro counties (e.g., Kaufman, 2012; Low et al., 2015) and that sales to these markets require differential expenditures, some of which are directly tied to distance to market (Jablonski and Schmit, 2016). Although (farm)land values are on average higher in the urban fringe (e.g., Delbecq, Kuethe, and Borchers, 2014; Nickerson et al., 2012), the clear evidence that urban consumers are often willing to pay higher prices for goods than their rural counterparts (Lichter and Brown, 2011) should be integrated into market plans based on the location of the farm or ranch. Even in studies of rural communities demonstrating consumer willingness to pay a premium for locally grown produce, there are often not enough customers to generate sufficient revenue to overcome costs (Biermacher et al., 2007; Aleci and Smith, 2011; Schmit and Gómez, 2011; Jablonski, Perez-Burgos, and Gómez, 2011; Malone and Whitacre, 2012).

Accordingly, we know that many producers select their market based on lifestyle preferences and not necessarily to maximize profitability (e.g., LeRoux et al., 2010). Therefore, beginning farmer and rancher programs need to convey that location matters: not all are created equal. Farmers and ranchers located in more remote, rural locations may need to focus their marketing efforts on other types of differentiated markets (such as web-based ordering with less frequent deliveries). In summary, with guidance and expertise from the locally based advisory committee, programs can be customized to offer marketing options that are realistic, regardless of an operation's distance from urban markets.

Future Research

This research examined the impacts of the Building Farmers in the West program by examining the relationship between the integration of key course principles into farm businesses and changes in profitability. Although we believe this research represents an important contribution regarding the marketing and business concepts that should be integrated in future programs, we also understand there are limitations given the place-based nature of this program and the survey sample size and its particular focus.

Another consideration is that our definition of a successful participant, defined as one who has increased business profitability after taking the course, is flawed. Many course participants may have had goals that interfered with increasing the profitability of their operation. For example, we heard in open-ended responses that some producers chose to sell at a farmers' market in order to support their local community, even though it was not a profitable market. Thinking systematically about other measures of success is important in future research. Additionally, the questions asked in the survey were almost solely based on principles employed in the Building Farmers in the West program. We recognize there may be other important marketing and business concepts that were not the focus of this program but should be included since they would influence profitability. As one example, the course and our survey spend little time looking at the role of certification (e.g., USDA Organic or Certified Naturally Grown) and its relationship to profitability. Attention to these other business and marketing decisions may be important. Conducting expanded analyses of beginning farmer programs moving forward will be key. This study provides a first step in linking literature-based principles with changes in firm profitability for beginning farmers and ranchers.

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References

- Ahearn, M. C. "Potential Challenges for Beginning Farmers and Ranchers." *Choices* (2011). Available online at <http://www.choicesmagazine.org/choices-magazine/theme-articles/innovations-to-support-beginning-farmers-and-ranchers/potential-challenges-for-beginning-farmers-and-ranchers>.
- Aleci, L. S., and D. T. Smith. "Mapping the Eastern Market in Lancaster, PA. A Case Study for Emerging Trends in Farmers Markets and Sustainable Food Systems." *Appetite* 56(2011):517. doi: 10.1016/j.appet.2010.11.153.
- Angelo, B. E., B. B. Jablonski, and D. Thilmany. "Meta-Analysis of US Intermediated Food Markets: Measuring What Matters." *British Food Journal* 118(2016):1146–1162. doi: 10.1108/BFJ-10-2015-0403.
- Barham, J., D. Tropp, K. Enterline, J. Farbman, J. Fisk, and S. Kiraly. *Regional Food Hub Resource Guide*. Washington, DC: U.S. Department of Agriculture, Agricultural Marketing Service, 2012.
- Biermacher, J. T., S. Upson, D. C. Miller, and D. Pittman. "Economic Challenges of Small-Scale Vegetable Production and Retailing in Rural Communities: An Example from Rural Oklahoma." *Journal of Food Distribution Research* 38(2007):1–13.
- Christensen, J., D. Thilmany, B. B. Jablonski, M. Sullins, and E. Naasz. "Assessing Market Channel Performance for Colorado Fruit and Vegetable Producers." *Journal of Food Distribution Research* 48(2017):61–67.
- Conner, D. S., A. D. Montri, D. N. Montri, and M. W. Hamm. "Consumer Demand for Local Produce at Extended Season Farmers' Markets: Guiding Farmer Marketing Strategies." *Renewable Agriculture and Food Systems* 24(2009):251–259. doi: 10.1017/S1742170509990044.
- Curtis, K. R., I. Yeager, B. Black, D. Drost, and R. Ward. "Market and Pricing Potential for Extended Season Fresh Produce Sales: An Intermountain West Example." *Journal of Food Distribution Research* 45(2014):46–65.
- Delbecq, B. A., T. H. Kuethe, and A. M. Borchers. "Identifying the Extent of the Urban Fringe and Its Impact on Agricultural Land Values." *Land Economics* 90(2014):587–600. doi: 10.3368/le.90.4.587.
- Farm Credit Council. "YBS: Lending to the Next Generation of Agriculture Conference." Louisville, KY, 2015. Available online at <http://www.eiseverywhere.com/ehome/132355>.
- Fischer, M., M. Hamm, R. Pirog, J. Fisk, J. Farbman, and S. Kiraly. *Findings of the 2013 National Food Hub Survey*. East Lansing, MI: Michigan State University Center for Regional Food Systems and The Wallace Center at Winrock International, 2013. Available online at <http://kresge.org/sites/default/files/2013-national-food-hub-survey.pdf>.
- Jablonski, B. B. R., J. Perez-Burgos, and M. Gomez. "Food Value Chain Development in Central New York: CNY Bounty." *Journal of Agriculture, Food Systems, and Community Development* 1(2011):129–41.
- Jablonski, B. B. R., and T. M. Schmit. "Differential Expenditure Patterns of Local Food System Participants." *Renewable Agriculture and Food Systems* 31(2016):139–147. doi: 10.1017/S1742170515000083.
- Kaufman, P. "On the Map - Farmers' Markets Concentrated in Metro Counties." *Amber Waves* (2012). Available online at <https://www.ers.usda.gov/amber-waves/2012/december/on-the-map-farmers-markets-concentrated-in-metro-counties>.
- LeRoux, M. N., T. M. Schmit, M. Roth, and D. H. Streeter. "Evaluating Marketing Channel Options for Small-Scale Fruit and Vegetable Producers." *Renewable Agriculture and Food Systems* 25(2010):16–23. doi: 10.1017/S1742170509990275.
- Lichter, D. T., and D. L. Brown. "Rural America in an Urban Society: Changing Spatial and Social Boundaries." *Annual Review of Sociology* 37(2011):565–592. doi: 10.1146/annurev-soc-081309-150208.

- Low, S., A. Adalja, E. Beaulieu, N. Key, S. Martinez, A. Melton, A. Perez, K. Ralston, H. Stewart, S. Suttles, and S. Vogel. "Trends in U.S. Local and Regional Food Systems." Report AP-068, U.S. Department of Agriculture, Economic Research Service, Washington, DC, 2015. Available online at <https://www.ers.usda.gov/publications/pub-details/?pubid=42807>.
- Malone, T., and B. Whitacre. "How Rural Is Our Local Food Policy?" *The Daily Yonder* (2012). Available online at <http://www.dailyyonder.com/local-food-policy-it-it-truly-focussed-rural/2012/09/17/4364/>.
- Mishra, A., C. Wilson, and R. Williams. "Factors Affecting Financial Performance of New and Beginning Farmers." *Agricultural Finance Review* 69(2009):160–179. doi: 10.1108/00021460910978661.
- Nickerson, C., M. Morehart, T. Kuethe, J. Beckman, J. Ifft, and R. Williams. "Trends in U.S. Farmland Values and Ownership." Economic Information Bulletin 92, U.S. Department of Agriculture, Washington, DC, 2012. Available online at <https://www.ers.usda.gov/publications/pub-details/?pubid=44660>.
- Niewolny, K., and P. Lillard. "Expanding the Boundaries of Beginning Farmer Training and Program Development: A Review of Contemporary Initiatives to Cultivate a New Generation of American Farmers." *Journal of Agriculture, Food Systems, and Community Development* 1(2010):65–88.
- Schmit, T. M., and M. I. Gómez. "Developing Viable Farmers Markets in Rural Communities: An Investigation of Vendor Performance Using Objective and Subjective Valuations." *Food Policy* 36(2011):119–127. doi: 10.1016/j.foodpol.2010.10.001.
- Thilmany McFadden, D., and S. Sureshwaran. "Theme Overview: Innovations to Support Beginning Farmers and Ranchers." *Choices* (2011). Available online at <http://www.choicesmagazine.org/choices-magazine/theme-articles/innovations-to-support-beginning-farmers-and-ranchers/theme-overview-innovations-to-support-beginning-farmers-and-ranchers>.
- U.S. Department of Agriculture, Economic Research Service. *Rural-Urban Continuum Codes*. Washington, DC: U.S. Department of Agriculture, 2013. Available online at <https://www.ers.usda.gov/data-products/rural-urban-continuum-codes/.aspx>.
- U.S. Department of Agriculture, National Agricultural Statistics Service. *2012 Census Highlights: Beginning Farmers – Characteristics of Farmers by Years on Current Farm*. Washington, DC: U.S. Department of Agriculture, 2014a. Available online at https://www.agcensus.usda.gov/Publications/2012/Online_Resources/Highlights/Beginning_Farmers/.
- . *2012 Census of Agriculture Preliminary Report Highlights: U.S. Farms and Farmers*. Washington, DC: U.S. Department of Agriculture, 2014b. Available online at https://www.agcensus.usda.gov/Publications/2012/Preliminary_Report/Highlights.pdf.
- . *2014 Tenure, Ownership, and Transition of Agricultural Land (TOTAL)*. Washington, DC: U.S. Department of Agriculture, 2014c. Available online at http://www.agcensus.usda.gov/Publications/2012/Online_Resources/TOTAL/index.php.
- U.S. Department of Agriculture, Natural Resources Conservation District. *High Tunnel System Initiative*. Washington, DC: U.S. Department of Agriculture, n.d. Available online at <https://www.nrcs.usda.gov/wps/portal/nrcs/detailfull/national/programs/?cid=stelprdb1046250>.
- U.S. Department of Agriculture, Office of Communications. "Agriculture Deputy Secretary Krysta Harden Announces New USDA Commitments to Help Build Up Next Generation of Farmers and Ranchers." Press Release 0301.15, U.S. Department of Agriculture, Washington, DC, 2015. Available online at <https://content.govdelivery.com/accounts/USDAO/bulletins/1222e54>.