

Meeting the Demand for Local Food in West Virginia:

Results and implications from an analysis of producer market participation and expansion decisions

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What was the purpose of this study?

This report highlights the findings and implications from the study “Meeting the Demand for Local Food” that was conducted in 2012-2013. The goal of the study was to identify the factors and limitations that influence producers’ expansion and market participation¹ plans in order to understand their potential to contribute to growth in local food markets and to identify potential strategies to enhance this growth. To generate this information, a survey of West Virginia (WV) farmers and gardeners was conducted in 2013 and subsequent statistical analysis was conducted.

What information is in this report?

This report is organized as follows: Part 1 is an executive summary that highlights methodology and key findings and implications. Part 2 highlights characteristics of producers who are likely to decide to sell the products they raise. It also highlights potential limitations that may inhibit them from deciding to do so. Part 3 highlights the goals and limitations of commercial producers that could impact their ability to expand. Part 4 discusses the implications of the results of the study for local food development work in WV.

How can you use this report?

This report can be useful to practitioners and field professionals who seek to build marketing opportunities in WV and facilitate increased supply from local producers. If you are working to build local food markets such as farmers markets, farm-to-school programs, or wholesale outlets or food hubs, this report may provide information that can help you identify ways to involve new commercial producers or to help current producers expand by addressing factors that limit them. Regional summary statistics are also available in appendices for those interested in regional characterization.

How can you get more information?

This report presents highlights and report summary only. For the full study, access the [graduate thesis](#) or visit www.SARE.org. For further information, contact Mary Oldham at oldhamrm@gmail.com.

¹ The term market participation, as used in this report, refers to the decision of a producer to sell his/her product rather than use it for their own use or non-commercial purposes. This broad term could include sales to schools or other buyers and is not limited to participation in farmers markets alone.

Part I: Executive Summary

Study Purpose and Methodology

This report presents the results and implications of a survey study conducted during 2012-2013 among WV gardeners and farmers identified by local field professionals. The survey assessed producer goals, attitudes, motivation, limitations to expansion, marketing goals, reasons for selling and not selling product, among other aspects, that could affect their level of production and supply of products to potential marketing outlets. Data were gathered using an online and paper questionnaire. Of the total of 1705 questionnaires that were sent out, 1511 were delivered successfully and a total of 574 were returned complete and usable for analysis purposes. Through summary statistics generated from survey data and statistical econometric analysis², the study identified factors that statistically influence the likelihood that producers will sell their product or want to expand production. Several farm-level and motivational factors may limit producers' decisions to begin to sell their products or to expand commercial production. This report presents implications and potential strategies to address limitations in order to encourage growth of expanding and new commercial producers.

Key findings and implications for development work

- ⌘ *Impact on the local food supply from new commercial producers is most likely to be seen in farmers markets, with a lesser impact in road-side stands, restaurants, and farm-to-school.*
- ⌘ *Distance to market* may limit non-commercial producers from acting on their interest in selling their products. Efforts to develop alternative marketing options such as consignment sales, cooperative sales, and food hubs may facilitate entry of producers limited by distance.
- ⌘ *Concern about products making people sick (food safety) and complicated regulations* may limit non-commercial producers from beginning to sell their products. Training intended to empower producers to address food safety concerns on the farm and to understand regulations and liability may help grow new commercial producers.
- ⌘ *Complex attitudes towards farming as a business exist. Furthermore, skepticism about the profitability* of selling their products may limit non-commercial producers from beginning to sell their products. Efforts to show revenue potential through data collection and enterprise budgeting could encourage producers to consider commercial production.
- ⌘ Producers that plan to pass the farm on to a successor are more likely to expand their production. Efforts to assist producers to successfully *transition* farms between generations and owners will likely lead to expanded production and revenue, as well as to greater farm sustainability.
- ⌘ *Female producers and producers with access to irrigation water* are more likely to expand production. Programs that seek to support female agri-preneurs and to provide access to key resources such as water could help catalyze income generation and expand the supply of local food.

² A complete discussion of the methodology used in this study is beyond the scope of this outreach report but is available in the graduate thesis at this [link](#).

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Part II: “To sell or not to sell”: What factors encourage or limit potential new commercial producers from beginning to sell their products?

What is in Part II and how can it be used?

Part II highlights characteristics of producers who are likely to decide to sell the products they raise. It also highlights potential limitations that may inhibit them from deciding to do so. This information can be used to identify the type of producer likely to begin to sell. It can also be used to target efforts to address potential barriers to market entry and encourage greater participation among new commercial producers.

Part II may be useful to practitioners who are interested in encouraging the participation of new commercial producers to increase the supply of local foods. For example, if you work with farmers markets or farm to school programs and are interested in recruiting more vendors, this report may help you identify types of producers who are likely to participate. You also may identify ways to address factors that may be limiting their participation. Furthermore, regional-level information is presented in appendices for those readers interested in examining regional trends.

Results and Discussion

Section 1 presents summary statistics from survey results that help characterize the commercial and non-commercial producers in the study sample. This includes producers’ attitudes towards farming, interest in selling product in different market channels, and their reported reasons for selling or not. Appendix A presents the distribution of commercial and non-commercial producers in the sample at the regional level.

Section 2 presents statistical analysis results related to factors that influence producers to sell or not sell. The first analysis was conducted to determine which characteristics and attitudes influence producers to sell their product. The second examined the relationship of different factors and limitations to whether or not producers are likely to plan to sell in the future. By presenting the results of these two analyses, it is possible to identify both producer characteristics and contextual factors that influence their likelihood of deciding to sell their product.

Section 1. Summary statistics from survey results

This section provides survey results related to interest in selling in different market channels and reasons for selling or not selling. By presenting producers’ attitudes towards farming and their reasons for selling or not selling, this section characterizes the commercial and non-commercial producers in the sample.

What are commercial and non-commercial producers’ attitudes towards farming?

Producers were asked to indicate whether they agreed or disagreed with a series of statements related to attitudes towards farming as it relates to their community, farming as a business, and goals related to farming. Table 2.1 presents a summary of results that includes the percentage of commercial and non-commercial farmers who indicated that they “strongly agreed” with given statements. Among commercial vendors, the table illustrates responses among all respondents and also responses among a sub-group of producers who indicated that they sold in a farmers market in 2012. The column “# Responses” refers to the number of respondents per category that indicated an answer to a given

statement. For example, 371 commercial producers responded to the statement “farming is a viable business venture” and of those 226 were farmers market vendors. Results for farmers market vendors are presented due to the importance of this market channel as an entry point to commercial production.

Attitudes towards farming do not appear to differ greatly when the responses of commercial and non-commercial producers are observed. What appear to be more salient are trends among the sample of farmers as a whole. For example, a greater percentage of producers were in agreement with statements related to community such as “local food strengthens our community” or “I would encourage youth to pursue farming”. The statements with which a lower percentage of producers were in agreement included those related to farming as a business, including “I have written goals for my farm/garden down on paper” and “In the future my household would like to farm full-time with no off-farm income”, or “farming is a viable business venture”. It would appear that social and community goals are an important part of farming for the producers in this sample. Overall, it would also appear that goals related to farming as a business are less prominent or at least more complex within the sample.

Table 2.1. Attitudes towards farming among commercial and non-commercial producers

Statements	Sold in 2012				Did not sell in 2012	
	All Respondents		Farmers Market Vendors		All Respondents	
	% Strongly Agree	# Responses	% Strongly Agree	# Responses	% Strongly Agree	# Responses
I plan to pass my farm/garden on to a known successor.	33%	371	31%	226	44%	167
Farming is a viable business venture.	23%	371	21%	226	22%	161
Off-farm income is important for the continuity of my farm.	34%	356	34%	220	40%	159
In the future my household would like to farm full-time with no off-farm income.	20%	377	23%	230	13%	167
My household prefers to have off-farm income as well to reduce risk.	23%	362	22%	219	29%	156
My household prefers to have off-farm work to be able to get health insurance.	36%	378	33%	231	41%	167
I would encourage youth to pursue farming.	40%	370	44%	226	40%	164
I have written my goals for my farm/garden down on paper.	14%	372	17%	227	8%	166
Local food strengthens our community.	61%	370	69%	226	52%	163
Local food strengthens our economy.	58%	378	66%	232	51%	167
Farm work is a chore without joy.	2%	343	2%	211	1%	144
People value my role as a farmer/gardener.	20%	378	22%	231	14%	170
It's important to me to raise my family with farming/gardening.	47%	374	48%	227	45%	164
It's important to eat food produced without chemicals.	48%	377	53%	231	55%	170

Where are producers planning to sell?

All producers were asked where they plan to sell within the next two years. Table 2.2 illustrates the distribution of where producers intend to sell. Responses are presented for the whole sample and also according to responses among current commercial producers (those that sold in 2012) and non-commercial producers (those that did not sell in 2012). Appendix B illustrates the number and percentage of commercial producers who currently sell in different marketing channels, at the regional level.

A high percentage of current commercial producers plan to sell through farmers markets (71%), roadside stands (34%), restaurants (23%), and schools (19%). It is also noted that there is interest among current non-commercial producers in beginning to sell their products in the future. Of the 172 producers in the sample that did not sell in 2012, 82 of them (48%) are planning to sell within the next two years.

By examining where these “market-oriented” non-commercial producers are interested in selling, it is possible to get a sense of which markets are likely entry points for new commercial producers. From the last column in Table 2.2, it is noted that of these non-commercial producers who plan to sell in the future, 51% of them plan to sell through farmers markets, 9% through schools, 15% through roadside stands, and 12% through restaurants. While these latter channels may be potential entry points for new commercial farmers, it is evident that most new commercial producers are likely to enter through farmers markets. Thus, based on these projections of producer plans and goals, growth in WV local food markets due to new commercial producer participation is likely to be concentrated in farmers markets, roadside stands, and with a lesser impact in schools and other outlets.

Table 2.2. Number and percentage of commercial and non-commercial producers who plan to sell in different market channels

	Total	% sample (N=574)	Commercial (sold in 2012)	% Commercial (N=386)	Non-commercial (did not sell in 2012)	% Non-commercial (N=172)	% Non-commercial that intend to sell (N=82)
At least one market channel	457	80%	374	97%	82	48%	(-)
Farmers market	318	55%	275	71%	42	24%	51%
Schools	79	14%	72	19%	7	4%	9%
Restaurants	99	17%	89	23%	10	6%	12%
Roadside stand	144	25%	132	34%	12	7%	15%
Vegetable auction	15	3%	15	4%	0	0%	0%
CSA	42	7%	36	9%	6	3%	7%
Grocery Store	53	9%	50	13%	3	2%	4%
Stockyard	151	26%	118	31%	33	19%	40%
Hospital	6	1%	6	2%	0	0%	0%
Other	76	13%	57	15%	19	11%	23%
Unsure	30	5%	17	4%	13	8%	16%
None	84	15%	8	2%	76	44%	(-)

Why do producers sell or not sell their food products?

Understanding what motivates producers to sell is important to tailoring efforts to encourage them to sell or facilitate their participation by addressing barriers they may face. In order to understand what motivates producers to sell their products, commercial producers were asked why they sold in 2012 and non-commercial producers were asked why they did not sell.

Why commercial producers sold in 2012

Commercial producers were asked to select a reason that best describes why they sell the food products that they raise. Table 2.3 presents the percentage of commercial producers who indicated different reasons for selling. The table also presents responses of different sub-groups of producers organized according to whether or not they indicated that they sell through a given market channel. Many producers may sell in various market channels; the distinctions within this table were made to identify patterns among producers that decided to participate in a given market channel. For example, 43 producers in the sample indicating selling in restaurants in 2012; of those 43 producers, 5% indicated that they sold product because they had extra.

Among all commercial producers, the reason receiving the highest percentage of responses was “I sell my food products to earn income” (57%). While it appears that there are many other reasons that farmers sell their products, this illustrates that income is the predominant motivator across this sample of farmers.

It is noted that the percentage of producers who indicated that they sell for social reasons is higher among farmers market vendors (22%) than among all commercial producers overall (17%) or among wholesale producers (14%). Wholesale channels require significant volume of product, so it is no surprise that a relatively low percentage of producers in these channels indicated that they sell products because they have extra product.

Table 2.3. Main reasons that commercial producers sold food products in 2012, grouped by market channel participation

Reason for selling food products	Market Channels						
	All market channels (N=337)	Farmers market (N=205)	Farm-to-school (N=35)	Restaurants (N=43)	Grocery Store (N=30)	Hospitals (N=30)	All wholesale channels (N=81)
I produce more than I can eat, so I might as well sell the extra.	20%	19%	3%	5%	0%	0%	4%
I sell my food products to earn income.	57%	53%	74%	58%	73%	75%	65%
I enjoy the social connections I get when selling the food products I produce.	17%	22%	11%	19%	7%	25%	14%
Other	6%	6%	9%	7%	3%	0%	6%

Why non-commercial producers did not sell in 2012

Non-commercial producers were asked to indicate whether they agreed or disagreed that given statements described why they did not sell in 2012. Table 2.4 presents the percentage of producers who strongly agreed with given statements, which indicates that these factors present a large limitation for them. Results of responses among all non-commercial producers are presented. In subsequent columns responses are presented according to sub-categories of producers, including producers who plan to sell in the future and producers who plan to sell in the future in farmers markets. Appendix C presents aggregate responses for those interested in trends of limitations among non-commercial farmers at the regional level.

Table 2.4. Percentage of different groups of producers that “strongly agree” that they did not sell in 2012 for the given reasons

	All (non-commercial)	Not planning to sell in the future		Planning to sell in the future	
	% Strongly Agree	% Strongly Agree	# Responses	% Strongly Agree	# Responses
I'm not interested in selling the food I raise - it's just a hobby.	14%	17%	88	11%	87
Too far to travel to sell at a profitable marketing outlet.	6%	5%	88	7%	86
Don't have time to sell foods I grow/raise.	10%	11%	81	9%	82
Difficulty hiring the type of labor I need.	7%	10%	86	4%	85
Would not be profitable to sell the foods I produce.	9%	12%	86	7%	84
Don't think there is enough demand in local markets.	3%	2%	85	3%	88
Pest/disease problems limit my ability to sell my products.	7%	8%	87	6%	82
Complicated regulations make it difficult to sell the food I produce.	12%	12%	85	13%	86
I'm afraid of the consequences if the food I produce makes someone sick.	6%	3%	86	10%	84
I'd rather give away my extra produce than sell it.	22%	24%	93	21%	90
I used to sell but am now retired.	9%	10%	83	8%	77

Among these reasons for not selling, it is possible to distinguish between those that are related to goals and those that are related to limitations that could be potentially overcome. For example, among the reasons for which the highest percentage of producers “strongly agreed” were reasons they did not sell in 2012, the following are related to motivation: “I’m not interested in selling the food I raise – it’s just a hobby” (14%); I’d rather give away my extra produce than sell it” (22%). Farmers and gardeners who do not sell for these reasons may be unlikely to decide to sell in the future because these reasons are related to their goals rather than limitations.

However, some of the other reasons that kept people from selling product in 2012 may be reasons that could be overcome. For example, 10% of people indicated that they “strongly agreed” that the statement “I don’t have time to sell foods I grow/raise” described why they did not sell in 2012. Of all respondents, 12% indicated that they strongly agreed that they did not sell in 2012 because “complicated regulations make it difficult to sell the food I produce”. Time constraints and regulations are potentially two factors that could be addressed to encourage producers who feel limited by them to begin to sell their products.

Table 2.5 presents the reasons for not selling in 2012 among producers who have plans to sell in the future or are “market-oriented”. The table presents the results for all producers who indicated intentions to sell in farmers markets in the future and those who indicated intentions to sell in wholesale channels. Producers indicating interest in restaurants, hospitals, farm to school sales or grocery stores were included in the wholesale category. The percentage of each group that agreed or strongly agreed with each given reason for not selling is presented along with the number of respondents per statement.

Table 2.5. Reasons for not selling in 2012 among producers intending to sell in farmers markets and wholesale channels

	Farmers Market		Wholesale	
	% Agree or Strongly Agree	# Responses	% Agree or Strongly Agree	# Responses
I'm not interested in selling the food I raise - it's just a hobby.	17%	41	14%	14
Too far to travel to sell at a profitable marketing outlet	25%	40	21%	14
Don't have time to sell foods I grow/raise.	23%	39	23%	13
Difficulty hiring the type of labor I need.	18%	40	29%	14
Would not be profitable to sell the foods I produce.	20%	41	7%	14
Don't think there is enough demand in local markets.	17%	41	14%	14
Pest/disease problems limit my ability to sell my products.	25%	40	29%	14
Complicated regulations make it difficult to sell the food I produce.	38%	40	57%	14
I'm afraid of the consequences if the food I produce makes someone sick.	45%	40	43%	14
I'd rather give away my extra produce than sell it.	48%	40	21%	14
I used to sell but am now retired.	18%	39	15%	13

Based on these descriptive statistics alone without further analysis, one might note that some potential limitations may limit producers with wholesale goals more than those oriented more to farmers markets. Limitations that appear to limit wholesale producers more include access to labor and complicated regulations. Reasons for not selling related to goals and beliefs about lack of profitability are more predominant among farmers-market-oriented producers than producers with wholesale goals. Distance to market and time limitations do not appear to influence one group more than the other.

Section 2. Results of statistical analysis: Who is likely to sell?

While descriptive statistics like those above are useful for understanding trends in the sample, statistical analysis enables one to distinguish factors that significantly influence a given outcome. This study was concerned with what makes producers more likely to sell and what factors influence any future intentions of selling.

Current commercial producers: Who is selling now?

Therefore, the first statistical analysis was conducted to identify any factors that significantly increased the likelihood that a producer will sell their product as opposed to producing it but deciding not to sell it. The analysis included a variety of demographic characteristics such as age and gender, social and cultural factors such as ancestry and attitudes towards farming, motivational and goal-related factors, and farm-level factors such as access to land and labor resources. A full list of factors included in the

analysis may be found in Appendix D. For a more complete description of the analysis readers may view the graduate thesis found at this [link](#). The following factors were found to be significantly associated with producers who sold product in 2012.

[Income generation motivation](#)

Producers who indicated that their reason for entering farming was to develop a business to generate additional income were more likely to sell than producers who indicated a different reason for entering farming. This illustrates that income motivation, while not the only motivation for farming, is an important factor in whether or not a producer will sell.

[Ancestors settled to farm in WV](#)

Producers who indicated that their ancestors settled in WV to farm rather than a different reason such as to work in the mining industry, timber or other, were less likely to sell their products. This may underscore the importance of family history in beliefs about farming.

[Attitudes about farming as a viable business venture](#)

Producers who indicated that they “agreed” with the statement “farming is a viable business venture” were less likely to sell. This indicates that belief in farming as a viable enterprise is not necessarily a prerequisite for market participation.

Demographic factors such as education and household income and farm-level factors such as access to resources such as land and equipment were not found to be statistically significant in determining whether or not a producer sells. Therefore, it would appear that motivation and attitudes related to farming may be the predominant factors in determining whether a producer sells or not.

[Potential new commercial producers: Who may decide to sell in the future?](#)

A second analysis was conducted to examine the extent to which non-commercial producers’ plans to sell in the future or not are influenced by different potential limitations. The analysis included all potential reasons for not selling. A list of variables included is available in Appendix E. The following factors were identified to significantly influence producers’ plans to sell in the future.

[Distance to market and concerns about food safety may be surmountable limitations to new vendors](#)

Respondents who indicated that distance to market had limited them in the past from selling were more likely to have intentions of selling in the future than those who did not indicate that they had been limited by distance to market in the past. This indicates that distance may have been a limiting factor in the past but may no longer limit some farmers. Perhaps this is due to an increase in the accessibility of farmers markets or other sales outlets.

Respondents who indicated that concern about food safety had limited them in the past from selling were actually more likely to have intentions of selling in the future than those who did not indicate that food safety had limited them in the past. This indicates that this concern may limit people from acting on their interest in selling product.

Time constraints, concern about profitability, and goals limit interest in selling in the future

Respondents who indicated that they had not sold in the past due to the following reasons: “lack of time to produce and market products”, “it would not be profitable to sell my products”, or “not interested in selling their products; it’s just a hobby” were less likely to have intentions of selling in the future than those who did not indicate that these reasons had limited them in the past from selling.

This could indicate that people who express that they do not have the time or interest in selling their products are not likely to decide to sell their products. It may be difficult to help these people to overcome these factors and encourage them to sell unless their time constraints and perceptions can be altered enough to spark their interest in selling.

Part III: What Factors Influence Whether Market-Oriented Producers Intend to Expand Production?

What is in Part III and how can it be used?

While Part II examined the potential for increased production among new commercial producers that begin to sell product, Part III highlights findings related to the characteristics of producers who are interested in expanding production and the factors that may limit their ability to expand. By examining these two different aspects of expansion, it is possible to understand the implications of both the inherent and situational characteristics that could impact a producer's likelihood and potential of expanding. In turn, this information can inform the development of programs to assist producers to expand their production. This information may be useful to community development workers that seek to build the supply of locally-produced food in WV markets by assisting them, a) to target populations most likely to be interested in expanding, and b) to address the issues that most limit producers from expanding.

Results and Discussion

Section 1 presents summary statistics from survey results that help characterize the sub-group of producers in the study sample who are interested in expanding.

Section 2 presents statistical analysis results related to factors that influence producers' expansion plans. An econometric statistical analysis was conducted to determine the statistical significance of factors influencing the likelihood that a producer intends to expand.

Section 1: Summary Statistics

Are producers interested in expanding production?

Participants were asked about their intentions to expand production. Out of the 546 who responded to this question, 47% indicated they would expand more, 38% indicated they would produce the same amount, 6% indicated they would produce less, 1% indicated they would stop farming or gardening, and 8% indicated they were not sure. This study assumed that interest in expansion would be related to perception of opportunity in increasing production. The questionnaire also included questions related to the different quantities of products produced by respondents and their goals for production in the future. Many respondents left these questions unanswered making it difficult to reliably estimate the magnitude of expansion. However, a characterization of producers according to the products they produce and interest in expanding is presented in Appendix F.

What factors limit producers' ability to expand production?

Producers that currently sell product were asked the question "please indicate how much the following factors do or do not limit your ability to expand your farm" and were given the options "do not limit me", "somewhat limit me", "limit me a lot", and "not sure". This question was only posed to commercial producers (producers who sold in 2012). Table 3.1 presents the aggregate survey results of the percentage of producers who indicated that given factors limited them "a lot". The table also presents results for those respondents who indicated they sold in farmers markets and for the sub-groups of those who indicated that they sold in at least one wholesale outlet such as restaurants, farm-to-school,

or grocery stores or hospitals. Any given producer could be represented in both subsets because they may have sold in both farmers markets and wholesale outlets. However, this subgrouping provides a general sense of how limitations might impact producers focused on different marketing channels more than others. A regional-level summary of producers' limitations to expansion is presented in Appendix G.

The limitations for which the highest percentage of all commercial respondents indicated “limit me a lot” were high input costs, lack of money to invest in expansion, difficulty hiring the type of labor they need, complicated regulations, and lack of time to market/distribute their products. Factors that do not appear to limit a high percentage of producers in their ability to expand included access to water, land, equipment, knowledge, and distance to market.

It is noted that a higher percentage of the wholesale producer subgroup was limited by low prices, access to labor, and complicated regulations compared to the percentage of subgroups of farmers market vendors and the whole sample of commercial producers. However, further statistical analysis would be needed to determine the significance of this difference.

Table 3.1. Percent of all commercial producers indicating that they are limited “a lot” by given potential limitations

Potential Limitation	All		Farmers Market Vendors		Wholesale Vendors	
	% Limit me a lot	# Responses	% Limit me a lot	# Responses	% Limit me a lot	# Responses
Low prices for products sold	17%	361	15%	221	22%	76
Pest/disease problems	15%	369	17%	226	19%	78
Not enough water	9%	356	7%	216	9%	76
Not enough land	15%	366	13%	224	13%	77
Limited access to larger-scale equipment	11%	360	12%	221	10%	77
Difficulty hiring the type of labor I need	18%	370	17%	227	29%	78
Complicated regulations	17%	342	19%	211	27%	77
Lack of time to market/distribute my products	18%	371	19%	229	23%	78
Lack of production-related knowledge	4%	363	3%	222	3%	78
Long travel distance to market	7%	370	8%	229	12%	78
Lack of demand for my products	6%	363	5%	222	5%	78
Lack of access to local processing	13%	366	17%	225	20%	79
Lack of marketing-related knowledge	6%	360	4%	221	1%	78
Lack of money to invest in expansion	30%	367	30%	226	26%	78
High input costs	29%	364	25%	223	32%	78
High processing costs	14%	360	13%	223	17%	77

Section 2: Results of statistics analysis of factors that influence likelihood of expansion

In order to understand the decisions of producers whose production decisions would influence the future of supply in WV markets, a subsample of producers was analyzed. Producers included in this sample included not only current commercial producers (producers currently selling) but also producers who did not sell in 2012 but who indicated an interest in selling in the future. Producers who did not sell in 2012 and were not interested in selling in the future were not included in this analysis because it was assumed that their production would not influence the availability of food for purchase.

Statistical econometric analysis was conducted to determine which characteristics of these “market-oriented” producers or factors related to their situation made them statistically more likely to be interested in expanding. Drawing from relevant research on producer decision-making, a variety of demographic, farm-level, and motivational factors were selected for inclusion in the analysis, and are presented in Appendix H.

Factors that influence likelihood of expansion

The following factors were found to significantly influence a producer’s likelihood of planning to expand their production.

Gender

Women are more likely to intend to expand than men.

Age

As a person’s age increases they are less likely to be interested in expanding. This is no surprise, given that age reduces a producers’ ability to take on greater workloads.

Educational Attainment

As a person’s educational attainment level increases they are less likely to intend to expand production. This could be due to the availability of other, and higher paying, income sources that limit the need to expand production purely for income generation purposes.

Plans to pass farm on to a successor

Producers who plan to pass the farm on to a known successor are more likely to intend to expand production.

Access to irrigation water

Access to water for irrigation increases the likelihood that a producer intends to expand. Other resources such as access to acreage were included in the analysis but were not found to be significant influencing factors on expansion. This may suggest that access to irrigation water is a limiting resource for many potentially expanding farmers rather than land.

Availability of labor

Producers who reported having access to family laborers were less likely to intend to expand. This could be because they are at their labor capacity. Access to hired labor was included in the analysis but was not found to be a significant factor influencing expansion. This may suggest that having access to hired laborers may not influence expansion but farms that rely heavily on family labor may be less likely to expand.

Diet and Production

Producers who raise a higher percentage of their household's diet were less likely to want to expand than those who raised a lower percentage of their diet. This could indicate that expansion goals are related to family food supply needs. As family needs are satisfied, it would appear that interest in expanding decreases. This may reflect the small scale that many farmers are at and reflect underlying goals of self-sufficiency.

Income-generation motivation impacts likelihood of expansion goals

Those who were motivated to enter farming by goals related to income generation were more likely to want to expand. This is no surprise, given that earning more income is often associated with expansion.

Part IV: Implications and potential strategies for development work

This section highlights the implications of this study for work that is focused on building local food markets and assisting producers to scale up production to meet the growing demand for local food. Many of the potential strategies to address limitations to market participation or expansion were generated collaboratively with the help from producers, market managers, the WV Farmers Market Association board, and WVU Extension Specialists who were able to put the findings of this study in context and contribute valuable insight.

Building the local food supply by developing new commercial producers

This study found that there is interest among non-commercial producers in selling in the future. Impact on the local food supply among these potential “new entrants” is likely to be seen primarily in farmers markets and to a lesser degree in roadside stands, restaurant, and farm-to-school sales.

Given this identified interest, efforts to address potential barriers to market participation (such as those identified in this study) could encourage greater entry and participation among these potential commercial producers. The following recommendations provide examples of ways practitioners may begin to address barriers that could limit non-commercial producers currently.

Find creative ways to address time and distance constraints

Time and distance to market limit producers from deciding to sell. Market models such as food hubs and creative distribution networks that reduce marketing distance and time may encourage producers to sell who were previously limited by these factors. Consignment-model markets or markets that operate during evenings may be more effective in attracting farmers who feel limited by these factors. Farmers markets that are interested in recruiting more vendors may also consider allowing producer members to sell through other members in order to assist growers to market product without additional travel. Additionally, increased awareness of the reduced direct marketing time associated with sales options like farm-to-school could attract new commercial producers who were previously unable to sell in direct-to-consumer outlets such as farmers market due to time constraints.

Empower producers to address food safety concerns and manage regulations

Efforts to assist farmers to overcome this concern may encourage them to become vendors. For example, markets that could facilitate access to training and information on food safety or post-harvest handling may be successful in recruiting new vendors. Furthermore, given that a high percentage of non-commercial producers cited “complicated regulations” as a reason they did not sell, efforts to demystify regulations and empower producers to manage them with less stress could encourage more producers to sell as well.

Show the money but take into account other motivating factors too

While it was evident in this study that producers are motivated to sell for many reasons, income generation was the predominant reason that commercial producers sell. Attitudes towards farming reveal that low percentages of producers view it as a viable business venture and are not relying on it for their full-time income. Skepticism about the profitability of selling products was also a reason that non-commercial producers do not sell. These attitudes were more predominant among farmers market-oriented producers than wholesale-oriented producers as well. Efforts to create or illustrate the income-generation potential of local sales opportunities may be effective in encouraging participation among

non-commercial producers. For example, data collection among market outlets that can illustrate the average revenue per vendor may entice new producers to begin to sell their products. However, given that financial motivation is not the sole motivation for producers in farmers markets, efforts to encourage more producers must be sensitive to those reasons as well in order to recruit and retain more participating commercial producers.

Examine and address market channel-specific barriers

The descriptive statistics illustrated previously suggest that producers who intend to sell through wholesale channels may be limited by different factors than those interested in farmers markets. Programs developed to encourage greater market participation among current non-commercial producers must take into account the potentially different barriers that these different producers face in order to facilitate their entry to commercial production. For example, lack of access to labor and complicated regulations were two factors that appeared to limit wholesale-oriented producers as compared to farmers market vendors.

Building the local food supply by facilitating expansion among current commercial producers

This study identified several key factors that influence producers' intentions to expand production. The following summarizes these factors and offers potential strategies to address them in order to encourage expanded food production among current commercial producers.

Facilitate farm transition

The statistical analysis in this study indicated that producers who intend to pass the farm on to a known successor are more likely to have plans to expand their production. Efforts to support the successful transition of farms between generations and owners is likely to contribute not only to small farm sustainability but also to expansion that will lead to increased rural income generation and increased supply to help meet the growing demand for local food.

Facilitate access to key resources such as labor and irrigation water

Producers who had access to irrigation water were more likely to plan to expand production. Producers who reported using family laborers were less likely to expand. Availability of land did not impact producers' intentions to expand. This may indicate that water and availability of labor are two key factors that enable producers to expand. Programs that facilitate producers' access to irrigation water may be beneficial in encouraging expanded production. Similarly, creative efforts to increase access to labor beyond the household could increase ability and interest in expanding. Examples could include education about how to develop internships or apprenticeship programs, efforts to share labor among different businesses that require part-time help, or other more creative solutions.

Support female producers

The statistical analysis also indicated that female producers were more likely to have plans to expand than male producers. This may suggest that investment in efforts to facilitate the growth of female producers will likely assist them to expand and help to increase the supply of local food overall.

Interested in learning more? Contact Mary Oldham at oldhamrm@gmail.com or visit www.SARE.org.

Appendix A. Distribution of commercial and non-commercial producers, by region

Region	# and % Responses	Total Participants Included in Analysis	Did not sell in 2012	Sold in 2012	Did not sell in 2012, interested in selling in the future	Sold in Farmers Market 2012	Did not sell in 2012 & Interested in Selling in Farmers Market in the Future	Counties Represented
Region 1	<i># Responses</i>	117	40	76	18	42	9	Doddridge, Hancock, Harrison, Lewis, Marion, Monongalia, Ohio, Preston, Taylor, Tyler
	<i>% Responses</i>		34%	65%	15%	36%	8%	
Region 2	<i># Responses</i>	120	35	85	16	31	7	Berkeley, Grant, Hampshire, Hardy, Jefferson, Mineral, Morgan
	<i>% Responses</i>		29%	71%	13%	26%	6%	
Region 3	<i># Responses</i>	108	29	78	15	63	6	Barbour, Greenbrier, Monroe, Pocahontas, Randolph, Tucker, Upshur, Webster
	<i>% Responses</i>		27%	72%	14%	58%	6%	
Region 4	<i># Responses</i>	95	34	61	16	41	12	Braxton, Clay, Fayette, Lincoln, Mercer, Nicholas
	<i>% Responses</i>		36%	64%	17%	43%	13%	
Region 5	<i># Responses</i>	95	30	64	13	42	6	Cabell, Calhoun, Gilmer, Jackson, Kanawha, Mason, Pleasants, Ritchie, Roane, Wayne, Wirt
	<i>% Responses</i>		32%	67%	14%	44%	6%	

Appendix B. Number and percent of commercial producers per county selling in different market channels in 2012

Region	# and % of Responses	Total Respondents to this question	Farmers Markets	Schools	Restaurants	Grocery Stores	Hospitals	At least one wholesale market channel	Counties Represented
Region 1	<i># Responses</i>	117	42	6	10	3	0	15	Doddridge, Hancock, Harrison, Lewis, Marion, Monongalia, Ohio, Preston, Taylor, Tyler
	<i>% Responses</i>		36%	5%	9%	3%	0%	13%	
Region 2	<i># Responses</i>	120	31	7	5	8	2	15	Berkeley, Grant, Hampshire, Hardy,
	<i>% Responses</i>		26%	6%	4%	7%	2%	13%	
Region 3	<i># Responses</i>	108	63	12	9	6	1	19	Barbour, Greenbrier, Monroe, Pocahontas, Randolph, Tucker, Upshur, Webster
	<i>% Responses</i>		58%	11%	8%	6%	1%	18%	
Region 4	<i># Responses</i>	95	41	3	8	5	1	12	Braxton, Clay, Fayette, Lincoln, Mercer, Nicholas
	<i>% Responses</i>		43%	3%	8%	5%	1%	13%	
Region 5	<i># Responses</i>	95	42	6	6	6	0	14	Cabell, Calhoun, Gilmer, Jackson, Kanawha, Mason, Pleasants, Ritchie, Roane, Wayne, Wirt
	<i>% Responses</i>		44%	6%	6%	6%	0%	15%	



Appendix C. Number of non-commercial producers, by region, that agreed or strongly agreed that a given statement described why they did not sell in 2012. The “% responses” row indicates the percentage of people who responded to this question in that region that agreed or strongly agreed with the statement.

Region	# and % of Responses	Total Answers	I'm not interested in selling the food I raise - it's just a hobby.	Too far to travel to sell at a profitable marketing outlet	Don't have time to sell foods I grow/raise.	Difficulty hiring the type of labor I need.	Would not be profitable to sell the foods I produce.	Don't think there is enough demand in local markets.	Pest/disease problems limit my ability to sell my products.	Complicated regulations make it difficult to sell the food I produce.	I'm afraid of the consequences if the food I produce makes someone sick.	I'd rather give away my extra produce than sell it.	I used to sell but am now retired.	Counties Represented
Region 1	<i># Responses</i>	22	10	7	10	8	6	7	2	9	8	13	6	Doddridge, Hancock, Harrison, Lewis, Marion, Monongalia, Ohio, Preston, Taylor, Tyler
	<i>% Responses</i>		45%	32%	45%	36%	27%	32%	9%	41%	36%	59%	27%	
Region 2	<i># Responses</i>	16	4	4	4	3	6	3	2	5	5	10	2	Berkeley, Grant, Hampshire, Hardy, Jefferson, Mineral, Morgan
	<i>% Responses</i>		25%	25%	25%	19%	38%	19%	13%	31%	31%	63%	13%	
Region 3	<i># Responses</i>	18	4	6	8	6	4	5	3	6	6	8	0	Barbour, Greenbrier, Monroe, Pocahontas, Randolph, Tucker, Upshur, Webster
	<i>% Responses</i>		22%	33%	44%	33%	22%	28%	17%	33%	33%	44%	0%	
Region 4	<i># Responses</i>	18	6	1	4	5	2	2	5	5	7	10	3	Braxton, Clay, Fayette, Lincoln, Mercer, Nicholas
	<i>% Responses</i>		33%	6%	22%	28%	11%	11%	28%	28%	39%	56%	17%	
Region 5	<i># Responses</i>	12	3	5	4	3	3	5	3	6	5	6	2	Cabell, Calhoun, Gilmer, Jackson, Kanawha, Mason, Pleasants, Ritchie, Roane, Wayne, Wirt
	<i>% Responses</i>		25%	42%	33%	25%	25%	42%	25%	50%	42%	50%	17%	

Appendix D. Variables included in analysis of what factors impact whether producers sold or not in 2012

<i>N</i> = 352
Dependent Variable
Sold in 2012 (yes=1)
Explanatory Variables
Age (years)
Gender (female = 1)
Education
Household Income
Operator works full-time off the farm (yes = 1)
Number of acres of usable agricultural land to which the operator has access (acres)
Distance to market (miles)
Plan to pass farm/garden on to a known successor (Strongly agree or agree = 1)
Number generations land has been in family
Access to water for irrigation (yes = 1)
Land owned by operator (yes = 1)
Hired laborers (yes = 1)
Family laborers (yes = 1)
Percentage of diet made up of food products that you raise
Raised fattened beef in 2012 (yes = 1)
Raised broilers in 2012 (yes = 1)
Raised layers in 2012 (yes = 1)
Raised pork in 2012 (yes = 1)
Raised lamb in 2012 (yes = 1)
Raised meat goats in 2012 (yes = 1)
Raised dairy cows in 2012 (yes = 1)
Raised fruit trees in 2012 (yes = 1)
Raised vegetables in 2012 (yes = 1)
People value my role as a farmer/gardener. (yes = 1)
I would encourage youth to pursue farming. (yes = 1)
Ancestors settled to farm (yes = 1)
Ancestors: German (yes = 1)
Ancestors: Scot-Irish (yes = 1)
Reason for entering farming: Take over farm from family or other person (yes = 1)
Reason for entering farming: develop business to generate additional income (yes = 1)
Farming is a viable business venture. (Strongly agree or agree = 1)
Household prefers to have off-farm income as well to reduce risk. (Strongly agree or agree = 1)

Appendix E. Variables included in analysis of what factors influence likelihood that non-commercial producers will decide to sell in the future

<i>N=91</i>
Dependent Variable
Intend to sell products in the future (yes = 1)
Explanatory Variables
Age (years)
Gender (female = 1)
Education (7 possible levels)
Household Income (18 possible levels)
Operator works full-time off the farm (yes = 1)
Number of acres of usable agricultural land to which the operator has access (acres)
Distance to market (miles)
Percentage of diet made up of food products that you raise
Reason for entering farming: Take over farm from family or other person (yes = 1)
Reason for entering farming: develop business to generate additional income (yes = 1)
Farming is a viable business venture. (Strongly agree or agree = 1)
Household prefers to have off-farm income as well to reduce risk. (Strongly agree or agree = 1)
Reasons for not selling in 2012 (Likert scale: 1=strongly disagree, 2=disagree, 3=neither agree nor disagree, 4=agree, 5=strongly agree)
Not interested in selling; just a hobby
Used to sell but now retired
Prefer to give away extra produce rather than sell it
Afraid of consequences if product makes someone sick
Complicated regulations
Pest and Disease problems
Too far to sell at a profitable market outlet
Don't have the time to sell
Difficulty hiring type of labor needed
Believe it wouldn't be profitable
Lack of demand in local markets

Appendix F. Number of respondents, by region, according to production, expansion, and market characteristics

Region	# Producers who want to expand and have beef	# Producers who sold in wholesale channels in 2012 and have beef	# Producers who want to expand and produce vegetables	# Producers who sold in wholesale channels in 2012 and produce vegetables	Counties Represented
Region 1	9	2	37	13	Doddridge, Hancock, Harrison, Lewis, Marion, Monongalia, Ohio, Preston, Taylor, Tyler
Region 2	8	1	29	13	Berkeley, Grant, Hampshire, Hardy, Jefferson, Mineral, Morgan
Region 3	7	4	49	18	Barbour, Greenbrier, Monroe, Pocahontas, Randolph, Tucker, Upshur, Webster
Region 4	4	2	53	10	Braxton, Clay, Fayette, Lincoln, Mercer, Nicholas
Region 5	10	4	43	14	Cabell, Calhoun, Gilmer, Jackson, Kanawha, Mason, Pleasants, Ritchie, Roane, Wayne, Wirt



Appendix G. Number of producers who indicated that the given constraint limited them “a lot” from expanding their farm or garden, by region in West Virginia

[Other answer options included “somewhat limits me”, “does not limit me”, and “not sure”].

State	Region	# and % of Responses	Total Responses	Low prices for products sold	Pest/disease problems	Not enough water	Not enough land	Limited access to larger-scale equipment	Difficulty hiring the type of labor I need	Complicated regulations	Lack of time to market/distribute my products	Lack of production-related knowledge	Long travel distance to market	Lack of demand for my products	Lack of access to local processing	Lack of marketing-related knowledge	Lack of money to invest in expansion	High input costs	High processing costs	Counties Included
WV	Region 1	# Responses	77	15	12	8	17	7	14	15	16	4	9	5	10	1	23	20	12	Doddridge, Hancock, Harrison, Lewis, Marion, Monongalia, Ohio, Preston, Taylor, Tyler
		% Responses		19%	16%	10%	22%	9%	18%	19%	21%	5%	12%	6%	13%	1%	30%	26%	16%	
WV	Region 2	# Responses	81	17	8	7	12	5	14	16	8	2	4	6	4	6	24	25	12	Berkeley, Grant, Hampshire, Hardy, Jefferson, Mineral, Morgan
		% Responses		21%	10%	9%	15%	6%	17%	20%	10%	2%	5%	7%	5%	7%	30%	31%	15%	
WV	Region 3	# Responses	78	15	8	5	7	9	11	11	17	3	5	6	16	6	19	15	11	Barbour, Greenbrier, Monroe, Pocahontas, Randolph, Tucker, Upshur, Webster
		% Responses		19%	10%	6%	9%	12%	14%	14%	22%	4%	6%	8%	21%	8%	24%	19%	14%	
WV	Region 4	# Responses	60	5	13	6	5	8	6	8	9	2	5	0	7	2	19	16	7	Braxton, Clay, Fayette, Lincoln, Mercer, Nicholas
		% Responses		8%	22%	10%	8%	13%	10%	13%	15%	3%	8%	0%	12%	3%	32%	27%	12%	
WV	Region 5	# Responses	65	7	11	5	12	7	13	10	13	3	3	6	10	7	20	20	6	Cabell, Calhoun, Gilmer, Jackson, Kanawha, Mason, Pleasants, Ritchie, Roane, Wayne, Wirt
		% Responses		11%	17%	8%	18%	11%	20%	15%	20%	5%	5%	9%	15%	11%	31%	31%	9%	

Appendix H. Variables included in analysis of factors influencing producers' intentions to expand production

<i>N</i> =363
Dependent Variable
Intend to expand more (yes = 1)
Explanatory Variables
Age (years)
Gender (female = 1)
Education (7 possible levels)
Household Income (18 possible levels)
Operator works full-time off the farm (yes = 1)
Number of acres of usable agricultural land to which the operator has access (acres)
Distance to market (miles)
Plan to pass farm/garden on to a known successor (Strongly agree or agree = 1)
Number generations land has been in family
Access to water for irrigation (yes = 1)
Land owned by operator (yes = 1)
Hired laborers (yes = 1)
Family laborers (yes = 1)
Percentage of diet made up of food products that you raise
Raised fattened beef in 2012 (yes = 1)
Raised broilers in 2012 (yes = 1)
Raised layers in 2012 (yes = 1)
Raised pork in 2012 (yes = 1)
Raised lamb in 2012 (yes = 1)
Raised meat goats in 2012 (yes = 1)
Raised dairy cows in 2012 (yes = 1)
Raised fruit trees in 2012 (yes = 1)
Raised vegetables in 2012 (yes = 1)
People value my role as a farmer/gardener. (yes = 1)
I would encourage youth to pursue farming. (yes = 1)
Ancestors settled to farm (yes = 1)
Ancestors: German (yes = 1)
Ancestors: Scot-Irish (yes = 1)
Reason for entering farming: Take over farm from family or other person (yes = 1)
Reason for entering farming: develop business to generate additional income (yes = 1)
Farming is a viable business venture. (Strongly agree or Agree = 1)
Household prefers to have off-farm income as well to reduce risk. (Strongly agree or agree = 1)