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Entrepreneurship on the Farm: Kentucky Grower Perceptions of Benefits and Barriers

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Abstract

The popularity of buying local and the resurgence of farmers markets has increased the need for farmer product diversification. In Kentucky, legislation was passed to allow farmers to produce value-added horticulture products from their homes. Following specific food-safe guidelines, homebased processors (HBP) and microprocessors (HBM) could sell pre-determined value-added products at their local farmers markets. This study administered an online survey to HBP and HBM participants in order to achieve the following objectives: 1) Determine the perceived success of farmer produced value-added food products, 2) Identify which support programs farmers are aware of or use, 3) Discover the primary perceived barriers to developing value-added food products, and 4) Ascertain what factors influence the development of a value-added food product business. Participants felt their value-added products were successful but many felt they struggled to bring their products to market. The primary barriers to developing value-added products were lack of time, funding, and legal knowledge. The primary barriers to using pre-existing program resources were not having enough time, being unaware of the services offered, and programs being held in locations too far away from their farm. The information gathered by this study can be used to determine the addressable farmer needs in product diversification. It can also assist programs in making their services more available and applicable to farm entrepreneurs.

Keywords: homebased processor (HBP), homebased microprocessor (HBM), value-added products, Kentucky (KY), farmers markets (FMs)

1. Introduction

Prior to the signing of House Bill 391 in 2003, many small farmers in Kentucky (KY) could not legally sell food products other than raw, fresh produce. The new law opened the door to entrepreneurial growth by allowing farmers to process their produce in their own kitchens, by being certified as Homebased Processors (HBP) or Homebased Microprocessors (HBM). The type of certification needed depends on the level of food safety knowledge their product requires (University of Kentucky, 2015). Homebased processing enables farmers to test a new homemade product before taking the financial risk to produce it on a large scale, which currently requires licensing, special training and use of a commercial kitchen. In addition to KY, 41 states have established legal framework for the cottage food industry. These laws include the specification of non-potentially hazardous products, approval of sales locations, required permits, total sales limits, and labeling stipulations. As the support for local foods grows, states may need to revisit the legislation in order to aid new homebased processors and allow current processors to enlarge their businesses (Harvard Law School, 2013).

Adding value to homegrown foods makes use of excess or unseemly produce that may have otherwise been thrown out, further extending shelf life and the farmer's selling season (Alonso, 2010). Reducing food waste in this way not only provides a new source of revenue for farmers, but also decreases landfill methane generation, decreases waste of food production resources, and decreases disposal costs. In 2013, 37 million tons of wasted food was thrown away in the United States (EPA, 2015). During the same time, approximately 14 percent of American households were reported as food insecure (Coleman-Jensen et al., 2014). A study conducted in

Alabama, which also lies in the east south central region of the United States, found that 55% of farmers were interested in transforming otherwise wasted produce into value-added products and 40% were interested in processing the produce themselves (Alonso, 2011).

In order for a product to be approved under the HBP and/or HBM program, it must contain a KY-grown ingredient that was grown, harvested, and processed by a KY farmer. Farmers may sell their products at farmers markets (FM), directly from their farm, and at roadside stands approved by the KY Farm Bureau (University of Kentucky, 2015). Four years after passing HB 391, the number of participants in this program grew by 335% (Bastin, 2007).

Prior to this study, minimal data was collected about how farmers perceived the value-added product development process. Some studies found that a substantial percentage of farmers were willing to consider the change, though they expressed that the investment of time, energy, and finances was daunting and laws were restrictive (Alonso, 2010; Wolfe & Barefield, 2007). Other studies discovered that the lack of a commercial kitchen was a substantial barrier for farmers (Alonso, 2011). The new KY law reduced this barrier. However, it was likely that other unknown barriers remained and the level of farmers' awareness of support programs had not been analyzed. Through the study of these issues, programs that appear to be relatively unknown could increase their marketing techniques, information gaps held by farmers could be discovered, and identified barriers could be addressed.

In summary, recent changes in KY opened the door to alternative agricultural business opportunities, such as producing value-added products. However, many farmers may be facing barriers that are preventing entrepreneurial expansion and unaware of the resources available to help them in their endeavors (11). This study intended to achieve the following objectives: 1) Determine the perceived success of farmer produced value-added food products, 2) Identify which support programs farmers are aware of or use, 3) Discover the primary perceived barriers to developing value-added food products, and 4) Ascertain what factors influence the development of a value-added food product business.

2. Method

The population consisted of all farmers in KY who grow fruits, vegetables, nuts, herbs or honey and wish to or already sell them in the form of value-added food products. The initial sample consisted of all KY farmers who were certified to sell value-added food products through the HBP and HBM programs. At the time the study was conducted, 766 individuals were registered as HBPs and/or HBMs.

2.1 Research Design

This study included aspects of both the qualitative and quantitative research paradigms in order to achieve a descriptive picture of the current perceptions of KY farmers regarding the HBP and HBM programs. The instrument of measurement was a questionnaire. The use of a questionnaire suited the exploratory nature of the study and facilitated the collection of quantitative and qualitative data. The questionnaire was developed using Qualtrics, a survey building website. Building the survey online allowed for skip logic in order to ask participants only the questions that pertained to them. For example, it could not be assumed that simply because a participant was registered as a HBP or HBM they actually used their license to process and sell value-added food products. Therefore, when they provided this information at the beginning of the survey, irrelevant questions could be skipped.

2.2 Participant (Subject) Characteristics

Appropriate Institutional Review Board permission was obtained to conduct the survey. Contact information for the HBPs and HBMs was obtained with permission from the KY Food Safety Branch. All participants with phone numbers listed were called to alert them of the upcoming survey. The number of participants called was estimated to be about 650 individuals. When calling individuals with an email address listed, they were told they could access the survey through a link sent via email. When calling individuals with no email address listed, they were told they could access the survey by typing in the URL found in a letter they would receive. Emails, sent through Qualtrics, contained a clickable link to the survey. The number of individuals with email addresses was estimated to be 300. Letters, containing a URL, were sent to the remainder of the participants, which was estimated to be 450. If no phone number, valid email address, or valid street address was listed, those individuals were excluded from the study. There was no incentive offered to those who completed the surveys nor was there any deception involved in its presentation. Data was collected over a total of three weeks. The final sample consisted of 141 participants, resulting in a response rate of 18.4%.

2.3 Procedures

The raw data was downloaded from Qualtrics and uploaded into SPSS (Version 21) for statistical analysis. Qualtrics did not allow for the elimination of incomplete responses; therefore, 20 of the responses were incomplete surveys. To avoid error, each question was analyzed separately using the number of participants who answered that question specifically. To provide a specific context with which to interpret the results, KY's 120 counties were divided into three regions, Western, Central, and Eastern, according to the Cooperative Extension Service's Programming Regions Map.

Most of the data collected was analyzed descriptively using frequencies and cross-tabulations. Variables compared to each other using cross tabulations were statistically analyzed with Fisher's Exact Test to determine at which level of significance the results could be generalized to the population under examination. This method was chosen due to the small final sample size and the large number of variables. A p-value of 0.05 or less was considered significant.

3. Results

The final sample consisted of 141 participants, resulting in a response rate of 18.4%. Since participants were not required to answer every question, percentages listed reflect those of participants who answered the specific question. The sample comprised of 60.5% (n=72) from Central KY, 26.9% (n=32) from Western KY, and 12.6% (n=15) from Eastern KY.

3.1 Participant Demographics

Table 1 summarizes the participant demographics. When education level was compared to region, the results were not statistically significant ($p=0.4$). When average annual income was compared to region, the result was not statistically significant ($p=0.184$). About two-thirds of participants (67.4%, $n=95$) were KY FM members, 5.0% ($n=7$) held a Commercial Food Manufacturing License, 67.4% ($n=95$) were HBPs, and 34.0% ($n=48$) were HBMs.

Table 1. Demographic characteristics of study population

Characteristic	Number	Percent
Age		
20 - 29	7	5.3
30 - 39	7	5.3
40 - 49	24	18.2
50 - 59	58	43.9
60 - 69	32	24.2
70 or older	4	3.1
Missing	9	6
Total	141	100
Education		
High school or less	21	16.0
Some college or associate's degree	46	35.1
Bachelor's degree	39	29.8
Graduate degree	25	19.1
Missing	10	7.0
Total	141	100
Average Annual Income		
\$10,000 or less	11	8.9
\$10,001-\$30,000	44	35.5
\$30,001-\$50,000	24	19.4
\$50,001-\$80,000	26	21.0
\$80,001-\$100,000	8	6.5
\$100,001 or more	11	8.9
Missing	17	12.0
Total	141	100

Participants were also asked where they currently processed and sold their products. Processing at home far surpassed any of the other options (95.9%, n=117). FMs were the most frequently selected location at which participants sold their products (91.7%, n=110). In addition, most participants used less than 2 acres (70.0%, n=84) to grow and process their products.

3.2 Types of Value-Added Products

Participants were asked to list the types of produce they grew and the value-added products they made. The most commonly listed produce was categorized into one of the following: berries, herbs, honey, root vegetables, squash, tomatoes, tree fruit, peppers, corn, or beans. Berries listed included blackberries, strawberries, gooseberries, blueberries, Loganberries, huckleberries, elderberries, wild elderberries, and wild blackberries. The herb category included all herbs and spices. Root vegetables included potatoes, onions, and garlic. Tree fruit included fruits such as peaches and apples. The honey, squash, tomato, pepper, corn, and bean categories were single entities.

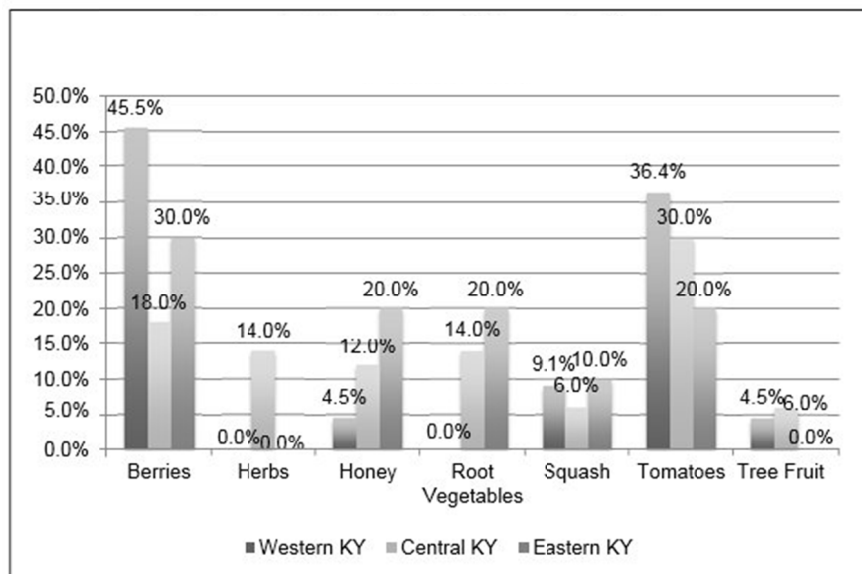


Figure 1. Raw product grown by region: first mention

The most commonly listed produce are listed in Figure 1. When analyzed by region, the results were not statistically significant ($p=0.381$).

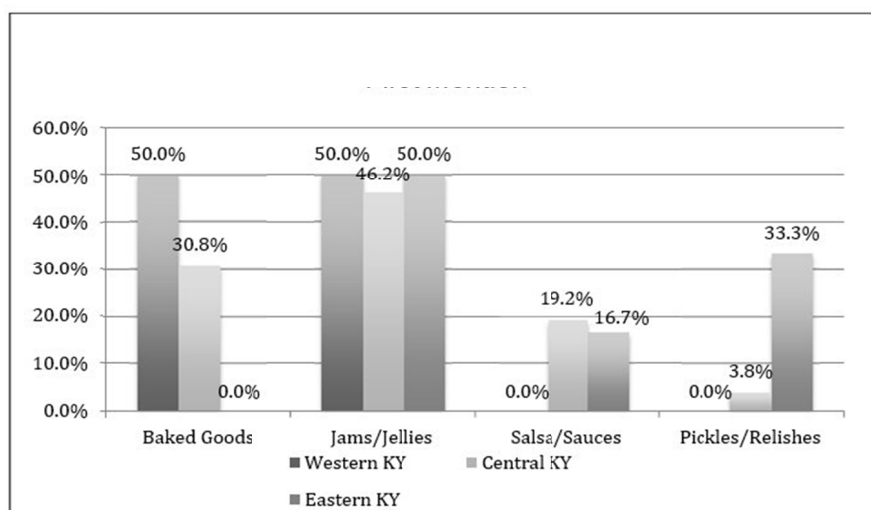


Figure 2. Processed product by region: first mention

The most commonly listed value-added products were categorized as: baked goods, jams and jellies, salsa and sauces, pickles and relishes, and dried products. Baked goods included products such as breads and pies. Jams and jellies also included preserves and marmalades. Dried products included dried herbs and peppers. Salsa/sauces included products that were blended into any type of salsa or sauce. Pickles/relishes included pickled products, such as squash relish.

The most commonly listed value-added products are listed in Figure 2. When analyzed by region, the results were not statistically significant ($p=0.920$).

3.3 Perceived Success

The first objective of this study was to determine the perceived success of KY farmer value-added food products. Participants were asked whether they considered their raw produce or their processed products more successful. Since the goal was to gather perceptions of business, the survey allowed for individual interpretation of the word “success”. Of participants who answered the question, 53.6% ($n=52$) considered their raw products more successful than their processed products and 46.4% ($n=45$) considered their processed products more successful (Figure 3). When analyzed by region, the results were not statistically significant ($p=0.519$).

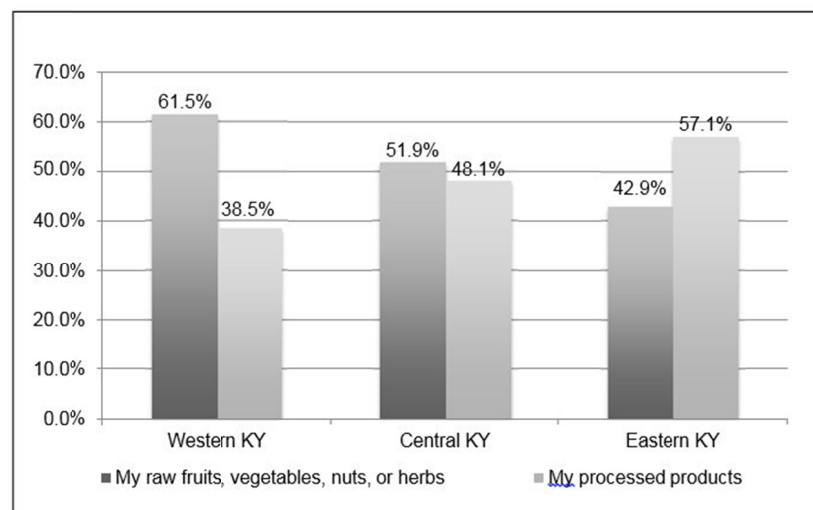


Figure 3. Perceptions of most successful market item

Next, participants were asked how the sale of their processed products affected their profit. Of participants in all regions, 69.2% ($n=81$) indicated that their profit increased due to the sale of the processed products. Furthermore, most of the remaining participants (29.1%, $n=34$) indicated that their profit had not changed. Only 1.7% ($n=2$) indicated that their profit had declined.

Participants were asked to indicate which benefits they had experienced as a result of the development and sale of their own value-added products (Figure 4). A list of possible benefits was provided, as well as a blank to include any other benefits they had experienced. The primary benefit that individuals indicated was “Connection to more people” (92.3%, $n=108$). “Increased consumer interest in me as a farmer” was second (86.1%, $n=99$). The majority of participants indicated that they had experienced all six of the benefits provided. These included “Learned useful skills,” “Increased income,” “Increased self-confidence,” and “Motivation to pursue more education,” in order of most frequently selected to least.

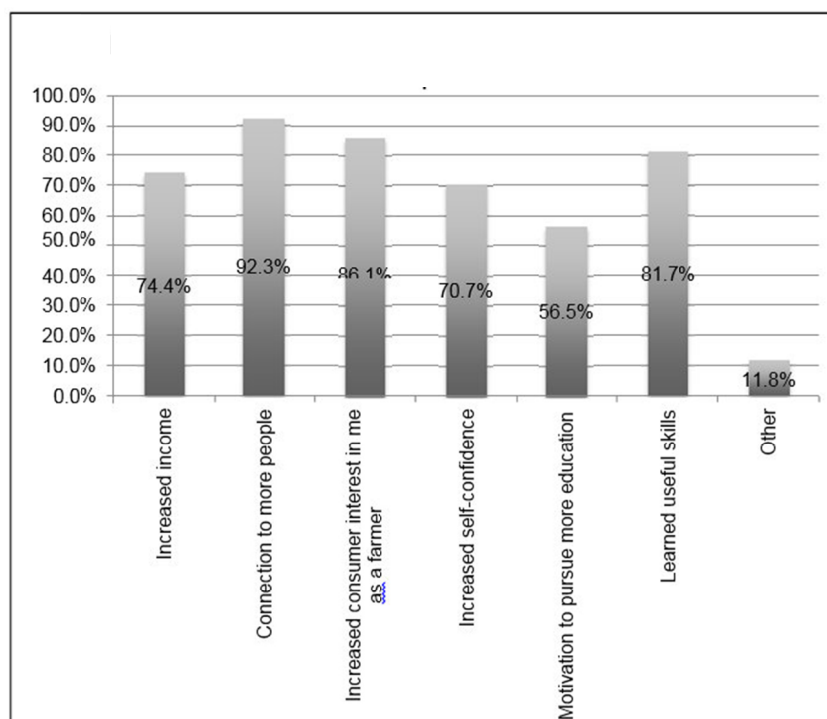


Figure 4. Benefits experienced due to value-added product development and sale

3.4 Program Awareness and Utilization

The second objective was to identify programs of which farmers are aware and using, and those with which they are unfamiliar. Participants were asked to view a list of programs and indicate of which programs they had heard and which they utilized (Table 2).

Table 2. Programs known vs. programs utilized

Program	Known		Used	
	N	% ^a	N	% ^b
Kentucky Proud Program	115	100.0	106	89.8
Cooperative Extension Service	112	97.4	112	97.5
Kentucky Food Safety Branch	99	86.1	75	67.6
Good Agricultural Practices (GAP)	100	89.3	96	82.3
Kentucky Vegetable Growers Association	63	53.8	20	19.2
MarketReady	60	52.2	23	22.5
Kentucky Market Maker	55	47.8	23	21.9
Central Kentucky Growers Association ^c	40	35.4	5	9.1
Hazard Analysis and Critical Control Point (HACCP) Training and Certification	37	31.6	12	12.4
Sustainable Mountain Agriculture Center, Inc.	23	20.0	3	3.0
University of KY Food Systems Innovation Center	23	19.7	10	9.8
Better Process Control School	14	12.4	6	6.3

^aThis column indicates the percentage of participants who had heard of the program.

^bThis column indicates the percentage of participants who had used the program.

^cOnly participants residing in Central KY were included when analyzing this program.

Participants were asked about their opinion of these programs. A quarter (25.0%, n=31) thought these programs

were “Extremely helpful” and 45.2% (n=56) thought they were “Somewhat helpful.” Of the remaining participants, most (26.6%, n=33) had “No opinion” and only 3.2% (n=4) thought they were “Somewhat unhelpful.” No participants indicated that the programs were “Extremely unhelpful.”

3.5 Perceived Barriers

The third objective of this study was to discover the primary perceived barriers to developing value-added food products. The most frequently indicated barrier to developing value-added food products was not enough time (69.7%, n=83). The second most indicated barrier was that the participants did not know of the educational programs offered to entrepreneurs (60.9%, n=67), and therefore could not assess their helpfulness.

Participants were asked which barriers initially prevented them from developing value-added products. Nearly a fifth of participants (21.6%, n=24) indicated that they had a “Lack of knowledge in processing food products.” Over half, 55.3% (n=63), indicated that “Lack of time” initially stood in their way and 54.8% (n=63) had a “Lack of legal knowledge.” “Lack of funding” challenged 40.5% (n=45), 33.3% (n=37) had a “Lack of information from reliable sources,” and 30.6% (n=34) had a “Lack of entrepreneurial skills.” “Lack of confidence or fear of failure” challenged 23.4% (n=26), 27.7% (n=31) had a “Lack of a location to process foods,” and 8.2% (n=8) indicated they had experienced a barrier of another sort.

To better pinpoint the barriers, the participants were asked to select which of the barriers in the previous question was the primary barrier to overcome. Nine barriers were listed from which participants could choose, along with an “Other” selection with a text box. The results were analyzed individually, as well as in the following categories: (1) lack of knowledge, (2) insecurity of self, and (3) lack of resources. When the categories were analyzed, the “Other” responses were not included (Table 3). The barrier most frequently selected was “Lack of time” (21.1%, n=24). The category of barrier most frequently selected was “Lack of resources” (52.6%, n=50). When analyzed by region, these results were not statistically significant (p=0.531).

Table 3. Primary barrier overcome by farmers

	Categorized	Individual
Category 1: Lack of knowledge	30.5%	25.4%
Lack of knowledge in producing processed foods	-	3.5%
Lack of information from reliable sources	-	7.9%
<i>Lack of legal knowledge^a</i>	-	14.0%
Category 2: Lack of resources	52.6%	43.9%
<i>Lack of funding</i>	-	17.5%
<i>Lack of time</i>	-	21.1%
Lack of a location to process foods	-	5.3%
Category 3: Insecurity of Self	16.8%	14.0%
Lack of experience in producing processed foods	-	7.0%
Lack of entrepreneurial skills	-	4.4%
Lack of confidence or fear of failure	-	2.6%
Other	Not included	16.7%

^aItalics indicate the three most frequently selected answers.

Participants were asked if they had access to a local processing facility. Over half (55.3%, n=57) stated they did not have access, while 26.2% (n=27) had access and 18.4% (n=19) did not know whether they had access (Figure 5). When analyzed by region, these results were statistically significant (p=0.049). Western KY had the highest percentage of those who had no access, while Eastern KY had the highest percentage of those that did have access. Central KY had the highest percentage of those who did not know whether or not they had access. To follow up to this question, participants who indicated they did not have access to a local processing facility or did not know whether or not they had access were asked how much they desired to have this access. This information was gathered using a 10-point scale (Figure 6). Answers given from 0 through 3 were categorized as “No or Low Desire,” answers from 4 through 6 were categorized as “Ambivalent,” and answers from 7 through 10 were categorized as “High Desire.” Similar numbers of participants had “No or Low Desire” and “High Desire,” 39.5% (n=30) and 35.5% (n=27), respectively. The remaining 25.0% (n=19) were “Ambivalent.” To better interpret this information, it was analyzed by region. Central KY led the state in desire for a local processing facility, while Western KY exhibited the highest amount of ambivalence.

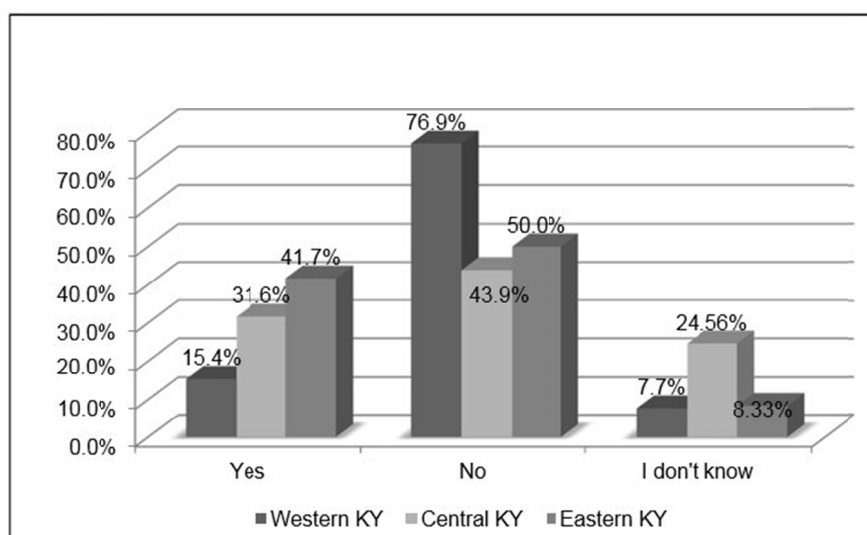


Figure 5. Access to local processing facility by region

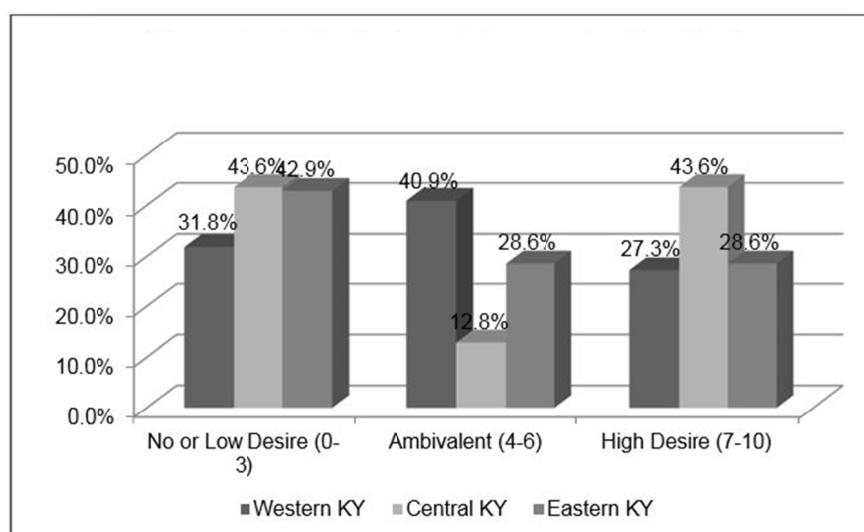


Figure 6. Desire for local processing facility by region

3.6 Influencing Factors

The fourth objective was to ascertain factors that affect the development of value-added food products. The survey asked whether participants had pursued education regarding the development of processed products before starting their value-added endeavor. Nearly two-thirds (66.4%, n=77) stated they had pursued education prior to processing. Participants were asked about which changes in their situation would make them more likely to obtain a commercial food manufacturing license, which would allow them to sell products beyond the FM. Ranked in order of most to least frequently selected, the changes desired were “More funds” (73.1%, n=79), “More time” (67.3%, n=72), “Access to a local processing facility/commercial kitchen” (62.9%, n=66), “Access to a consultant” (60.6%, n=63), “Connection to other farmers” (51.0%, n=53), “More educational opportunities” (48.1%, n=50), “More success with my products” (46.6%, n=48), and “More confidence” (31.1%, n=32). Eight individuals (7.7%) indicated they already had a commercial food manufacturing license.

4. Discussion

This study assessed the perceived success of farmer value-added products, determined which support programs were underused or unknown, uncovered primary barriers that farmers felt they faced when developing products, and gained a better perspective of the factors affecting the development of products. While the results of this

study did not exhibit great statistical significance, the information gathered was informative and insightful for the state of KY.

The majority of participants surveyed were over the age of 50 with over two-thirds growing and selling their produce for over five (5) years. Eastern KY had the highest percentage of participants who earned \$10,001-\$30,000 but about two-thirds of all participants earned less than \$50,000. This result correlates with the fact that most participants used less than two acres for the purpose of growing and processing.

Almost half of participants had completed at least a bachelor's degree and over 80% had completed at least some college courses, further indicating that participants value education and may be open to educational outreaches. Almost all participants were processing food in their home or farm kitchens and selling their products at FMs.

Berries, tomatoes, and squash were the most frequently grown produce categories. Western and Eastern KY appeared to dominate the berry growing. Central KY was the only region to list herbs and was the most diversified region, as participants from this region grew produce from every category. Jams and jellies was the top category for all regions. Baked goods were the second top category, with pickles and relishes tied in third. A limitation to this inference is that it assumes that farmers listed their biggest seller first when answering the survey questions.

Success was measured in terms of the income generated by the products, the material and psychological benefits experienced, and the growth and plans for growth of farmer businesses. When asked to compare the success of processed products to that of raw produce, more than half shared that raw produce was more successful. When analyzed by the three regions, Eastern KY shared that processed products were more successful and Central KY was almost equally divided. Western KY was the region that most strongly felt raw produce was more successful.

The majority of farmers (69.2%) stated that their overall profit had increased as a result of the sale of processed products. Very few (1.7%) indicated that their profit had decreased as a result of developing value-added products. When asked to indicate which benefits they had experienced as a result of the development and sale of their value-added products, the two most frequently chosen answers were "Connection to more people" and "Increased consumer interest in me as a farmer." The majority of participants indicated they experienced all of the benefits listed and only one concerned income, indicating that money may not be their primary motivation.

Local food can be brought to the consumer in many different ways, including You-Pick farms, FMs, roadside stands, rural stores, caterers, the internet, Community Supported Agriculture (CSA), and seasonal shares (Woods, 2000). Most local food producers utilize two or three of these routes to sustain their business. Farmers may also engage in cooperatives with each other to market their products. This study revealed that value-added products can enhance these various routes to market through increased profit as well as community enrichment through the personal connections made, new skills learned, increase in self-confidence, and motivation to pursue education that the farmers expressed.

A growing business requires success and many participants experienced this level of success since almost all have at least maintained the size of their business. In addition, almost half of the farmers surveyed planned to broaden their business by way of increasing the amount of produce processed in the next three years. Very few farmers planned to decrease their sales efforts. Reasons given for plans to decrease did not include the fact that their processed products were not profitable; rather, they included reasons such as age, health, and lack of time. As such, most of these farmers consider the production and sale of value-added products a viable and successful business.

This study also examined the utility of farming and value-added processing programs and associations to farmers. Determining which programs are not well-known provides feedback to programs that their advertising may not be adequate. Determining which programs are known, but not used, indicates ineffective offerings. Identifying programs that are well-known and well-used showcases successful program models.

The three best known programs were the KY Proud Program, Cooperative Extension Service (CES), and Good Agricultural Practices (GAP) Program. Almost all of the participants who knew about CES and GAP also utilized them. These programs are marketed by government agencies and therefore would be expected to have a broader base. The programs that were least known were the US Food and Drug Administration's (FDA) Better Process Control School (BPCS), University of KY Food Systems Innovation Center (FSIC), and Sustainable Mountain Agriculture Center, Inc. These programs target individuals marketing at a commercial level, thus HBPs and HBMs may not have sought these types of services.

Participants overwhelmingly considered programs such as those discussed above to be helpful. Only 3.2%

indicated that the programs were unhelpful, while the remaining participants either indicated the programs were helpful or had no opinion.

Participants were surveyed about the following barriers: use of programs, access to a local processing facility, initiation of developing value-added products, primary barrier overcome when starting their business, and barriers to expanding their business. Lack of time was the primary barrier that prevented farmers from utilizing programs. However, the lack of knowledge about what programs offer is a substantial factor in determining whether or not farmers use these programs. If state-wide programs focus on clarifying which services they provide to farmers, they may see a higher participation rate.

To compare with the results from previous studies, participants were asked about their access to a local processing facility. More than half indicated they had no access to a facility. Lack of a local processing facility could be a barrier to new farmers wishing to develop value-added products. Central KY had the highest percentage in the state of those who desired a facility. Thus, it seems that the provision of local processing facilities may be best appreciated in Central KY. More detailed research would need to be conducted to specify the greatest need.

The most popular answers for barriers to adding value-added products to their business included lack of time (21.1%), lack of funding (17.5%), and lack of legal knowledge (14%). Educational resources which explained correct legal knowledge concerning the sale of value-added products and how to apply for additional funding may have improved the lack of time barrier. A lack of resources (which included lack of funding, lack of time, and lack of a processing location) was a primary barrier (43.9%) that was detrimental to farmers adding value-added products and expanding their business. All farmers need help establishing a profitable business model. Many of the educational programs available in KY provide resources to address these issues.

Participants were also asked questions that sought to uncover additional factors influencing the initiation and expansion of farmers' businesses. Approximately two-thirds of participants pursued education prior to making value-added products, which indicates that farmers starting this type of business are open to attending classes. Since this may be the first time an individual is using a program's services, it is important that introductory classes provide a good image for the program as a whole and encourage a participant to be inclined to use their services again in the future.

A little over half of the participants indicated they were interested in selling their products at more locations than FMs. This group was asked whether they were willing to attend educational sessions to expand in this way. About two-thirds responded positively, while most of the other third were open to the idea if the sessions were nearby, affordable, short, and applicable to their interests. An avenue of research for another study would assess educational needs related to desirable content.

Farmers indicated that if they were to expand their business by obtaining a commercial food manufacturing license, their primary need would be funds and their secondary need would be time. Their next greatest need would be access to a commercial kitchen. One way to address this primary need could be to adapt current licensing requirements for businesses on the KY Food Safety Branch website to specifically address handling the financial issues that surrounds the transition to selling commercially for HBP and HBM. In addition, a timeline listing the step-by-step process of obtaining a commercial food manufacturing license could provide farmers a strategy for how to use their time efficiently. A way to address the third greatest need would be for local county CES offices to host workshops on the different ways to gain access to a commercial kitchen. When entertaining the idea of selling commercially, participants from Western and Central KY both felt they would most likely renovate their home or a building on their farm into a commercial kitchen. However, residents of Eastern KY were equally split between renting an existing commercial kitchen and using a local county CES office. This is expected, since the average annual income indicated by Eastern KY was lower than that of other regions.

This study was distributed under the label of the University of Kentucky and with the inclusion of the name of the researcher's advisor. Because both of these identities are strongly connected to the HBP and HBM certifications, it is possible that some participants answered in ways they felt would be best received, rather than with true answers.

One limitation was the size of the final sample, which includes only a fifth of those chosen to be in the original sample. Thus, the results cannot be generalized with a high degree of confidence. In addition, this study utilized variables that were difficult to define and required the use of complicated survey questions, which caused much of the statistical analysis to yield large p-values. Since the majority of KY participants were over the age of 50 and living in rural communities, access to the survey online may have been a hindrance to participation.

In addition to ideas listed earlier, future studies could focus on identifying the value-added product that is most successful. According to this study, farmers who sold jams and jellies are the most successful. Most farmers did not indicate that value-added products are their most profitable items nor did they list increased income as their primary benefit from the business. Therefore, another area to research would be the primary motivation to develop and sell value-added products by the farmer.

Farmers now, more than ever, are faced with the issue of increasing their revenue sources. Economic difficulties coupled with the end of the Tobacco Transition Payment Program make it essential for farmers to branch out if they want to maintain economic viability. Simultaneously, consumer interest in locally grown and produced food is at a peak. Artisanal foods are very well received and the public respects the farmers who make them. Thus, the development and sale of value-added products is one of the best ways for farmers to stay in business.

The results of this study can be used to assist farmers in establishing and growing this type of business. The programs that offer services to farmers are vital to addressing the issues found in this study. To avoid the waste of time, effort, and resources, programs should be mindful of the feedback given by farmers. These programs should be focused on paying attention to the products that most farmers are making and on addressing their primary needs. In this way, farmers will be enabled to do what they do best and the farmland, local culture, and unique products of KY will be preserved.

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References

- Alonso, A. (2011). Farmer's involvement in value-added produce: the case of Alabama growers. *British Food Journal*, 113(2), 187-204. <http://dx.doi.org/10.1108/00070701111105295>
- Alonso, A. (2010). Farmer's relationship with hospitality businesses: a preliminary study. *British Food Journal*, 112(11), 1163-1174. <http://dx.doi.org/10.1108/00070701011088160>
- Bastin, S. (2007). Options for the Economic Health of Farmers, Farmers Markets and Communities: Homebased Fruit and Vegetable Microprocessing. *Journal of the Community Development Society*, 38(3), 91-99. <http://dx.doi.org/10.1080/15575330709489832>
- Coleman-Jensen, A., Christian, G., & Anita, S. (2014). *Household Food Security in the United States in 2013*, ERR-173, U.S. Department of Agriculture, Economic Research Service, September 2014.
- Environmental Protection Agency (EPA). *The Food Recovery Hierarchy*. Retrieved October 15, 2015, from <http://www2.epa.gov/sustainable-management-food/reduce-wasted-food-feeding-hungry-people>
- Guthrie, J., Guthrie, A., Lawson, R., & Cameron, A. (2006). Farmers' Markets: the small business counter-revolution in food production and retailing. *British Food Journal*, 108(7), 560-573. <http://dx.doi.org/10.1108/00070700610676370>
- Harvard Law School. (2013). *Harvard Food Law and Policy Clinic: Cottage Food Laws in the United States*. Cambridge: Harvard Law School.
- University of Kentucky. (n.d.). *Homebased processing and microprocessing web site*. Retrieved October 15, 2015, from http://fcs-hes.ca.uky.edu/homebased_processing_microprocessing/
- Wolfe, K., & Barefield, A. (2007). Key Issues Affecting the Feasibility of Producer Owned, Value-Added Ventures in the South. *Journal of Agricultural and Applied Economics*, 39(2), 389-399.
- Woods, T., & Hoagland, H. (2000). Diversifying agricultural systems: an external analysis of state value-added programs. *Journal of Food Distribution Research*, 31(1), 204-214.

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