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## **Descriptive Aanalysis of Agritourism in Louisiana: Motivation. Marketing. Limitations.**

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DESCRIPTIVE ANALYSIS OF AGRITOURISM IN LOUISIANA:  
MOTIVATION. MARKETING. LIMITATIONS.

A Thesis

Submitted to the Graduate Faculty of the  
Louisiana State University  
and Agricultural and Mechanical College  
in partial fulfillment of  
the requirements for the degree of  
Master of Science

in

The Department of Agricultural Economics  
and Agribusiness

by  
Denys Maksymov  
B.S. at Dnipropetrovsk National University, 2014  
August 2017

Dedicated to my beloved wife, Iryna Maksymova,  
my wonderful granny, Galyna Barsegyan  
and my parents, Alena Maksymova and Oleg Kabar  
for their love, support, and faith in me.

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## **ABSTRACT**

This study aims to present information on the existing Louisiana agritourism industry and create a descriptive profile of agritourism operators, addressing specifically what motivates people to engage in agritourism. A subsequent focus of the study is to document marketing approaches used in promoting agritourism operations and concerns and limitations faced by Louisiana agritourism operators. These will be achieved through the following objectives:

1. Use a survey instrument to collect information on the demographics of farmers interested and/or engaged in agritourism, farm characteristics, types of activities offered in the agritourism operations, as well as motivators for engaging in agritourism.
2. Analyze ways of promotion of agritourism operations and farmers' perceptions of these advertising methods.
3. Identify key issues farmers face in the operation of the agritourism business.
4. Use principal component analysis to determine the nature of motivation for operating an agritourism business.

The outcomes of the study would help increase understanding of current processes in agritourism that are taking place in Louisiana. Determination of the nature of motivation that lies behind operating agritourism enterprises, which is currently not fully known, may provide a better understanding of both financial and nonfinancial goals with the association to different farm characteristics.

Identification of marketing approaches used by farmers to promote agritourism operations may improve the understanding of underlying processes and lead to the creation of learning materials to help farmers improve their marketing campaigns. Identification of potential constraints that agritourism operators face may lead to policy implications

# CHAPTER 1. INTRODUCTION

## 1.1 Background information

Agriculture is an important industry in Louisiana. According to the United States Department of Agriculture Economic Research Service (USDA ERS), there were 26,900 operators in the state, who operated on 7.750 millions of acres in 2015 (USDA, 2015). Main agricultural commodities of the state include rice, sugar, soybeans, crawfish, alligator, poultry and timber. Louisiana ranks second in the production of sugarcane, third in the production of rice and third in aquaculture production in the United States. In 2012, the total value of agricultural products sold was more than \$3.809 billion, where value of crops, including nursery and greenhouse, accounted for 73.07% of all sales and value of livestock, poultry, and their products accounted for 26.93% respectively (USDA, 2015).

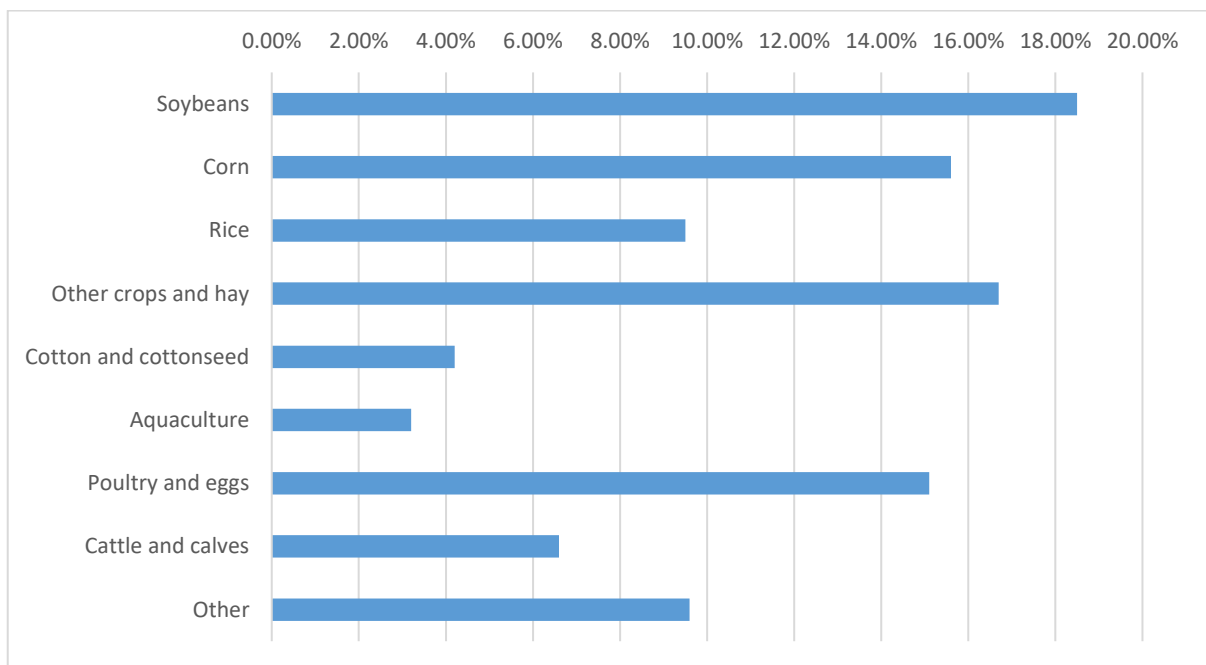


Figure 1.1. Structure of value of Louisiana agricultural products sold

*Note:* Adapted from [https://www.agcensus.usda.gov/Publications/2012/Full\\_Report/Volume\\_1,\\_Chapter\\_1\\_State\\_Level/Louisiana/st22\\_1\\_002\\_002.pdf](https://www.agcensus.usda.gov/Publications/2012/Full_Report/Volume_1,_Chapter_1_State_Level/Louisiana/st22_1_002_002.pdf)

Figure 1.1 demonstrates that corn, soybeans, rice and cotton have the largest share in the crop industry, while poultry production is the biggest animal industry in Louisiana with more than 872 million pounds of broiler meat produced in 2014.

Figure 1.2 presents the information about the number of farms by size in Louisiana as reported in the 2012 Census of Agriculture. As we can see, the majority of farms do not exceed 179 acres, with 33.14% of farms ranging from 10 to 49 acres and 31.05% from 50 to 179 acres. Farms that are larger than 1,000 acres account for 6.86% in general structure. With regards to business structure, 24,525 farms are classified by legal status as family or individual; 1,788 as partnerships; 1,552 as corporations, and 228 as other cooperative, estate or trust, institutional, etc.

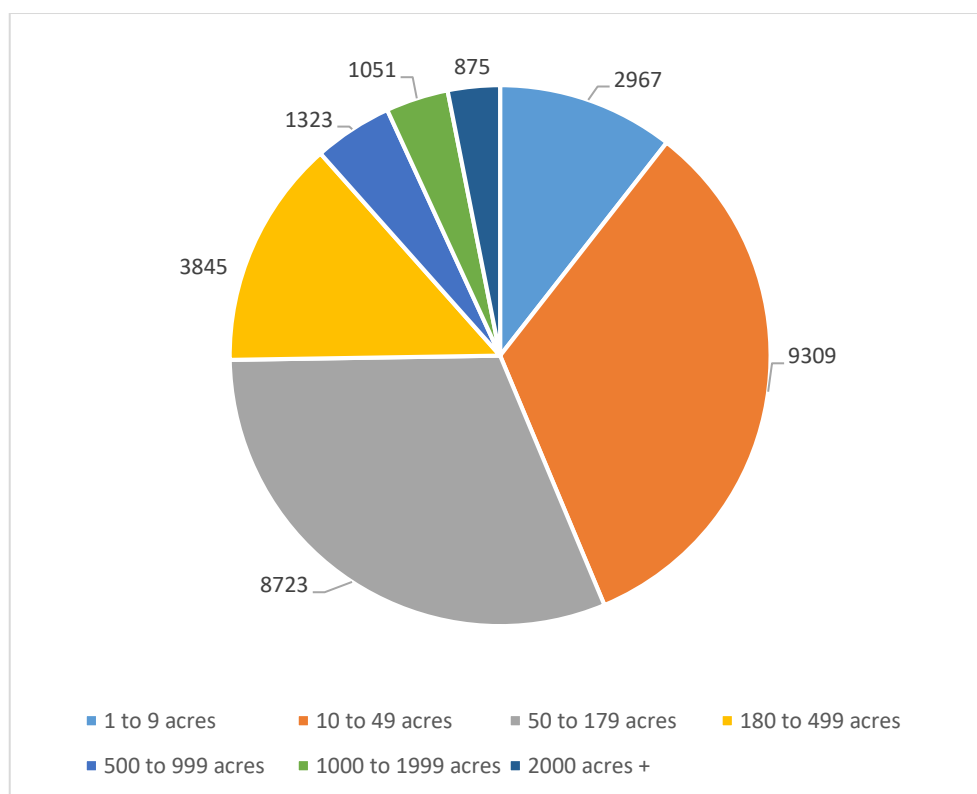


Figure 1.2. Louisiana farms by farm size

**Note:** Adapted from [https://www.agcensus.usda.gov/Publications/2012/Full\\_Report/Volume\\_1,\\_Chapter\\_1\\_State\\_Level/Louisiana/st22\\_1\\_001\\_001.pdf](https://www.agcensus.usda.gov/Publications/2012/Full_Report/Volume_1,_Chapter_1_State_Level/Louisiana/st22_1_001_001.pdf)

Table 1.1 contains information about the number of farms, land in farms, total cropland, the age of principal operator, and market value of agricultural products sold over the period 2002 to 2012.

During the ten-year period, we observe some fluctuations in the number of farms and the respective total farmland in acres. We do see as well, that cropland accounted for 64.8% of farmland in 2002 and about 54.1% in 2012. That information alludes to changes observed in the profile of the agriculture industry in Louisiana.

Column five provides information on the average age of principal operator in Louisiana. For principal operators average age increased by about three years, from 55.1 to 58.5 years. According to USDA National Agricultural Statistics Service (NASS), the principal operators are of 58.3 years of age, on average (USDA NASS, 2012). As we can see, the average age of principal operators in Louisiana is close to the US average. The aging of the US farmer population has caught the attention of policy makers. As a result, we have observed an increase in USDA programs that target young and beginning farmers in the last years. According to Juli Obudzinski, Senior Policy Specialist at National Sustainable Agriculture Coalition, the majority of agricultural support programs in the US are targeted toward the older farmer population. However, beginning farmers may have different capital needs and credit constraints. Thus government support programs should address these issues to increase the number of new entrants in the field (Obudzinski, 2016). One example is the USDA New Farmers initiative that provides information and resources for interested new farmers such as access to land and access to capital, and risk management.

The last column in Table 1.1 presents information on the market value of agricultural products sold. It can be observed that the market value of agricultural products sold is gradually increasing from 2002 to 2012. That is an encouraging trend. The last two decades, Louisiana has been severely impacted by severe weather events resulting in approximately 5 billion dollars of economic loss from 2000 to 2012; two tropical storms, four huge hurricanes, and three extreme droughts have

occurred in the area during these years (Guidry and Pruitt, 2012). Severe weather conditions lead to negative crop related impacts by reducing yields and quality of crops, and livestock related impacts by both hay and grazing production as well as “forced liquation of breeding stock above normal culling rates” (Guidry and Pruitt, 2012).

Table 1.1 Louisiana farming trends, 2002 to 2012.

<b>Year</b>	<b>Farms</b>	<b>Land in Farms (acres)</b>	<b>Total cropland (acres)</b>	<b>Average age of principal operator</b>	<b>Market value of agricultural products sold (ths \$)</b>
2002	27,413	7,830,664	5,071,537	55.1	1,815,803
2007	30,106	8,109,975	4,691,344	57.3	2,617,981
2012	28,093	7,900,864	4,275,637	58.5	3,809,401

*Note:* Adapted from [https://www.agcensus.usda.gov/Publications/2012/Full\\_Report/Volume\\_1,\\_Chapter\\_1\\_State\\_Level/Louisiana/st22\\_1\\_001\\_001.pdf](https://www.agcensus.usda.gov/Publications/2012/Full_Report/Volume_1,_Chapter_1_State_Level/Louisiana/st22_1_001_001.pdf)

Farmers and farming operations are also subject to negative impacts of fluctuations in agricultural prices. In their research, Liu and Li conclude that an increase in the agricultural price raises farmers’ income in the early stage, but eventually decreases it. Thus, increasing the prices has a positive short-term effect on farmers’ income, but diminishes their living standards in the long run. (Liu and Li, 2013)

A number of stress factors exist in agricultural activities in the state of Louisiana mainly associated with production risks and the marketing cycle of agricultural commodities. Following the national trend, the average age of a principal operator in Louisiana has been steadily increasing. Severe weather conditions in the region, as well as the aging farming population and dependence on market price fluctuations, raise doubts about the sustainability and viability of existing farming and ranching operations in the state. Agritourism may be a good fit for the state of Louisiana, providing farmers with a way to diversify income streams as well as serving as an option to mitigate

production risk due to adverse climatic conditions and marketing risk associated with price fluctuations.

According to the USDA Census of Agriculture, the number of farms in agritourism and recreational services increased from 23,350 in 2007 to 33,161 in 2012 (USDA - NASS, 2012 Census of Agriculture, p.15, table 7). Despite a growing interest in agritourism among both farmers and researchers, to the knowledge of the author, there is not a single study at the moment which develops a profile of agritourism in the state of Louisiana.

There are many definitions of agritourism. In their study, Busby and Rendle (2000) provide the reader with 13 definitions including such broad definitions as “any tourist or recreation enterprise on a working farm” (Dart, 1974) to rather narrow ones, including “farm tourism is about people who are away from the place where they normally live and work, and about the things they do on a working farm, whether they visit for the day or a longer holiday” (Roberts, 1992). For the purposes of this research, the definition of Weaver and Fennel (1997) will be used, which describes agritourism as “rural enterprises which incorporate both a working farm environment and a commercial tourism component.”

## **1.2 Aim and objectives**

The following research question will be addressed in this study:

1. What is the current profile of the agritourism industry in Louisiana?

This study aims to present information on the existing Louisiana agritourism industry and create a descriptive profile of agritourism operators, addressing specifically what motivates people to engage in agritourism. A subsequent focus of the study is to document marketing approaches used in promoting agritourism operations and concerns and limitations faced by Louisiana agritourism operators. These will be achieved through the following objectives:

5. Use a survey instrument to collect information on the demographics of farmers interested and/or engaged in agritourism, farm characteristics, types of activities offered in the agritourism operations, as well as motivators for engaging in agritourism.
6. Analyze ways of promotion of agritourism operations and farmers' perceptions of these advertising methods.
7. Identify key issues farmers face in the operation of the agritourism business.
8. Use principal component analysis to determine the nature of motivation for operating an agritourism business.

### **1.3 Accomplishments of objectives**

Chapter 2 defines agritourism, describes the survey instrument and data collection process and is the first attempt to create the profile of agritourism industry in Louisiana. A literature review of rural sociology, tourism, and economics studies is presented to demonstrate the multiple facets of the agritourism activities. Information about the adoption of different marketing methods and limitations farmers face is presented at the end of the chapter. Chapter 3 analyzes the motivational factors for engaging in agritourism from the operator's point of view. The literature review summarizes findings from recent studies regarding the motivations behind engaging in agritourism activities. A theoretical model, which relies on the optimization of the operator's utility function based on her/his time allocation on labor and leisure is used to analyze the decision to participate in agritourism activities. A principal component analysis is performed that allows for categorizing the motivators based on common attributes. Lastly, the categories of motivators are regressed to a number of parameters associated with farm and farmer characteristics. That allows relating the motivators to farm and farmer characteristics.

The analysis in Chapter 3 will be used to test the following hypotheses:

- Operating an agritourism business may be linked to both monetary and non-monetary motivators.
- With an aging farming population, farmers may consider agritourism as a way to keep family members involved in the existing farm operation, which in sequence can be related to succession planning and future financial success of the operation.
- Marketing plays an important role for the success of the agritourism operation.

Key findings, limitations of research and potential implications are presented in Chapter 4.

## **CHAPTER 2. PROFILE OF AGRITOURISM OPERATIONS IN LOUSIANA**

### **2.1 Defining agritourism**

Agritourism is a relatively new term, which passed a long way of formation and there is not a single unified definition of agritourism recognized among researchers. This can be attributed to reasons that motivate people who engage in agritourism, the activities offered, and the benefits related to agritourism. There are many speculations about the term, as in economics, agritourism is viewed as a category of farm diversification and risk management (Illberi 1991; Bowler et al., 1996; Nickerson et al., 2001, Barbieri et al., 2008; Tew and Barbieri, 2012) whereas tourism, rural development, and sociology researchers consider it to be a sector of rural tourism in its own right (Bull and Wibberley, 1976; Clarke, 1996).

Discussing the transition from tourism on farms to farm tourism, which is another name of agritourism, Busby and Rendle (2000) provide a list of thirteen chronological definitions of farm tourism. In their research, Bowler et al. (1996) find that agritourism is the most popular (31%) diversification strategy among English farmers. Findings of Barbieri et al. (2008) show that more than 50.9% of surveyed farmers were involved in recreation, tourism, and hospitality operations. In addition, many questions are being raised about the type of activities, which could be considered as agritourism activities. For example, Barbieri et al. (2008) exclude educational tours from agritourism, while many others include it (e.g. McGehee, 2004; Wright and Annes, 2014). Same inconsistencies are related to hospitality and food provision services. Busby (2000) mentions several reasons why agritourism still lacks a comprehensive body of knowledge, which includes difficulties in the precise definition of farm tourism due to a wide range of activities, and lack of data sources for small businesses, which make it difficult to quantify the size and development of the sector.

It is important to differentiate agritourism from rural tourism. In his article Lane (1994) points out that while agritourism is much more researched, rural tourism can include many activities which are not likely to be seen in operating farms such as wilderness tours, rafting, canoeing, horse riding and many others. As a result of the plethora of definitions, it is essential researchers to be clear about the definition they apply.

For this research, the definition of Weaver and Fennel (1997) will be used, which describes agritourism as “rural enterprises which incorporate both a working farm environment and a commercial tourism component” to differentiate it from rural tourism activities not related to operating farms. In addition, the study adheres to the Limited Liability Law in Louisiana, which defines agritourism as “the travel or visit by the general public to, or the practice of, inviting the general public to travel to or visit, a working farm, ranch, or other commercial agricultural, aquacultural, horticultural, or forestry operation for the purpose of enjoyment, education, or participation in the activities of the farm, ranch, or other agricultural, aquacultural, horticultural, or forestry operation” (LA Rev Stat § 9:2795.5). This study considers a wide variety of activities from lodging and camping (bed and breakfast, receptions, campsites), recreational (pick your own, corn maze, hayrides) and educational (school field trips, tours, workshops) activities to special events and festivals.

Prevailing types of activities change from region to region, as location plays an important role in agritourism development. Lucha and Ferreira (2014) identify proximity to urban areas or historical places, as well as access to the labor force and good transportation infrastructure as reasons that affect business decisions of farmers and their desire to participate in agritourism. A study performed by Bernardo, Valentin, and Leatherman (2004) indicated that half of the visitors who attended on-farm activities in Kansas traveled no more than fifty miles to the agritourism destination. Moreover, Nasers (2009) found that about 30% of Iowa State Fair attendees were willing to make trips of no

more than thirty-one to fifty miles. Another important factor is climate and weather conditions, which not only affect the production of agricultural products but also dictate the seasonality and adoption of particular activities. In addition, some regions (Napa Valley in California, Tuscany region of Italy, etc.) have a powerful brand image and marketing strategies behind their operations, which affect their prevailing types of operation. Moreover, cultural background and perceptions of people also dictate the activities preferred by farmers and tourists in different parts of the world. For example, tours and special events are the most commonly cited activities in America (Barbieri et al. 2008), while self-catering activities and accommodation services are more prevalent in Europe (Nilsson 2002).

A growing interest to agritourism could be observed in recent studies in the US (e.g. McGehee and Kim, 2004; Barbieri, and Mahoney, 2009; Paper et al. 2012). Despite that, there are still many difficulties in framing a comprehensive understanding of the industry due to lack of data on both national and state levels. Moreover, the inconsistency in the literature, which originates from different definitions, and including or excluding particular types of activities, creates obstacles in analyzing the development of the industry. The production side of agritourism is also lacking a substantial evidence base. One of the few examples is the study by Berid Brandth, which suggests that agritourism may have three different forms: agritourism as the primary activity, agritourism in combination with agriculture and agritourism as a hobby (Brandth, Haugen, 2011). Based on these forms, the types of activities that can be considered under the agritourism umbrella, and the farm/ranch characteristics, it may be expected that agritourism may take the form of either a by-product or a separate product from the production viewpoint. However, no further evidence built around this distinction occurs in the literature.

This study will focus on a descriptive analysis of agritourism operators, the motivators behind engaging in agritourism, the marketing approaches used, and current concerns Louisiana farmers

who are engaged or interested in agritourism face. Particular interest is placed on filling the gap of production side mentioned earlier, with the introduction of a simplified conceptual model for engagement in agritourism.

## **2.2 Survey instrument**

A survey instrument, which includes both quantitative and qualitative questions, was developed via adaptation of instruments from the previous research (Nickerson et al. 2001, McGehee 2007, Jensen et al. 2013) to answer the research question “What is the current profile of the agritourism industry in Louisiana?.”

The questionnaire consisted of five parts and thirty-nine questions:

- **Section I. General information about the farm/farming activities**

Section I focuses on general characteristics of the farm as well as agritourism activities.

Questions of interest include location, acreage, the amount of hired and family labor, seasonality, types of agricultural products produced for income as well services provided for both agricultural and agritourism operations.

- **Section II. Motivational Factors**

Section II consists of two questions about the motivational factors (motivators) behind operating an agritourism business or interest in operating one. The first question asks respondents to evaluate the importance of agritourism for their business. The second question presents eighteen motivational goals and asks respondents to evaluate them using a Likert scale ranging from “not important” to “extremely important.” Three popular typologies of motivation developed by Barbieri (2009), Nickerson (2001), McGehee (2004) and Tew and Barbieri (2012) were analyzed to derive a list of these goals (Table 3.1).

- **Section III. Marketing**

This section collects information about current marketing techniques and instruments adopted by farmers involved in agritourism as well as their expenditures on marketing and perceptions about the most effective channels of promotion. The list of adopted marketing instruments consists of twenty-one tools, which may be divided into two groups: online and offline.

- **Section IV: Potential issues**

Section IV provides a list of twenty-four statements related to the operation of an agritourism business. The statements are based on marketing and financial risks, and legal liabilities.

Operators are asked to evaluate them using a Likert scale ranging from “not a problem” to “a serious problem.”

- **Section V: General information about the farmer**

The last section focuses on descriptive characteristics of the farmer (age, level of income, marital status, level of education, etc.)

This research focuses on developing a general descriptive profile of Louisiana farmers who are involved in agritourism operations or interested in agritourism, types of activities that are provided for visitors, and marketing approaches adopted.

## **2.3 Data**

The respondents were identified from a list of Certified Agritourism Operators provided by the LSU AgCenter, websites that advertise or aggregate information about local agritourism operators, Facebook business pages, the Google Search Engine, and Google Maps. A targeted effort for obtaining data was focused on a Facebook Graph Search as it provides a powerful instrument for a huge list of search queries. Facebook engineers have developed Unicorn, which is “an online, in-memory social graph-aware indexing system designed to search trillions of edges between tens of

billions of users and entities on thousands of commodity servers” (Curtis et al., 2013). Facebook maintains a database with the relationships between people, things, and places, which is called a social graph. Special queries to Facebook search engine enabled the researchers of this study to get information about farmers who have business pages on Facebook, people who liked pages of particular farms or visited specific places.

Data was collected via an online survey. Invitation emails with describing the purpose of the research, discussing confidentiality issues and presenting instructions were distributed during March and April 2017. Following Dillman’s modified protocol (Dillman, Smyth, & Christian, 2009), a series of three electronic reminders and a thank-you note were sent to encourage participation.

The main sample consisted of seventy potential agritourism operators, 19 of which were obtained from a list of certified operators provided by the Louisiana Agritourism Coordinator (Ms. Dora Ann Hatch), 14 from MarketMaker.com, 37 from Facebook Graph Search as well as a list of 197 people was obtained from attendees of agritourism workshops offered from LSU AgCenter in the period 2016-2017. The largest number of operators are observed in the North Louisiana (seven operators in Ouachita, five in Caddo, three in De Soto parishes) and Southern/South-Eastern Louisiana (five operators in both Livingston, Orleans, St. Tammany, four in Washington parishes). A separate invitation email was distributed to extension and county agents through a list provided from the LSU AgCenter.

## **2.4 Profile of agritourism operators**

The following section addresses the first objective, which was to use a survey instrument to estimate demographics of farmers involved in agritourism, types of offered activities, motivators, concerns and farm characteristics. The results are presented below.

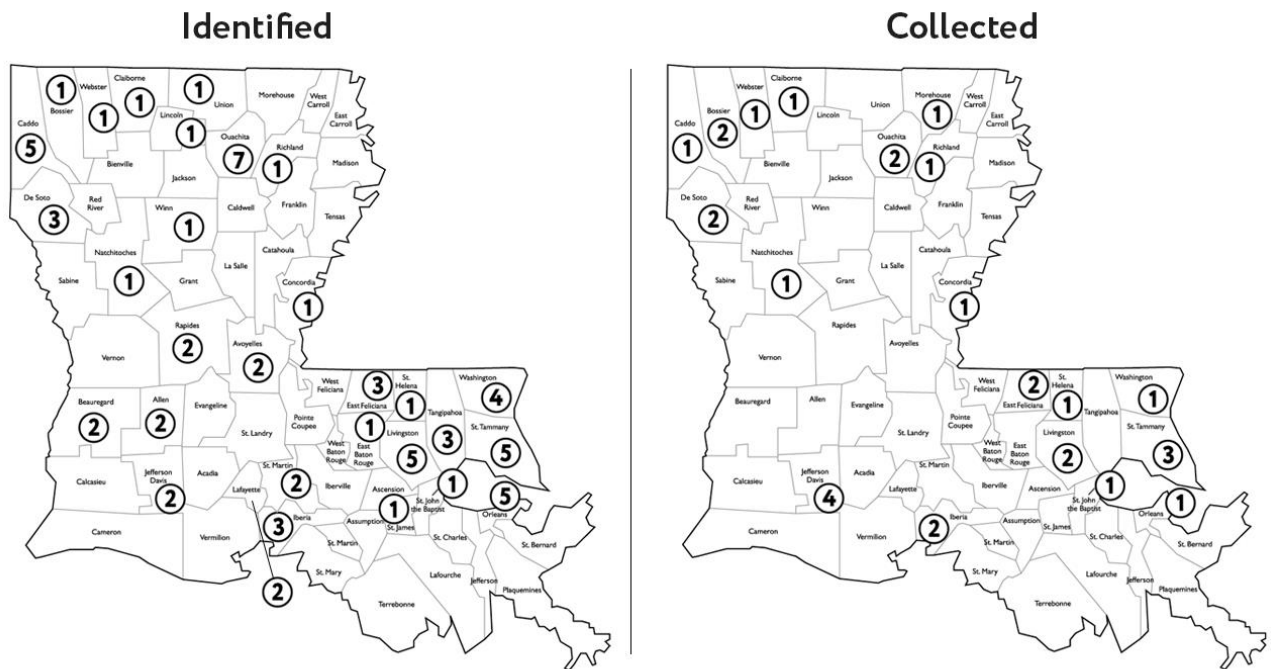
The survey produced 81 valid responses with 32 respondents, who currently operate an agritourism business; 27 who do not currently operate an agritourism business and do not plan to in the future; 18 who do not currently operate an agritourism business but plan to in the future; four who did agritourism in the past. Data collection was complicated due to the absence of any resource or institution that track the number of current agritourism operators.

Figure 2.1 demonstrates the distribution of the seventy farmers identified via a list of certified agritourism operators and listings on free resources, such as Google or Facebook versus the thirty farmers, who provided information on the parish which their agritourism operation is located in our online survey. It can be observed that the main concentration of agritourism operators is in the Northern and South Eastern parts of Louisiana. The relationship between location and multiple characteristics including population density, climate and weather conditions, as well as production of specific agricultural products may be an interesting research topic for further studies but lies beyond objectives of this research due to lack of data.

Table 2.1 contains information about farm household attributes among current agritourism operators and those who are interested in entering the industry. The response rate of this section was 78.1% for the former subgroup and 40.7% for the latter subgroup. The average age of current agritourism operators, who answered the section about demographics (n=25) was 56.08 years compared with the average age of farmers in Louisiana of 58.5 as reported in the 2012 Census of Agriculture.

Approximately 48% of the respondents were male and 52% female. Only four percent (n=1) of respondents indicated that the highest level of education received was high school or lower, 24% (n=6) attended some college with no degree, eight percent (n=2) received an Associate's Degree, 36% (n=9) have a Bachelor's Degree, and 28% (n=7) attained a Graduate Degree. Among those surveyed, just two (8%) indicated that their degree is in agriculture, agribusiness, agricultural economics or relevant fields. All respondents (100%) of the sample considered themselves to be

white with no Hispanic or Latino origin. Responses to the question about the years of experience in agriculture and agricultural activities ranged from 0 to 70 years with the average experience in the field of 26.61 years. At the same time, the average experience in agritourism was 9.16 years within the range from 0 to 39 years.



of current operators. Seven (63%) of the respondents had a Bachelor's Degree or higher with three having a degree in agriculture or other relevant fields.

Table 2.1. Farm household attributes

Farm household attributes	Currently operate in agritourism		Don't operate, but plan to in the future	
	n=25	%	n=11	%
<b>Gender</b>				
Male	12	48.00%	5	45.45%
Female	13	52.00%	6	54.55%
<b>Farm operator's age</b>				
34 years or less	2	8.00%	1	9.09%
35-44 years	4	16.00%	3	27.27%
45-54 years	6	24.00%	0	0.00%
55-64 years	5	20.00%	5	45.45%
65 years or more	8	32.00%	2	18.18%
Mean	(56.08)		(54.27)	
Range	29-78		34-70	
<b>Educational background</b>				
12th grade or less, no degree	0	0.00%	1	9.09%
High school graduate (or equivalent)	1	4.00%	0	0.00%
Some college, no degree	6	24.00%	3	27.27%
Associate's	2	8.00%	0	0.00%
Bachelor's degree	9	36.00%	3	27.27%
Graduate or Professional degree	7	28.00%	4	36.36%
Degree in agriculture?	2	8.00%	3	27.27%
<b>Years of experience in agriculture</b>				
Mean	(26.61)		(17.43)	
Range	0-70		0-50	
<b>Years of experience in agritourism</b>				
Mean	9.16			
Range	0-39		-	
<b>Household income</b>				
Less than \$25,000	1	4.00%	1	9.09%
\$25,000-\$49,999	4	16.00%	0	0.00%
\$50,000-\$74,999	6	24.00%	3	27.27%
\$75,000-\$100,000	5	20.00%	0	0.00%
\$100,000-\$149,999	4	16.00%	3	27.27%
\$150,000-\$199,999	3	12.00%	4	36.36%
\$200,000 or more	2	8.00%	0	0.00%
Mean	(\$97 999.54)		(\$81 817.77)	
Median	(\$82 499.70)		(\$84 374.63)	

The average income of respondents of this subgroup was \$81,818, while the median income was around \$84,375. The average experience in agriculture of respondents who plan to enter agritourism in the future was 17.43 years, which is on average less by 9.18 years than the experience of those who are currently in agriculture. Table 2.1 illustrates the demographic characteristics of the two groups.

Based on answers from 29 respondents, it was observed that the average total acreage of the farm of current agritourism operators was 254.94 acres, which is 26.06 acres smaller than the average farm in Louisiana (USDA - NASS, 2012 Census of Agriculture). Farmers who were involved in agritourism owned on average 218.55 acres while renting 36.39 acres. Respondents indicated that they were employing on average 7.33 people for seasonal/part-time jobs in 2016, whereas the number of seasonal workers ranged from 0 to 85 employees. At the same time, on average 0.3 employees were involved in agritourism operations for part-time year round, while 0.4 employees were hired for full-time year round. About three members in the family (3.3) on average worked on farms with agritourism activities, ranging from 0 to 16 employed family members.

Thirty agritourism operators answered the question about agricultural products produced for income. Cattle and calves occurred to be the most popular product among agritourism operators, who selected this category seven times. Production of Christmas trees, hay (both chosen six times), vegetables, poultry and eggs (five times) as well as greenhouse/nursery plants, pumpkins and goats (four times) were also within the most popular choices. Respondents indicated that on average, 32.6% of their income came from agritourism, 38.46% from other farming activities and 28.94% from other non-farm income.

Figure 2.2 demonstrates that educational tours and school field trips were the most popular types of agritourism activities selected 17 and 13 times, respectively. Field rides, mazes, event hosting,

cut/pick your own as well as farm animal exhibit, bed and breakfast, petting zoos and wildlife observations, were on the list of popular options too.

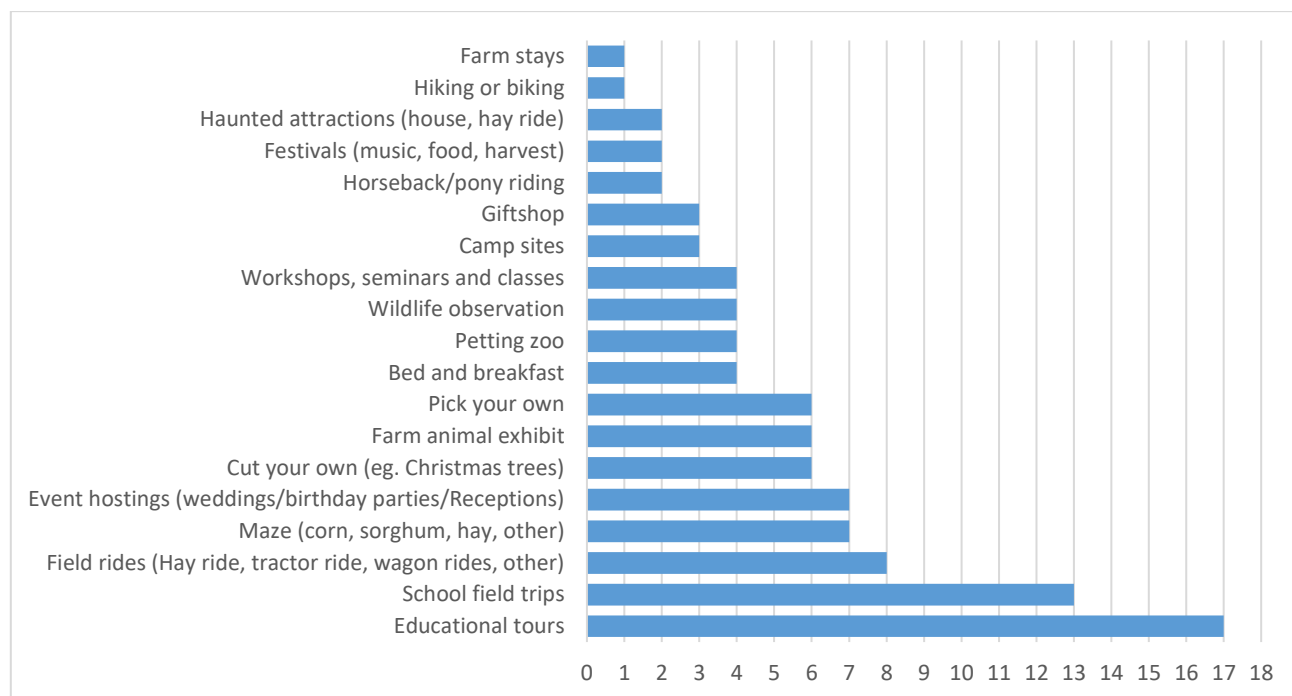


Figure 2.2. Types of agritourism activities offered in Louisiana

According to 29 operators, agritourism activities were offered on average during 123 days of the year with the median at 50 days. It should be mentioned that particular attributes of activities dictate the seasonality of operation. The majority of businesses, which produce Christmas trees and offer cut-your-own services, operate in November and December. Those who offer pumpkin patches and pick-your-own activities, follow the seasonality of particular crops (late September through November for pumpkins; May, June, July for blueberries, blackberries and raspberries, etc.), while those who offer accommodation services, educational and field trips kinds of services are less sensitive to seasonal trends and patterns.

Figure 2.3 presents information about the months during which the agritourism businesses were open in 2016 based on responses from twenty-nine farmers. The left axis presents the number of

times a particular month was picked by agritourism operators. As it shown, agritourism is an industry active throughout the year in Louisiana.

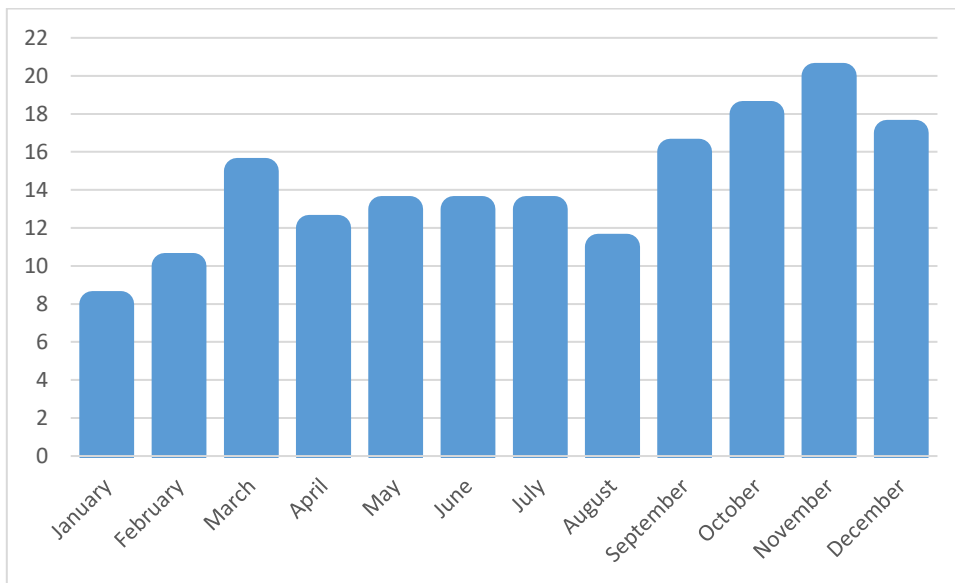


Figure 2.3. Agritourism activity in Louisiana for 2016 by month

## 2.5 Marketing approaches of farmers in Louisiana

The second objective of the study was to analyze ways of promotion of current agritourism operations and farmers' perceptions of these advertising methods. Answering the question about the importance of marketing for agritourism businesses, 18 operators indicated it to be "very important", seven "important, and one "moderately important" with one person claiming that it is "not important at all."

Responding to the questions about motivators, agritourism operators indicated that some non-economic motivators, like "Educate consumers about agriculture" and "Interact with the customers" are more important to them than economic ones like "Generate additional income", which is different from some findings in the literature (e.g., McGehee 2007, Nickerson et al 2001). Detailed results for completed responses are presented in Table 2.2. Eighteen motivators and the number of responses are presented in column one. The respondents were asked to evaluate the motivators using

a Likert scale ranging from “not important” to “very important”; the mean was calculated based on values assigned to Likert scale choices.

Table 2.1. Importance of different motivators

	<b>Very important</b>	<b>Important</b>	<b>Moderately important</b>	<b>Slightly important</b>	<b>Not important</b>	<b>Mean</b>
Generate additional income (n=27)	14	4	4	3	2	<b>3.93</b>
Continue ranching/ farming (n=27)	12	4	5	1	5	<b>3.63</b>
Decrease farm/ranch revenue fluctuations (n=27)	7	3	3	1	13	<b>2.63</b>
Generate revenues during off-seasons (n=26)	8	3	2	1	12	<b>2.77</b>
Increase ability to meet financial obligations (n=27)	12	5	3	1	6	<b>3.59</b>
Reduce impact of catastrophic events for ag production (n=26)	3	9	4	2	8	<b>2.88</b>
Interact with customers (n=26)	16	7	2	0	1	<b>4.42</b>
Educate consumers about agriculture (n=27)	15	11	0	1	0	<b>4.48</b>
Provide current customers with new products/ services (n=26)	6	12	3	1	4	<b>3.58</b>
Meeting a need in the recreation/vacation market (n=25)	7	11	3	1	3	<b>3.72</b>
Keep you active (n=26)	8	8	4	3	3	<b>3.58</b>
Capture new customers (n=26)	11	11	0	4	0	<b>4.12</b>
Observing success of other farm/recreation businesses (n=26)	4	5	5	5	7	<b>2.77</b>
Better utilize farm/ranch resources (n=26)	7	10	4	2	3	<b>3.62</b>
Keep the farm / ranch in the family (n=27)	11	7	2	1	6	<b>3.59</b>
Enhance personal/family quality of life (n=27)	10	11	1	1	4	<b>3.81</b>
Provide employment for family members (n=27)	6	7	2	3	9	<b>2.93</b>

Analyzing the adoption of different marketing methods, it was found that agritourism operators mostly rely on word of mouth, Facebook pages, printed materials, email lists and road signs. Facebook ads are among the most used and efficient methods among other paid marketing options. More detailed information is presented in Table 2.3 below.

Table 2.3. Perceptions about marketing methods

Method	Don't use	Not important	Slightly important	Moderately important	Important	Very important	Mean
Agricultural publications (n=25)	13	2	4	1	1	4	3.08
Agritourism association (n=26)	14	0	1	5	3	3	3.67
Billboards (n=25)	21	0	0	1	1	2	4.25
Blog (n=25)	19	2	0	2	1	1	2.83
Coupons (n=25)	19	1	1	1	2	1	3.17
Direct mail (n=25)	21	0	0	1	3	0	3.75
Email list (n=26)	7	1	3	4	5	6	3.63
Facebook Ads (n=27)	12	0	2	3	4	6	3.93
Facebook page (n=27)	1	1	1	2	6	16	4.35
Google Ads (n=27)	19	0	1	3	2	2	3.63
Local farmers' markets (n=27)	17	0	3	2	0	5	3.70
Newspaper ads (n=26)	12	2	5	4	1	2	2.71
Online deals (n=25)	23	0	0	0	0	2	5.00
Printed materials (n=27)	7	0	5	2	6	7	3.75
Radio ads (n=25)	20	0	0	3	1	1	3.6
Regional/local tourism guide (n=27)	12	0	2	2	7	4	3.87
Road signs (n=26)	7	2	4	3	4	6	3.42
Special events or festivals (n=25)	11	1	3	1	2	7	3.79
TV ads (n=26)	21	0	1	0	2	2	4.00
Twitter account (n=25)	17	1	1	4	2	0	2.88
Word of mouth (n=27)	1	0	0	0	6	20	4.77

Agritourism operators (n=27) spent on promotion on average 3,591.66 dollars in 2016, which is by 40% more than in 2015. However, the median amount spent decreased from 500 dollars in 2015 to 400 dollars in 2016.

Respondents were asked to rank ten different marketing strategies, based on a budget of 1,000 dollars. The weights were assigned in the following fashion: 1<sup>st</sup> choice received 10 points, 2<sup>nd</sup> – 9 points, ... 10<sup>th</sup> – 1 point. The results from 27 responses are presented in Table 2.4. The three most popular strategies are focused on seasonal promotion, which is consistent with the earlier finding that many agritourism operations in Louisiana are not working year round and depend on leveraging the seasonality of agricultural products. It was observed that respondents preferred a combination of both online and offline strategies, rather relying just on traditional offline methods.

Table 2.4. Perceptions about marketing strategies

Promotion strategy	Rank	Score
\$250 for online, \$750 for offline, seasonal promotion	1	166
\$500 for online, \$500 for offline, seasonal promotion	2	152
\$0 for online, \$1000 for offline, seasonal promotion	3	142
\$250 for online, \$750 for offline, year-round promotion	4	137
\$0 for online, \$1000 for offline, year-round promotion	5	135
\$750 for online, \$250 for offline, seasonal promotion	6	132
\$500 for online, \$500 for offline, year-round promotion	7	121
\$1000 for online, \$0 for offline, seasonal promotion	8	104
\$750 for online, \$250 for offline, year-round promotion	9	97
\$1000 for online, \$0 for offline, year-round promotion	10	79

## 2.6 Limitations and Concerns of agritourism operators

Addressing the third objective, which was to identify key concerns farmers face in the operation of the agritourism business, respondents were asked to identify key issues they have faced or may face

during the operation of an agritourism business. Based on the literature, a list of 24 potential statements was developed, which could be grouped into four categories: financial, legal, management, and marketing. The results are presented in Table 2.5.

Table 2.5. Importance of potential issues

<b>Potential issues</b>	<b>Plan in the future Mean (n=11)</b>	<b>Existing operators Mean (n=23)</b>
<b><i>Financial issues</i></b>		
Having enough capital for infrastructure, operation, and marketing	1.64	1.27
Obtaining financing	1.82	0.68
Obtaining liability insurance	0.91	1.35
<b><i>Legal issues</i></b>		
Facing challenges with local zoning	0.45	0.15
Meeting health department requirements	1.18	0.48
Obtaining permission for roadside signage	0.36	0.68
Obtaining required permits or licenses	1.09	0.23
Understanding labor regulations	1.45	0.64
Understanding legal tax issues	1.55	1.00
<b><i>Management issues</i></b>		
Finding/hiring employees	1.40	0.95
Keeping and evaluating records	0.82	0.82
Maintaining good relationships with neighbors	0.55	0.18
Maintaining visitor safety	1.09	0.64
Providing excellent customer service	0.45	0.27
Scheduling employees	0.89	0.38
Scheduling groups for tours or parties	1.22	0.80
Training and managing employees	1.20	0.62
Working with family members	0.45	0.21
<b><i>Marketing issues</i></b>		
Attracting customers	1.55	1.38
Dealing with increased competition	0.45	0.41
Deciding how to promote the business to target customers	1.45	1.59
Developing advertising and promotion materials	1.55	1.05
Identifying target customers	1.36	1.00
Staying current with new promotional methods	1.27	0.73

It was expected that financial issues might be very important for both current and potential operators. Obtaining financing, and having enough capital for infrastructure, operation and marketing had the highest mean (1.82 and 1.64 respectively) among all concerns for the potential operators. Obtaining financing was not such an important problem for current operators; however, they put more emphasis on obtaining liability insurance compared to potential ones.

Legal issues, which consist of facing challenges with local zoning, meeting health department requirements, obtaining permission for roadside signage, obtaining required permits or licenses, understanding labor regulations and understanding legal tax issues were on average more important for farmers who are thinking about entering into the agritourism business. Each problem within the category, except for understanding legal tax issues, had relatively low importance for current agritourism operators. These results suggest that there is a learning curve in the industry. Once one enters the field, he or she has to address all these issues; thus becoming more familiar with them with time.

Management issues have a similar pattern to the results discussed above. If one never dealt with scheduling groups for tours or parties, he or she will put a higher importance on this issue compared to those who already operate in the field. All the employee related issues, including finding and hiring, scheduling, training, and managing of employees were much more important for those who are planning to enter the industry in the future, rather than existing operators. It is worth mentioning that keeping and evaluating records were of about same importance for both groups of respondents while working with family members, maintaining good relationships with neighbors and providing excellent customer service do not seem to be an issue for potential or existing operators.

Unlike management and legal issues, marketing problems were very important for both groups. Identifying target customers, staying current with new promotional methods, developing advertising

and promotion materials, deciding how to promote the business to target customers, and attracting new customers were among the most important issues. Specifically, the last two were ranked first and second within all listed problems with the mean of 1.59 and 1.38 respectively.

## **CHAPTER 3. MOTIVATION**

### **3.1 Literature review of motivational factors**

The motivation behind starting a business is one of the popular interests among many researchers. There are many studies researching entrepreneurship motivation including Stephan, Hart, and Drews (2015) which defines seven dimensions that capture motivational goals. These include (1) Achievement, Challenge and Learning; (2) Independence and Autonomy; (3) Income Security and Financial Success; (4) Recognition and Status; (5) Family and Roles; (6) Dissatisfaction, and (7) Community and Social Motivations. Also, there exists a strand of literature in the fields of Rural Development, Rural Sociology, and Tourism that identifies motivational factors for engaging in agritourism activities (Nickerson et al., 2001; McGehee, 2004 and 2007; Barbieri 2009; Tew and Barbieri, 2012).

Performing an analysis of 197 operators of rural accommodations in Israel, Fleischer and Tchetchik (2005) found out that even if a working farm does not have any interest for visitors, farmers seem to benefit from both producing agricultural products and providing tourism services as it leads to the more efficient use of production factors. Agritourism may be implemented as a way of diversification to compensate for production risks and price fluctuations, limited government support, and to meet a variety of entrepreneurial goals (Sotomayor et al. 2014; Barbieri et al. 2008; Veeck et al. 2006). Motivational goals were also analyzed by studies in rural social development (e.g., McGehee, 2004; Barbieri 2009; Tew and Barbieri, 2012). These factors are summarized in Table 3.1.

Applying Stephan, Hart and Drews (2015) methodology, these motivators could be grouped into four dimensions on the theoretical level including (1) Income Security and Financial Success

dimension; (2) Family and Roles dimension; (3) Community and Social dimension, and (4) Achievement, Challenge and Learning dimension.

Table 3.1. Motivational factors by different authors.<sup>1</sup>

<b>Barbieri (2009)</b>	<b>Nickerson(2001)/McGehee(2004)</b>	<b>Tew and Barbieri (2012)</b>
Generate additional income	Additional income	Capture new customers
Continue farming/ranching	Better use of farm/ranch resources	Educate the public about agriculture
Enhance personal/family quality of life	Fluctuations in agriculture income	Enhance family quality of life
Respond to a market need/opportunity	Employment for family members	Better serve current customers
Keep the farm/ranch in the family	Loss of government agriculture programs	Keep you active
Increase/diversify the market	Meeting a need in the recreation/vacation market	Increase direct-sale of value-added products
Capitalize on an interest/hobby	Tax incentives	Additional revenues to keep farming
Interact with customers	Companionship with guests/visitors	Increase direct-sale of other products
Educate customers	Successes of other farm/ranch recreation businesses	Decrease revenue fluctuations
Offset fluctuations in farm/ranch revenues	Education of the consumer	Enhance ability to meet financial obligations
Generate revenues during off/non-growing seasons		Keep the farm in the family
Provide current customers with new products/services		Better utilize farm resources
Provide a new challenge		Make money from a hobby/interest
Enhance ability to meet financial/loan obligations		Off-season revenue generation
Make farm less dependent on outside factors		Provide jobs for family members
Reduce overall farm/ranch debt		Reduce impact of catastrophic events
Reduce impacts of catastrophic events		
Provide employment opportunities for family members		
Qualify for state/federal assistance program		

<sup>1</sup> The list of motivational factors is presented in the order appearing in the respective papers.

The Income Security and Financial Success dimension may consist of the following motivators: ‘generate additional income,’ ‘get additional revenues to keep farming,’ ‘offset fluctuations in farm revenues,’ ‘generate revenues during non-growing seasons,’ ‘enhance ability to meet financial obligations’ and ‘reduce impact of catastrophic events.’ Factors, which affect the Family and Roles dimension may be grouped as ‘increase family quality of life,’ ‘keep the farm in the family’ and ‘provide employment for family members’. The Community and Social dimension may include goals such as ‘interact with customers,’ ‘provide them with new products and services’ as well as ‘education of consumers.’ The motivators of the Achievement, Challenge and Learning dimension may be listed as ‘a need to respond to market need,’ ‘better use of farm resources’ and ‘the need for a new challenge.’

Nickerson et al. (2001) identified three motivating factors for agritourism ventures in Montana, using principal component analysis: economic, social, and external. They concluded that farmers were primarily involved with agritourism to get additional income and improve economic outcomes. McGehee (2004) applied a Weber framework dividing motivational factors into formal, formal-substantive and substantive-formal categories, where formal identifies the means in which the end goal of provision of needs is capable of being expressed in calculable terms, while substantive are described by something above economic needs, such as sense of morality or philosophical ideas. She found that both formal and substantive motivation is quite different within farmers who own less than 100 acres and more than 300 acres. In contrast to earlier papers about agritourism which emphasized the importance of getting additional income (e.g., Benjamin, 1994, Putzel 1984; Evans and Ilbery, 1989), McGehee’s more recent findings indicated that Virginia farmers involved in agritourism businesses are driven from both formal (economic) and substantive (social) motivators. In a different study, an alternative agricultural paradigm by Chiappe and Flora (1998) was tested as

a possible theoretical framework for agricultural motivation, identifying differences in gender-based perceptions (McGehee, 2007). It was found that both men and women had many similar characteristics including additional income, education of consumers, and desire to fully utilize resources as their primary motivators. However, education of the consumer, observed successes of others, and employment for family members were ranked a few points higher by women compared to men. Tew and Barbieri (2012) conducted a similar study analyzing the perceptions of farmers in Missouri. Principal component analysis was implemented; sixteen motivational goals were grouped in four dimensions, including farm profitability, market opportunities, family connections and personal pursuits. Multiple regression analysis identified a negative association between the number of years in agritourism and market opportunities, suggesting that “the importance of agritourism in retaining and capturing new markets or clients vanishes with time.” It was also found that the age of a primary operator and the number of adopted marketing methods were positively correlated with the goals related to personal pursuits and that the number of marketing methods was positively associated with farm profitability.

Identifying agritourism activities as one of the six types of diversification for agricultural enterprises, Barbieri (2009) researched the impact of both financial and nonfinancial goals on diversification decisions among farmers in Texas. She found statistically significant models that associate the operator’s age, the number of generations the farm had been in the family, the number of farm employees, household income and distance to an urbanized area with one of the six groups of goals. The groups included: Reduce Uncertainty and Risk; Grow and Service Markets; Enhanced Financial Condition; Individual Aspirations and Pursuits; Revenues Enhancement, and Family Connections.

### 3.2 Conceptual model for engagement in agritourism

To model agritourism engagement, let us start with a labor supply model where the household, defined as an economic entity, maximizes its utility function subject to budget, time and non-negativity constraints.

$$(1) \max_{C_0, H_{on}, H_{off}} U_0(C_0, H_{on}, H_{off}; Z, S),$$

subject to

$$(2) C_0 = wH_{off} + R + \pi_0(H_{on}, H_{hr0}, X_0; Z)$$

$$(3) T_0 = H_{on} + H_{off} + L$$

$$(4) C_0 \geq 0$$

$$(5) H_{on}, H_{off}, L \geq 0,$$

The household utility function depends on on-farm family labor ( $H_{on}$ ), off-farm family labor ( $H_{off}$ ) and the vector of consumption of goods ( $C_0$ ). It also depends on farm and farmer characteristics ( $Z$ ) and social capital ( $S$ ). Farm and farmer characteristics ( $Z$ ) include farm size, farm location, farm organization, types of activities produced, number of employed family members, age of principal operator, education, experience in agriculture, special training, race, and gender.

Social capital is defined as ‘the sum of the actual and potential resources embedded within, available through, and derived from the network of relationships possessed by an individual or social unit.’ (Nahapiet and Ghoshal 1998, p. 243).

The household’s income constraint, shown in expression 2, depends on the vector of price of consumption of goods, off-farm wage ( $w$ ) and hours worked off-farm ( $H_{off}$ ), non-work related household income ( $R$ ) and the profit function of the agricultural operation ( $\pi_0$ ).

The profit function is defined as:

$$(6) \pi_0 = wH_{on} - w_{hr0}H_{hr0} - p_0X_0,$$

which depends on wages for working on farm ( $w$ ), wages and hours worked of the hired labor ( $w_{hr0}, H_{hr0}$ ), price ( $p_0$ ) of a vector of inputs ( $X_0$ ).

The time constraint is given by Expression 3, where  $T_0$  stands for the amount of total time household can spend on working on-farm ( $H_{on}$ ), off-farm ( $H_{off}$ ) and leisure ( $L$ ). Consumption of goods and number of hours worked must satisfy the non-negativity constraints (4 and 5).

Wages play an important role in the household decision on whether to work on-farm or off-farm as well as how many hours to work during a week. For simplicity, it is assumed that the wage rate is homogeneous regardless of how many hours and where members of the household work.

It is assumed that the utility function is well-defined and continuous, concave, twice differentiable, non-decreasing in terms of consumption ( $\frac{\partial U_0}{\partial C_0} \geq 0$ ) and non-increasing in terms of time spent on any type of work ( $\frac{\partial U_0}{\partial H_{on}} \leq 0, \frac{\partial U_0}{\partial H_{off}} \leq 0$ ) (Diewert, 1974). The profit function is nonnegative, continuous, linearly homogeneous and convex in prices, and continuous, nondecreasing and concave in quantities (Lopez, 1984).

It is expected that the principal operator or the spouse of the principal operator with a higher level of education has more incentives to work off-farm. It is assumed that work on- and off-farm are perfect substitutes. This is a strong assumption, but it allows an analysis based on the changes in the number of hours allocated on- and off-farm, while disregarding wage fluctuations. A similar analysis can be conducted with keeping hours constant and observing wage fluctuations.

The rule for using hired labor on the farm is defined as:

$$(7) H_{hr0} > 0 \text{ if } \frac{\partial \pi_0}{\partial H_{hr0}} > w_{on} \text{ and } H_{hr0} = 0 \text{ if } \frac{\partial \pi_0}{\partial H_{hr0}} \leq w_{on}$$

The left-hand side relations define the reservation price for using hired labor for the agricultural operation ( $\frac{\partial \pi_0}{\partial H_{hr0}}$ ). The greater this relationship is, the more profitable it is to use hired labor and vice versa.

The participation rule for the off-farm labor may be defined as:

$$(8) H_{off} > 0 \text{ if } \frac{\partial \pi_0}{\partial H_{on}} < w \text{ and } H_{off} = 0 \text{ if } \frac{\partial \pi_0}{\partial H_{on}} \geq w$$

If the benefits of working on-farm are less than the wage rate, it is reasonable to work off-farm. On the other hand, if the benefits of working on-farm are more or even equal to the wage rate, we assume that the household would prefer not to work off-farm.

From Equation 3, we can derive

$$(9) H_{off} = T_0 - L - H_{on}$$

Substituting Equation 9 into Expression 2, we can rewrite the budget constraint as

$$(10) C = w(T_0 - L - H_{on}) + R + \pi_0(H_{on}, H_{hr0}, X_0; Z) \text{ or}$$

$$C = w(T_0 - H_{on}) - wL + R + \pi_0(H_{on}, H_{hr0}, X_0; Z)$$

The last equation is a straight line with a negative slope, which represents the budget line illustrated in Figure 3.1.

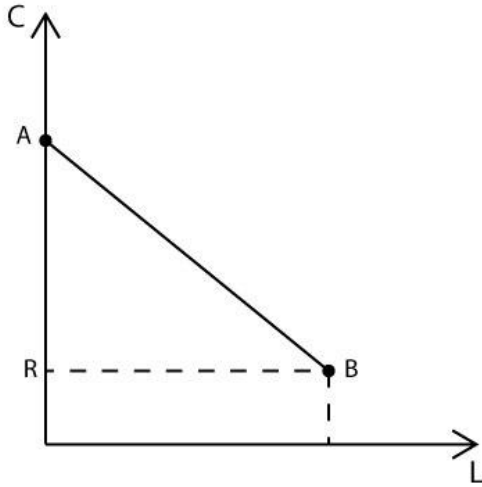


Figure 3.1. Budget line of agricultural operation

Point B is the endowment point, where the household decides not to work and spends all hours to leisure, while still affording R dollars of consumption. Point A is the intercept of the budget line, where the household can afford  $w(T_0 - H_{on}) + R + \pi(H_{on}, H_{hr0}, X_0; Z)$  dollars of consumption of goods if it gives up all the leisure hours. The budget line describes all the consumption bundles which a particular household can afford to buy. If the household decides to give up one additional hour of leisure, it would be able to consume extra w dollars of goods.

To model agritourism engagement, let us introduce agritourism involvement with a new household utility function

$$(11) \max_{C_1, H_{on}, H_{off}, H_{agr}} U_1(C_1, H_{on}, H_{off}, H_{agr}; Z, S),$$

subject to

$$(12) C_1 = w_{off}H_{off} + R + \pi_1(H_{on}, H_{agr}, H_{hr0}, H_{hr1}, X_0, X_1; Z)$$

$$(13) T_1 = H_{on} + H_{off} + H_{agr} + L$$

$$(14) C_1 \geq 0$$

$$(15) H_{on}, H_{off}, H_{agr}, L \geq 0,$$

where  $H_{agr}$  stands for the amount of time worked in agritourism, and  $X_1$  is a vector of inputs for agritourism production.

The new profit function is defined as:

$$(16) \pi_1 = w_{on}H_{on} + w_{agr}H_{agr} - w_{hr0}H_{hr0} - w_{hr1}H_{hr1} - p_0X_0 - p_1X_1 - pK$$

which depends on wages for working in agritourism ( $w_{agr}$ ), wages and hours worked in hired labor ( $w_{hr0}, H_{hr0}$  for agricultural operation;  $w_{hr1}, H_{hr1}$  for agritourism operation), and price ( $p_0, p_1$ ) of vector of inputs ( $X_0$  and  $X_1$  respectively).

It is expected that different businesses may consider agritourism as a by-product (or secondary product) or a separate product, based on the types of activities they offer, motivation to participate in agritourism, and other farm and household characteristics. It is assumed that the startup costs are much smaller for those who think agritourism as a by-product, compared to those who consider it as a separate product. At the same time, the costs of operating an agritourism business are relevant to both of the categories. For instance, a pick-your-own operation may not need any significant inputs to offer agritourism activities compared to those who offer lodging, festivals and recreational activities. However, both groups would still have to account for the operational cost of agritourism business, which may include insurance payments, advertisement cost, road signage, etc.

The rule for using hired labor in agritourism is defined as:

$$(17) H_{hr1} > 0 \text{ if } \frac{\partial \pi_1}{\partial H_{hr1}} > w_{agr} \text{ and } H_{hr1} = 0 \text{ if } \frac{\partial \pi_1}{\partial H_{hr1}} \leq w_{agr}$$

The left-hand side defines the reservation price for using hired labor for the agritourism operation ( $\frac{\partial \pi_1}{\partial H_{hr1}}$ ). The participation rule for the off-farm or agritourism labor (PR) may be defined as:

$$PR > 0 \text{ if } \frac{\partial \pi_1}{\partial H_{on}} < w_{PR} \text{ and } PR = 0 \text{ if } \frac{\partial \pi_1}{\partial H_{on}} \geq w_{PR},$$

where PR is a dummy variable, which may take values of  $PR = H_{agr}$  if  $\frac{\partial \pi_1}{\partial H_{off}} < w_{agr}$  or  $PR = H_{off}$  if  $\frac{\partial \pi_1}{\partial H_{off}} \geq w_{agr}$  and  $w_{PR}$  – wage rate associated with the value PR takes.

Getting back to Equation 13, we can derive

$$(18) H_{off} = T_1 - L - H_{on} - H_{agr}$$

The new budget constraint with the impact of agritourism will be

$$(19) C_1 = w(T_1 - L - H_{on} - H_{agr}) + R + \pi_1(H_{on}, H_{agr}, H_{hr0}, H_{hr1}, X_0, X_1, K; Z) \text{ or}$$

$$C_1 = w(T_1 - H_{on} - H_{agr}) - wL + R + \pi_1(H_{on}, H_{agr}, H_{hr0}, H_{hr1}, X_0, X_1, K; Z)$$

If the agritourism operation is profitable, we may expect the situation illustrated in Figure 3.2. Point  $A_{agr}$  is the new intercept of the budget line, where the household can afford  $w(T_1 - H_{on} - H_{agr}) + R + \pi_2(H_{on}, H_{agr}, H_{hr1}, H_{hr2}, X_1, X_2; Z)$  dollars of consumption of goods if it gives up all the leisure hours. Point  $A_{agr}$  is higher than  $A$ , so we can expect that the household will be better off with a profitable agritourism operation running as he or she will be able to consume more goods.

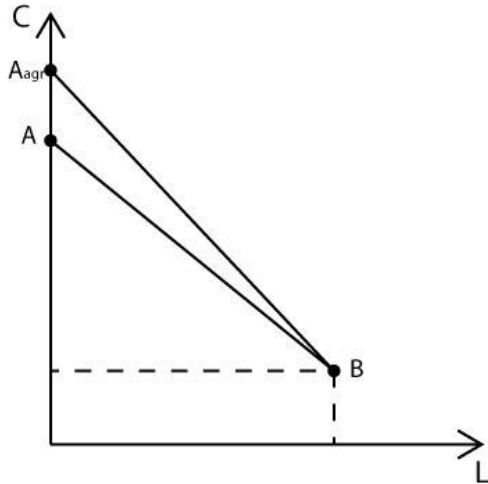


Figure 3.2. Budget line of an agricultural business with a profitable agritourism operation

Figure 3.3 illustrates the situation where the agritourism business does not give any additional benefits to the household. In this case  $A_{agr} = A$ , so there will be no changes in consumption.

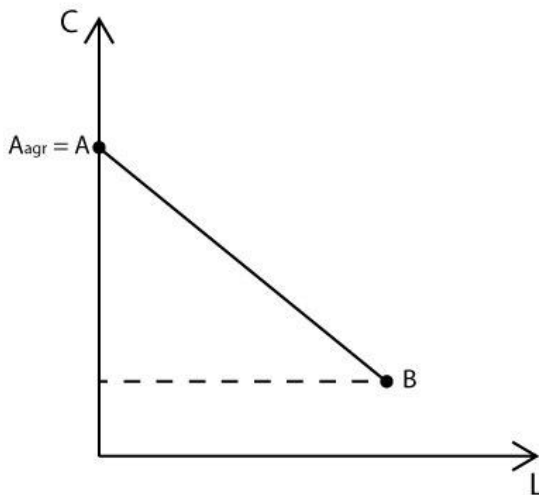


Figure 3.3. Budget line of an agricultural business with an agritourism operation without profits or losses

Figure 3.4 demonstrates the situation where the agritourism operation generates losses, leaving the household worse off, or  $A_{agr} < A$ .

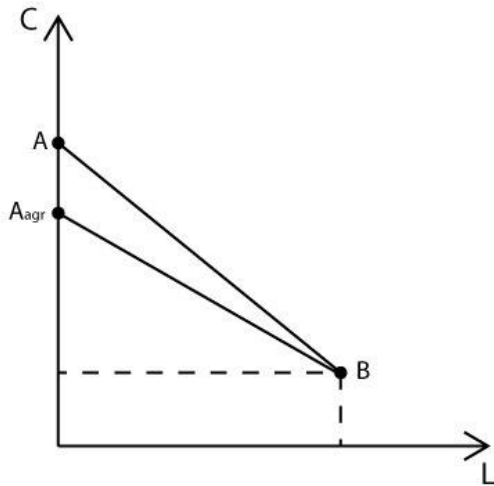


Figure 3.4. Budget line of an agricultural business with an unprofitable agritourism operation

It is assumed that the household wants to choose a combination of goods and leisure time that maximizes its utility, given the limitations of the budget and social capital constraint. Figure 3.5 illustrates the solution to the problem, for households that do not operate an agritourism business.

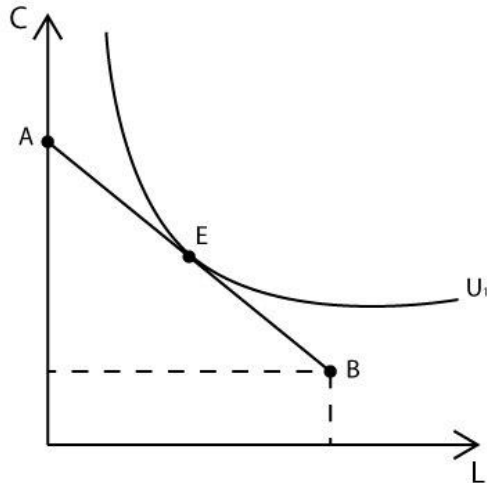


Figure 3.5. Utility function of an agricultural business not engaging in agritourism

Point E gives the optimal bundle of consumption and leisure and is located on the point where the budget line is tangent to the indifference curve, giving the interior solution to the problem.

The slope of the indifference curve is equal to the slope of the budget line; thus we can derive that

$$(20) \frac{MU_l}{MU_{c1}} = w$$

It implies that the marginal rate of substitution of leisure for consumption equals to the wage rate, meaning that is the rate at which a household is willing to substitute an additional unit of leisure for additional dollars for consumption).

$$(21) MU_l = MU_{c1}w$$

Equation 21 means that the marginal utility of leisure equals to the utility received from consuming an extra unit of leisure at the wage rate  $w$  dollars.

For the household, which operates an agritourism operation, the following situations may occur.

1. If an agritourism operation does not generate any profits (nor losses), the household utility would be the same as illustrated in Figure 3.5.

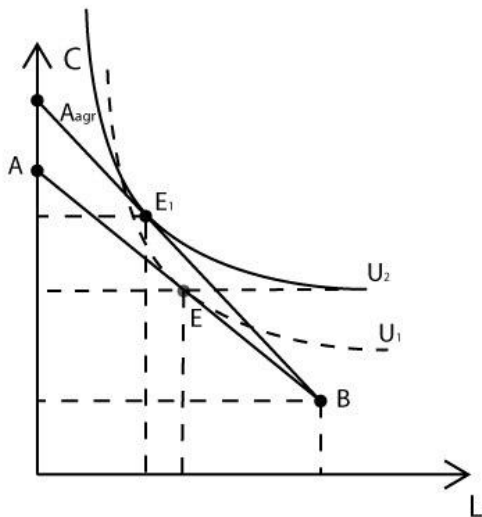


Figure 3.6. Utility function of an agricultural business with a profitable agritourism operation

2. If an agritourism operation is profitable, the household utility would be described by Figure 3.6. At  $E_1$  the household can afford more consumption, while having less time for leisure. Point  $E_1$  is the new optimal point, which is located on a higher indifference curve, meaning that utility at this point is greater than at point  $E$ .

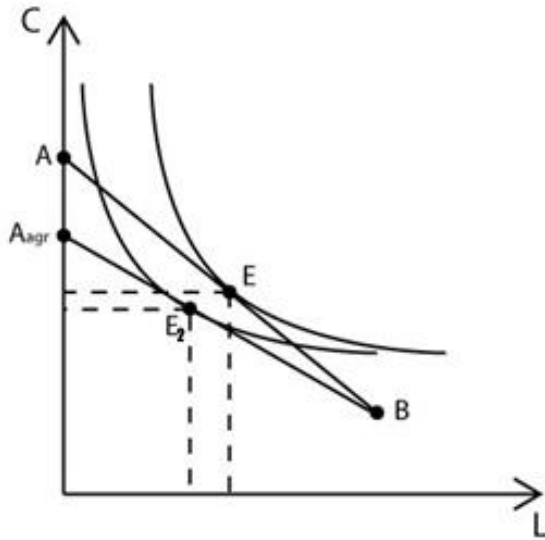


Figure 3.7. Utility function of an agricultural business with an unprofitable agritourism operation

3. If an agritourism operation generates losses, the household utility would be described by Figure 3.7. The household would move to point  $E_2$ , which offers less utility, as it would have a smaller amount of leisure and consumption compared to the original point  $E$ .

At the same time, it should be recognized that the utility from operating an agritourism enterprise does not solely depend on consumption. Social capital ( $S$ ), which may include components like socializing with people, educating customers about agriculture or even just improving relationships with current customers may be an important motivator for engaging in agritourism operations. Thus, we expect that social capital may be a positive shifter of the utility function for the majority of operators. That relation is depicted in Figure 3.8.

It should be recognized that the size of the effect described in Figure 3.8 depends on the importance of non-monetary motivators for particular households.

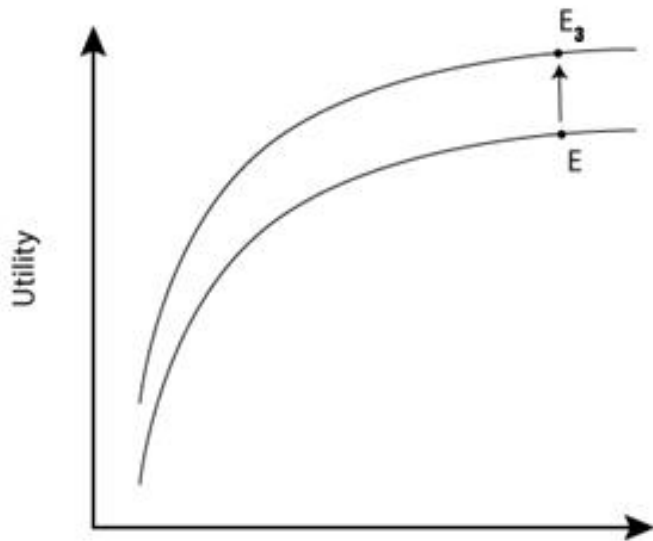


Figure 3.8. The effect of social capital on agritourism operators

### 3.3 Principal component analysis

Principal component analysis was performed to determine the nature of motivation for operating an agritourism business and to test the hypothesis that motivation behind agritourism operation consists of both monetary and non-monetary component. As a result, 16 variables from Table 3.2 were organized into four dimensions of goals. The Kaiser-Meyer-Olkin Measure of Sampling Adequacy and Bartlett's Test of Sphericity justify the use of principal components (Please refer to Figure B.1 in Appendix B).

Table 3.2 represents communalities, which show the percentage of variance that was accounted for by the components analysis. It could be observed that all the variables have very high values, with the variance of "reduce impact of catastrophic events" being explained by 90.7% by extracted components.

Table 3.2. Communalities

Motivator	Initial	Extraction
generate additional income	1.000	0.811
continue ranching/farming	1.000	0.701
decrease revenue fluctuations	1.000	0.771
generate revenues during off-seasons	1.000	0.829
enhance ability to meet financial obligations	1.000	0.812
reduce impact of catastrophic events	1.000	0.907
interact with customers	1.000	0.661
educate consumers about agriculture	1.000	0.777
provide current customers with new products/services	1.000	0.648
meeting a need in the recreation/vacation market	1.000	0.639
keep you active	1.000	0.764
capture new customers	1.000	0.85
observing successes of other farm recreation businesses	1.000	0.85
better utilize farm resources	1.000	0.737
keep the farm in the family	1.000	0.898
enhance personal/family quality of life	1.000	0.794

The scree plot, which is presented in Figure 3.9 as well as eigenvalues on Table 3.3 suggest usage of five principal components, however, after performing further analysis, it was decided to use four components. Four principal components explain 77.75% of variance. (Please refer to Table B.1 in Appendix B)

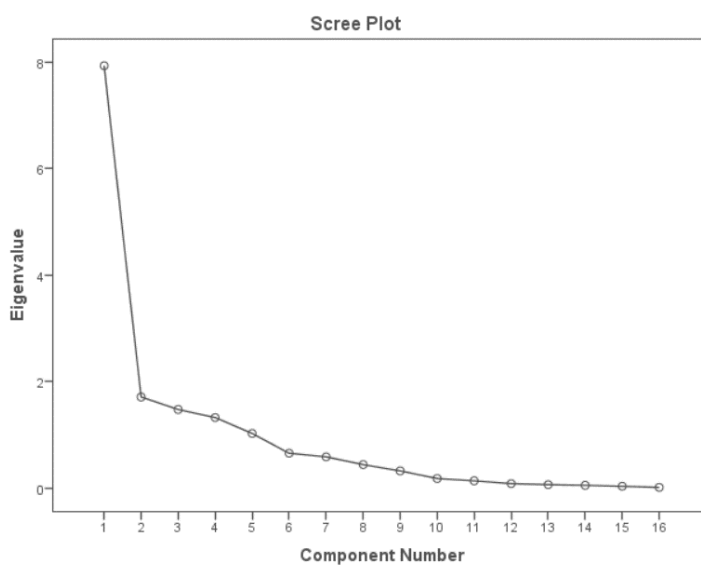


Figure 3.9. Scree plot

The initial extraction of factors was rotated via oblique Oblimin rotation to obtain a simpler structure. Referring to Stephan, Hart and Drews (2015) and analyzing the pattern matrix in Table B.2 (please refer to the Appendix B), the components were named “Income Security and Financial Success,” “Independence and Autonomy,” “Community and Social Motivations” and “Achievement, Challenge and Learning.”

The first component consists of the following goals: ‘generate additional goals,’ ‘better utilize farm resources,’ ‘decrease farm/ranch revenue fluctuations,’ ‘increase ability to meet financial obligations,’ ‘generate revenues during off-seasons,’ ‘continue ranching/ farming,’ ‘meeting a need in the recreation/vacation market,’ ‘observing success of other farm/recreation businesses,’ ‘reduce impact of catastrophic events for ag production’ and ‘keep the farm in the family’. These goals are driven by a financial/economical point of view; thus, we can call the obtained dimension as “Income Security and Financial Success.”

‘Keep you active,’ ‘enhance quality of personal/family life’ and ‘interact with customers’ form the second component, which may be assigned to the “Independence and Autonomy” dimension.

The third component consists of ‘educate consumers about agriculture’ and ‘current customers with new products/ services’ and may be assigned to “Community and Social Motivations” dimension.

The final component consists just from one ‘capture new customers’ goal, which corresponds with “Achievement, Challenge and Learning” dimension.

Table 3.3. Component correlation matrix

<b>Component</b>	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>
<b>1</b>	1.000	0.380	0.188	0.168
<b>2</b>	0.380	1.000	0.143	0.064
<b>3</b>	0.188	0.143	1.000	-0.019
<b>4</b>	0.168	0.064	-0.019	1.000

The component correlation matrix is presented in Table 3.3. There is some overlap between the first and the second component. However, the results, in general, are sufficient to support the hypothesis that motivation behind operating an agritourism business has both monetary and non-monetary components.

### 3.4 Multiple Regression Analysis

Multiple Regression Analysis was used to research the relationship between the four-goal dimensions: “Income Security and Financial Success,” “Independence and Autonomy,” “Community and Social Motivations,” “Achievement, Challenge and Learning,” and key farmer and farm characteristics as related to each dimension. These characteristics include the operator’s age, the number of owned acres, years in agriculture, the number of employed family members, and the number of used marketing methods. Educational activities is a dummy variable which takes a value equal to 0 for those operators who do not offer educational activities as part of their agritourism operation, and 1, otherwise. The results are presented in Table 3.4.

Table 3.4. Multiple regression models

<b>Independent variables</b>	<b>D1<sup>2</sup></b>	<b>D2</b>	<b>D3</b>	<b>D4</b>
Operator's age	<b>-0.029**</b>	-	-	<b>-0.027*</b>
Acres owned	0.001	-	-	-
Years in agriculture	-	<b>0.023**</b>	0.017	-
Employed family members	<b>0.209**</b>	<b>0.181**</b>	-	-
Number of marketing methods used	-	-	-	0.053
Educational activities	-	-	0.319	-
<b>R<sup>2</sup></b>	0.452	0.329	0.104	0.304
<b>Adj R<sup>2</sup></b>	0.355	0.262	0.015	0.212
<b>F</b>	4.675**	4.904**	1.164	3.283*

\*p < .10, \*\*p < .05, \*\*\*p < 0.01

<sup>2</sup> (D1) Income Security and Financial Success, (D2) Independence & Autonomy, (D3) Community & Social motivations, (D4) Achievement, Challenge & Learning. – denotes that the independent variable was not used in the model specification.

The sample consisted of 22 observations. Multiple linear regression analysis resulted in three significant models indicating the association between household attributes and perceived benefits of agritourism by agritourism operators. The first significant model ( $\text{Adj } R^2 = 0.355$ ,  $\sigma = 0.80$ ) showed that operator's age is negatively associated with "Income Security and Financial Success," suggesting that this dimension becomes a less relevant motivator as farmers become older. At the same time, the number of employed family members positively affect the importance of this dimension. These findings support the hypothesis that farmers in Louisiana may consider involvement of family members to be related to future financial success.

The second significant model ( $\text{Adj } R^2 = 0.262$ ,  $\sigma = 0.86$ ) demonstrates a positive relationship between the second dimension and experience in agriculture as well as the number of employed family members. The second dimension is tightly associated with enhancement of personal/family quality of life; thus it was expected to see a positive significant coefficient related to the number of family members variable.

The last significant model ( $\text{Adj } R^2 = 0.212$ ,  $\sigma = 0.84$ ) represents how the "Achievement, Challenge and Learning" dimension is affected by operator's age and number of marketing methods used. It can be observed that the importance of this dimension decreases as the farmer becomes older. The number of marketing methods used is used as a proxy for efforts expended in attracting new customers, stay active, and interact with the consumer. Nevertheless, with this analysis it is not possible to confirm the third hypothesis "Marketing plays an important role for the success of the agritourism operation", since the number of used marketing methods is not significant.

The author was not able to find any significant covariates for the third model. Small sample size was one of the main problems for running multiple regression analysis resulting in the third model not being explained by the covariates.

## **CHAPTER 4. CONCLUSIONS**

### **4.1 Purpose of the study and objectives**

The purpose of this study was to address the question of the current profile of the agritourism industry in Louisiana. The secondary goals were to identify key motivators to operate an agritourism business and explore the adoption of different marketing methods and key issues which are faced by both potential and existing operators. The study is narrowed to businesses in Louisiana that were defined as agritourism operations based on the following definition: rural enterprises which incorporate both a working farm environment and a commercial tourism component.

Data analysis was performed through the accomplishment of four objectives listed below.

1. Use a survey instrument to collect information on the demographics of farmers interested and/or engaged in agritourism, farm characteristics, types of activities offered in the agritourism operations, as well as motivators for engaging in agritourism.
2. Analyze ways of promotion of agritourism operations and farmers' perceptions of these advertising methods.
3. Identify key issues farmers face in the operation of the agritourism business.
4. Use principal component analysis to determine the nature of motivation for operating an agritourism business.

### **4.2 Limitations of the study**

The data collection process was hampered by the fact that there is no a single directory which contains information about agritourism operations in Louisiana. The researcher identified only 70 potential operators, combining the information from different websites, Facebook pages and a list of certified agritourism operators provided by the LSU AgCenter, among whom 30 responded to the survey. Lack of access to data as well as small sample size created problems while performing data

analysis as well as prevented the author from using the conjoint analysis to better understand the marketing side of agritourism operation.

#### **4.3 Key findings and Implications**

The purpose of the study was to identify the current profile of the agritourism industry in Louisiana through analysis of farm characteristics, motivators, limitations and adoption of marketing methods of agritourism operators. The following discussion explains key findings according to the objectives they are related to.

**Objective 1: Use a survey instrument to collect information on the demographics of farmers interested and/or engaged in agritourism, farm characteristics, types of activities offered in the agritourism operations, as well as motivators for engaging in agritourism.**

An average age of agritourism operator is 56.08 years old with approximately 26.61 years of experience in agriculture and 9.16 years of experience in agritourism. Approximately 48% of the respondents are males, while 52% - females. The average household income of the surveyed agritourism operators is \$97,999.5, while the median income is \$82,499.7. Cattle and calves is the most popular product made for income among agritourism operators, who identified with this category seven times. Production of Christmas trees, hay (both chosen six times), vegetables, poultry and eggs (five times) as well as greenhouse/nursery plants, pumpkins and goats (four times) are also within the most popular choices. Educational tours and school field trips are the most popular types of agritourism activities observed 17 and 13 times respectively. Agritourism activities were offered on average during 123 days of the year with the median of 50 days.

**Objective 2: Analyze ways of promotion of agritourism operations and farmers' perceptions of these advertising methods.**

Despite recognition of the importance of marketing, the majority of farmers do not spend much on advertisement. The median dollar amount spent on marketing campaigns decreased from 500 dollars in 2015 to 400 dollars in 2016. Analyzing the adoption of different marketing methods, it was found that agritourism operators mostly rely on word of mouth, Facebook pages, printed materials, email lists and road signs. Facebook ads are among the most used and effective methods among other paid marketing options. Among ten different marketing strategies, where respondents were asked to allocate a budget of \$1000 on year-long or seasonal promotion using online and offline promotional methods, the most popular options included to spend \$250 for online, \$750 for offline, seasonal promotion; \$500 for online, \$500 for offline, seasonal promotion and \$0 for online, \$1000 for offline, seasonal promotion. It was expected that seasonal, rather than year-long promotion would be preferred by farmers; however, it was surprising to observe that allocation of \$500 on both online and offline methods would be ranked as second among all potential choices.

**Objective 3: Identify key issues farmers face in the operation of the agritourism business.**

Twenty-four potential statements were grouped into the following four categories: financial, legal, management and marketing issues. It was found that potential agritourism operators put more emphasis on legal and management problems compared to existing operators. These findings suggest that there is a learning curve in the agritourism industry and the importance of these issues diminishes with years of experience. At the same time, both financial and marketing related issues were on the list of the most important among both current operators and those who just plan to enter the industry. The latter may be the reason why the farmers spent so little on advertisement, while realizing it to be an important factor for the success of the agritourism business.

**Objective 4: Use principal component analysis to determine the nature of motivation for operating an agritourism business.**

A simplified conceptual model was created to model agritourism engagement based on the labor-leisure utility function. Three hypotheses were tested based on results of both principal components and multiple regression analysis.

The first hypothesis was that operating an agritourism business may be attributed to monetary and non-monetary motivators. Findings were consistent with this hypothesis based on the principal components analysis. As a result, 16 motivators were organized into four dimensions of goals namely (1) Income Security and Financial Success, (2) Independence and Autonomy, (3) Community and Social Motivations and (4) Achievement, Challenge and Learning.

The second hypothesis was that with an aging farming population, farmers may consider the involvement of family members to be related to future financial success. Multiple regression analysis was performed to test the hypothesis. It was found that operator's age is negatively associated with income security and financial success for farmers in Louisiana. At the same time, the number of employed family members positively affected the importance of income security dimension. These findings support the hypothesis that farmers in Louisiana may consider the involvement of family members to be related to future financial success. No statistically significant evidence was found to confirm the hypothesis that marketing plays an important role for the success of the agritourism operation through the principal component regression analysis. Despite having a positive sign in one of the multiple regression models, the number of used marketing methods turned out to be not significant, which may be explained by the lack of data. In addition, only one motivator 'capture new customers' was assigned to the "Achievement, Challenge and Learning"

dimension. Nevertheless, from the other marketing related survey questions, alluded that marketing is an important area for agritourism operators.

Specific results of this study can be of help to people who work with agriculture, tourism and agritourism industries, outreach directors, and county agents. First, there is not a single resource which contains information about current agritourism operators in Louisiana. Developing such a list may increase the potential outreach for agritourism operators to provide them with updated information about legal, financial and other issues which may affect their operation. Second, it was found that financial and marketing issues are two of the most important problems farmers face. These results suggest that developing programs, training or workshops which can teach agritourism operators the importance of risk management, financial management, and marketing communication, as well as skills needed to implement particular marketing approaches may be important for the development of the industry.

Educators in agricultural business programs should put an emphasis on the importance of marketing for the successful growth of agricultural and agritourism businesses. The majority of farmers have a small advertising budget and promote their operations by themselves; thus, it may be substantial for students to build skills needed for creating and disseminating advertisement. Further analysis of the production side of the agritourism businesses may be performed in the future to generate a more comprehensive profile of the industry in general. In addition, particular interest may be placed on what circumstances operators consider agritourism as secondary or separate products.

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## APPENDIX A: QUESTIONNAIRE

CALLING ALL LOUISIANA FARM AND RANCH OPERATORS, AND LANDOWNERS INTERESTED IN AGRITOURISM – HELP  
CREATE A NEW SNAPSHOT OF LOUISIANA AGRITOURISM!



Dear Respondent,

This survey is designed to collect information about agritourism operations in Louisiana, interest in agritourism and to create a current profile of Louisiana agritourism. This information will be helpful in understanding how many and what types of businesses exist, the reasons people consider agritourism, the marketing approaches used, and challenges faced.

For Louisiana, an agritourism operation could be described as a business venture on a working farm, ranch or other commercial agricultural, aquacultural, horticultural, or forestry operation for the purpose of enjoyment, education, or participation in the activities of the farm, ranch, or other operations.

Your feedback is essential! Please take approximately 10 minutes to complete this online survey. **The survey must be completed by an individual 18 years old or older.** All information will be kept **confidential** and only summary information will be reported in study results. We respect your privacy. Participation is completely voluntary. You have the right to withdraw consent and discontinue the survey at any time without penalty. You can answer as many question(s) as you like. Your responses are very important to the success of the study and the continued delivery of state valuable information.

If you have any questions about this survey, or if you prefer to complete a paper copy, please contact Dr. Maria Bampasidou at 225-578-2367 or [mbampasidou@agcenter.lsu.edu](mailto:mbampasidou@agcenter.lsu.edu). If you have questions or concerns about your rights as a survey participant please contact the LSU AgCenter Institutional Review Board, OHRP office which has approved this survey (Protocol #HE16-18) at Louisiana State University AgCenter, 209 Knapp Hall, Baton Rouge, LA 70803, tel: 225-578-1708.

Please reply by **March 12, 2017** for your information to be most helpful.

Thank you for your time and effort in completing this survey.

Sincerely,

Maria Bampasidou  
Assistant Professor  
Louisiana State University  
LSU AgCenter  
[mbampasidou@agcenter.lsu.edu](mailto:mbampasidou@agcenter.lsu.edu)

## Section I: Farm Characteristics

### 1. Please select the option, which best describes your current situation

- a. I currently operate an agritourism business (Please skip to Question 11)
- b. I do **not** currently operate an agritourism business but did in the past (Please skip to Question 2)
- c. I do not currently operate an agritourism business but plan to in future (Please skip to Question 4)
- d. I do not currently operate an agritourism business and do not plan to in future (Please skip to Question 4)

### 2. How long was your agritourism business open?

\_\_\_\_\_ # of years

### 3. Which ONE of the following options below is the main reason why you are no longer involved in the agritourism operation?

- a. I retired
- b. There were too many regulatory issues
- c. Had to deal with many liability/insurance issues
- d. There were not enough customers or sales
- e. The cost of operation was too high
- f. Other, please specify \_\_\_\_\_

(Thank you for your help, please return the survey by mail)

### 4. How many years have you been involved in agriculture/ agricultural activities?

\_\_\_\_\_ # of years

### 5. What is the total acreage of your farm(s)? Please include all acres of your operation whether they are owned or rented)

\_\_\_\_\_ # of acres owned                      \_\_\_\_\_ # of acres rented

### 6. What is the total number of family members working on the farm? (How many family members are involved in working on farm?)

\_\_\_\_\_ family member(s)

### 7. How many employees were hired for agritourism operation in 2015 (for each category of employment)?

\_\_\_\_\_ Full time seasonally                      \_\_\_\_\_ Full time year round

\_\_\_\_\_ Part time seasonally                      \_\_\_\_\_ Part time year round

**8. Please indicate which of the following agricultural products you produce for income?**

(Please check the box for each selection that applies.)

- |   |  |
|---|--|
| <input type="checkbox"/> Apples                                   | <input type="checkbox"/> Honey, bee products (was, pollen) |
| <input type="checkbox"/> Bees (as livestock)                      | <input type="checkbox"/> Peaches                           |
| <input type="checkbox"/> Blueberries, Blackberries or Raspberries | <input type="checkbox"/> Poultry                           |
| <input type="checkbox"/> Cattle and Calves                        | <input type="checkbox"/> Pumpkins                          |
| <input type="checkbox"/> Christmas Trees                          | <input type="checkbox"/> Rice                              |
| <input type="checkbox"/> Corn                                     | <input type="checkbox"/> Sheep                             |
| <input type="checkbox"/> Cotton                                   | <input type="checkbox"/> Soybeans                          |
| <input type="checkbox"/> Crawfish                                 | <input type="checkbox"/> Strawberries                      |
| <input type="checkbox"/> Dairy Products                           | <input type="checkbox"/> Sugarcane                         |
| <input type="checkbox"/> Eggs                                     | <input type="checkbox"/> Timber                            |
| <input type="checkbox"/> Goats                                    | <input type="checkbox"/> Vegetables                        |
| <input type="checkbox"/> Grapes                                   | <input type="checkbox"/> Wheat                             |
| <input type="checkbox"/> Greenhouse/Nursery Plants                | <input type="checkbox"/> Other (specify) _____             |
| <input type="checkbox"/> Hay                                      |  |
| <input type="checkbox"/> Hogs                                     |  |

**9. For 2016, please estimate the percentage of your total income that came from farm income, and other non-farm income.**

\_\_\_\_\_ % income from farm sources

\_\_\_\_\_ % income from non-farm

100 % TOTAL (*The numbers on the 2 lines above should sum to 100%.*)

**10. What are the main issues why you are not considering agritourism?**

- a. Just don't have any interest in it
- b. Obtaining required permits or licenses
- c. Obtaining liability insurance
- d. Obtaining financing
- e. Facing challenges with local zoning
- f. Dealing with increased competition
- g. Identifying target customers
- h. Deciding how to promote the business to target customers
- i. Developing advertising and promotion materials
- j. Attracting customers
- k. Finding/hiring employees
- l. Training and managing employees
- m. Scheduling employees
- n. Other, please specify

**(Thank you for your help, please return the survey by mail)**

**11. What is the total acreage of your farm(s)?** Please include all acres of your operation whether they are owned or rented.

\_\_\_\_\_ # of acres owned

\_\_\_\_\_ # of acres rented

**12. How many years have you been involved in agriculture/ agricultural activities?**

\_\_\_\_\_ # of years

**13. How many years have you been involved in agritourism?**

\_\_\_\_\_ # of years

**14. Please, state in which parish is your agricultural/agritourism operation situated?**

\_\_\_\_\_

**15. What is the total number of family members working on the farm? (How many family members are involved in working on farm?)**

\_\_\_\_\_ # of family member(s)

**16. What months were your agritourism operation open in 2016? (Circle the months)**

Jan Feb Mar Apr May Jun Jul Aug Sept Oct Nov Dec

**17. How many days was your agritourism operation open in 2016 (approximately)?**

\_\_\_\_\_ # of days

**18. How many employees were hired for agritourism operation in 2016 (for each category of employment)?**

\_\_\_\_\_ Full time seasonally

\_\_\_\_\_ Full time year round

\_\_\_\_\_ Part time seasonally

\_\_\_\_\_ Part time year round

**19. Please indicate which of the following agricultural products you produce for income?**  
(Please check the box for each selection that applies.)

☐ Apples

☐ Bees (as livestock)

☐ Blueberries, Blackberries or  
Raspberries

☐ Cattle and Calves

- ☐ Christmas Trees
- ☐ Corn
- ☐ Cotton
- ☐ Crawfish
- ☐ Dairy Products
- ☐ Eggs
- ☐ Goats
- ☐ Grapes
- ☐ Greenhouse/Nursery Plants
- ☐ Hay
- ☐ Hogs
- ☐ Honey, bee products (was, pollen)

- ☐ Peaches
- ☐ Poultry
- ☐ Pumpkins
- ☐ Rice
- ☐ Sheep
- ☐ Soybeans
- ☐ Strawberries
- ☐ Sugarcane
- ☐ Timber
- ☐ Vegetables
- ☐ Wheat
- ☐ Other (specify) \_\_\_\_\_

**20. Please, check each type(s) of agritourism attractions that describe your operation:**

**Lodging and camping**

- ☐ Bed and breakfast
- ☐ Camp sites
- ☐ Farm stays
- ☐ Receptions/weddings/birthday parties
- ☐ Other, please specify \_\_\_\_\_

**Educational activities**

- ☐ School field trips
- ☐ Educational tours
- ☐ Workshops, seminars and classes
- ☐ Wildlife observation
- ☐ Other, please specify \_\_\_\_\_

**Fresh produce**

- ☐ Pick your own
- ☐ Cut your own
- ☐ Pumpkin patch
- ☐ Strawberry patch
- ☐ Other, please specify \_\_\_\_\_

**Special events and festivals**

- ☐ Festivals (music, food, harvest)
- ☐ Holiday celebrations
- ☐ Haunted attractions (house, hay ride)
- ☐ Other, please specify \_\_\_\_\_

**Recreation activities**

- ☐ Maze (corn, sorghum, hay, other)
- ☐ Field rides (Hay ride, tractor ride, other)
- ☐ Hiking or biking
- ☐ Horseback riding
- ☐ Petting zoo
- ☐ Farm animals exhibits
- ☐ Fee fishing
- ☐ Hunting
- ☐ Other, please specify \_\_\_\_\_

**21. What were the gross sales revenues from your agritourism business in 2016? (Please check the best answer.) Remember, individual responses are held confidential and are not connected with an individual or operation.**

- Less than \$2,500
  - \$2,500-\$4,999
  - \$5,000-\$9,999
  - \$10,000-\$24,999
  - \$50,000-\$74,999
  - \$75,000-\$99,999
  - \$100,000-\$249,999
  - \$250,000-\$499,999
  - \$500,000 and more
- 22. For 2016, please estimate the percentage of your total income that came from agritourism, other farm income, and other non-farm/agritourism income.**

\_\_\_\_\_ % income from agritourism  
 \_\_\_\_\_ % income from other farm sources  
 \_\_\_\_\_ % income from non-farm/agritourism  
100 % TOTAL (*The numbers on the 3 lines above should sum to 100%.*)

## **Section II: Motivational Factors or Motivators**

**23. How important do you think is agritourism for your business?**

- a. Not important
- b. Slightly important
- c. Moderately important
- d. Important
- e. Very important

**24. Please rate the importance of the following motivational factors for your involvement in agritourism. Possible options are “Not important”, “Slightly important”, “Moderately important”, “Important”, “Very important”.**

<i>Motivational Factor</i>	<i>Not important</i>	<i>Slightly important</i>	<i>Moderately Important</i>	<i>Important</i>	<i>Very important</i>
Generate additional income	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Continue ranching/ farming	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Decrease farm/ ranch revenue fluctuations	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Generate revenues during off-seasons	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Enhance ability to meet financial obligations	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Reduce impact of catastrophic events	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Interact with customers	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Educate consumers about agriculture	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Provide current customers with new products/ services	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Meeting a need in the recreation/ vacation market	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Keep you active	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Capture new customers	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Observing successes of other farm recreation businesses	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Better utilize farm/ ranch resources	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Keep the farm/ ranch in the family	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Enhance personal/ family quality of life	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Provide employment for family members	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
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### Section III: Marketing

**25. How important do you think is marketing for your agritourism operation?**

- a. Not important
- b. Slightly important
- c. Moderately important
- d. Important
- e. Very important

**26. Please rate the importance of marketing methods you USE. If you don't use particular method, please check "Don't use" checkbox.**

<i>Method</i>	<i>Don't use</i>	<i>Not important</i>	<i>Slightly important</i>	<i>Moderately Important</i>	<i>Important</i>	<i>Very important</i>
Direct mail	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
TV ads	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Radio ads	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Printed materials (business cards/brochures/flyers)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Special events or festivals	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
local farmers' markets	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Word of mouth	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Agricultural publications	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Road signs	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Newspaper ads	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Billboards	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Coupons	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Blog	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Email list	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Twitter account	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Facebook page	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Facebook Ads	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Google Ads	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Online deals (Groupon, Living Social etc)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Agritourism association	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Regional/local tourism guide	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
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**27. Please indicate how much money did you approximately spend on promotion of your agritourism business in 2015?**

\_\_\_\_\_ dollars

**28. Please indicate how much money did you approximately spend on promotion of your agritourism business in 2016?**

\_\_\_\_\_ dollars

**Information about online/offline will appear before the next question**

**29. Suppose you have a marketing budget of \$1000. On a scale from “1” and “10”, with 1 indicating lowest preference and 10 indicating highest preference, rank your likelihood of choosing the following promotion strategy. Please drag and drop to rank your choices.**

<i>Case</i>	<i>promotion strategy</i>	<i>Rank</i>
1	\$0 for online, \$1000 for offline, seasonal promotion	
2	\$0 for online, \$1000 for offline, year-round promotion	
3	\$250 for online, \$750 for offline, seasonal promotion	
4	\$250 for online, \$750 for offline, year-round promotion	
5	\$500 for online, \$500 for offline, seasonal promotion	
6	\$500 for online, \$500 for offline, year-round promotion	
7	\$750 for online, \$250 for offline, seasonal promotion	
8	\$750 for online, \$250 for offline, year-round promotion	
9	\$1000 for online, \$0 for offline, seasonal promotion	
10	\$1000 for online, \$0 for offline, year-round promotion	

## Section IV: Potential issues

30. The following is a list of potential issues you may have faced in the start-up or operation of your agritourism business. Please rate each issue based on how much of a problem it has been for you over the last *three* (3) years. Possible ratings are “Not a Problem,” “Somewhat of a Problem,” “A Moderate Problem,” or “A Serious Problem.” If the issue does not apply to your venue, please check the “Not Applicable” option.

	Not a problem	Somewhat of a problem	A moderate problem	A serious problem	Not applicable to my operation
Obtaining permission for roadside signage	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Obtaining liability insurance	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Obtaining financing	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Understanding legal tax issues	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Facing challenges with local zoning	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Dealing with increased competition	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Identifying target customers	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Deciding how to promote the business to target customers	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Developing advertising and promotion materials	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Attracting customers	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Providing excellent customer service	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Staying current with new promotion methods	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Having enough capital for infrastructure, operation and marketing	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Obtaining required permits or licenses	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Finding/hiring employees	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Training and managing employees	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Scheduling employees	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Scheduling groups for tours or parties	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Maintaining visitor safety	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Meeting health department requirements	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Understanding labor regulations	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Keeping and evaluating records	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Maintaining good relationships with neighbors	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Working with family members	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

**31. What other issues, if any, not listed in the previous question have been “A Serious Problem”?**

\_\_\_\_\_

**32. Which of the following resources have you used to learn more about agritourism? Select all that apply.**

- a. LSU AgCenter
- b. La Department of Ag and Forestry
- c. La Department of Wildlife and Fisheries
- d. Other agritourism operators.
- e. Internet
- f. Other, please specify

## **Section V: Demographics**

**33. What is your gender?**

- a. Female
- b. Male

**34. What is your age?**

\_\_\_\_\_ years

**35. What is the highest degree you have received or level of school you have completed?**

- a. 12<sup>th</sup> grade or less, no degree
- b. High school graduate (or equivalent)
- c. Some college, no degree
- d. Associate’s degree
- e. Bachelor’s degree
- f. Graduate or Professional degree

**36. Do you consider yourself to be of Hispanic or Latino origin?**

- Yes
- No

**37. What is your race or ethnic background?**

- White
- Black or African American
- American Indian or Alaska Native
- Asian
- Native Hawaiian or Other Pacific Islander
- Other

**38. Which of the following categories best represents your annual household income (before taxes)?**

- Less than \$25,000
- \$25,000-\$49,999
- \$50,000-\$74,999
- \$75,000-\$100,000
- \$100,000-\$149,999
- \$150,000-\$199,999
- \$200,000 or more

**39. Please rate the degree to which you agree or disagree with each of the following statements**

	<i><b>Strongly agree</b></i>	<i><b>Agree</b></i>	<i><b>Somewhat agree</b></i>	<i><b>Neither agree or disagree</b></i>	<i><b>Somewhat disagree</b></i>	<i><b>Disagree</b></i>	<i><b>Strongly disagree</b></i>
I am optimistic about the future of the agritourism industry in Louisiana	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
I plan to exit the agritourism	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

business in the next 5 years							
I plan to expand the number of products, attractions, or services offered at my business in the next 2 years	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
My goals include attracting more customers to my enterprise over the next 2 years	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
I expect to hire more employees in 2017 than I did in 2016	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
I expect my sales from agritourism to increase in the future	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
My agritourism operation is successful	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
My agritourism operation is profitable	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

## APPENDIX B: CALCULATIONS

### KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.687
Bartlett's Test of Sphericity	Approx. Chi-Square	312.925
	df	120
	Sig.	.000

Figure B.1. KMO and Bartlett's Tests

Table B.1. Percentage of explained variance by principal components

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total
1	7.934	49.588	49.588	7.934	49.588	49.588	7.339
2	1.709	10.679	60.267	1.709	10.679	60.267	3.982
3	1.474	9.212	69.479	1.474	9.212	69.479	2.131
4	1.322	8.266	77.745	1.322	8.266	77.745	1.778
5	1.023	6.396	84.141				
6	0.652	4.076	88.217				
7	0.583	3.646	91.862				
8	0.438	2.737	94.600				
9	0.320	1.999	96.599				
10	0.177	1.107	97.706				
11	0.134	0.837	98.542				
12	0.081	0.508	99.051				
13	0.062	0.387	99.437				
14	0.049	0.309	99.746				
15	0.031	0.191	99.937				
16	0.010	0.063	100.00				

Table B.2. Pattern matrix

Motivators	Component			
	1	2	3	4
generate additional income	0.938			
better utilize farm resources	0.900			
decrease revenue fluctuations	0.884			
enhance ability to meet financial obligations	0.798			
generate revenues during off-seasons	0.771			
continue ranching/farming	0.712			
meeting a need in the recreation/vacation market	0.702			
observing successes of other farm recreation businesses	0.641			
reduce impact of catastrophic events	0.627			
keep the farm in the family	0.560			
keep you active		0.901		
enhance personal/family quality of life		0.833		
interact with customers		0.596		
educate consumers about agriculture			0.881	
provide current customers with new products/services			0.618	
capture new customers				0.685

## APPENIX C: IRB APPROVAL FORM

**\*\*I certify that my responses are accurate and complete.** If the project scope or design is later changed I will resubmit for review. I will obtain written approval from the Authorized Representative of all non-LSU AgCenter institutions in which the study is conducted. I also understand that it is my responsibility to maintain copies of all consent forms at the LSU AgCenter for three years after completion of the study. If I leave the LSU AgCenter before that time the consent forms should be preserved in the Departmental Office.

Committee Action: Exempted ☒ Not Exempted ☐ IRB# HE16-18  
Reviewer Michael Keenan Signature Michael Keenan Date 12-5-2016

### Part 1: Determination of "Research" and Potential for Risk

- This section determines whether the project meets the Department of Health and Human Services (HHS) definition of research involving human subjects, and if not, whether it nevertheless presents more than "minimal risk" to human subjects that makes IRB review prudent and necessary.

**1. Is the project involving human subjects a systematic investigation, including research, development, testing, or evaluation, designed to develop and contribute to generalizable knowledge?**

(Note some instructional development and service programs will include a "research" component that may fall within HHS' definition of human subject research)

☒ Yes

☐ No

**2. Does the project present physical, psychological, social or legal risks to the participants reasonably expected to exceed those risks normally experienced in daily life or in routine physical or psychological examination or testing?**

You must consider the consequences if individual data inadvertently become public.

☐ Yes Stop. This research cannot be exempted—submit application for full IRB review.

☒ No Continue to see if research can be exempted from IRB oversight.

**3. Are any of your subjects incarcerated?**

☐ Yes Stop. This research cannot be exempted—submit application for full IRB review.

☒ No Continue to see if research can be exempted from IRB oversight.

**4. Are you obtaining any health information from a health care provider that contains any of the identifiers listed below?**

A. Names

## **VITA**

Denys Maksymov is Ukrainian citizen, who received a Bachelor of Science in Applied Statistics from Dnipropetrovsk National University, Ukraine, in 2014. In 2014 he received Victor Pinchuk Foundation Scholarship for his study of “Statistical Analysis of Ukrainian livestock industry development.” He also received Fulbright Scholarship in 2015, which helped him to attend Louisiana State University to pursue Master of Science degree in Agricultural Economics during 2015-2017.