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### Assessing the sustainability of agritourism in the US: a comparison between agritourism and other farm entrepreneurial ventures

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## Assessing the sustainability of agritourism in the US: a comparison between agritourism and other farm entrepreneurial ventures

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Diversifying on-farm enterprise portfolios, especially through agritourism, is claimed to increase farm revenues and help alleviate the economic problems of family farms. Thus, the adoption of agritourism in the US has steadily increased during recent years. Agritourism is also suggested to produce environmental and sociocultural benefits. To quantify these benefits, this study assessed the sustainability of agritourism farms, compared with other farm entrepreneurial ventures, using the “sustainable development” and “farm enterprise diversification” frameworks. Data from 873 US farms with a diversified entrepreneurial portfolio revealed that agritourism farms approach sustainability to a greater extent than their counterparts, producing multiple environmental, sociocultural and economic benefits for their farms, households and even society. Results suggest that agritourism, compared with other farm entrepreneurial ventures, is more successful in increasing farm profits, creating jobs and conserving the natural and cultural heritage. For example, 52.4% of agritourism farms have been within the same family for at least two generations and 73.3% are willing to pass the farm on to their children, proportions that are significantly higher than other entrepreneurial farms. Study results also show, however, that while many agritourism farms practice integrated pest management, they need to be more engaged in other environmentally friendly and conservation practices.

**Keywords:** agritourism; farm enterprise diversification; farm tourism; multifunctionality; sustainable tourism

### Introduction

Many small family farms in the US are struggling to remain in business because of economic and societal trends (including agricultural price squeeze, technological treadmill, integration into larger operations) as well as government pressures (including falling subsidies for commodity production). Although annual sales from these family farms represent a small share of total US agricultural production, they have the capacity to impact rural well-being since they control a large proportion of the agricultural wealth, especially farmland (Hoppe, 2010). According to Hoppe (2010), the median wealth of noncommercial farms (earning less than \$10,000 gross income) starts at \$400,000 and increases with farm size; just the farmland of small operators (\$10,000–\$249,999 gross income) can be worth several hundred thousand American dollars. These farms could help mitigate the negative environmental effects from intensive agriculture such as soil erosion, water pollution and stream bank erosion, increase landscape beautification, provide barriers to residential sprawl and encourage conservation of native habitats and wildlife among others (Gold, Cernusca, & Godsey, 2009; Lambert, Sullivan, Claassen, & Foreman, 2006). For these and other reasons,

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several government (e.g. agriculture state agencies) and nongovernment agencies (e.g. universities' extension programs) promote the development of alternative farm enterprises as a means to retain small family farms in business and promote the economic development of rural economies. There are consistent reports of an increase in US family farms diversifying their operations through different on-farm enterprises, especially agritourism, to adjust the farm business to challenging and changing realities (Cordell, 2008; Rozier Rich, Standish, Tomas, Barbieri, & Ainley, 2010; Tew & Barbieri, 2012).

Although there is not a standard definition of agritourism, this activity is usually understood as any recreational, educational or leisure activity programmed on any working farm or other agricultural operation (e.g. plant nursery, mill) to attract visitors (Blacka et al., 2001; Caballé, 1999; Che, Veeck, & Veeck, 2005; McGehee, Kim, & Jennings, 2007; Ollenburg & Buckley, 2007). Agritourism encompasses a variety of activities including, but not limited to, direct participation in agricultural activities (e.g. harvesting berries, milking a cow), indirect enjoyment of farm activities (e.g. enjoying meals on site, farmers' markets), recreational activities in which the farm premises only serves as the landscape (e.g. attending a wedding in a vineyard), as well as a variety of on-farm accommodations (e.g. bed and breakfast) and food services (Barbieri & Mshenga, 2008; McGehee, 2007; McGehee & Kim, 2004; Phillip, Hunter, & Blackstock, 2010; Veeck, Che, & Veeck, 2006). The agriculturalist literature places agritourism within the farm enterprise diversification grand scheme – as entrepreneurial ventures resulting from the reallocation and recombination of farm land, labor or capital for the purposes of enhancing farm revenues or values (Tew & Barbieri, 2008; Blacka et al., 2001; Ilbery, 1991; Tew & Barbieri, 2012). Although sharing many elements of farm enterprise diversification, agritourism seems to have distinctive elements from other farm enterprises such as value-added processing and services offered to others. Barbieri (2009), for example, found differences between agritourism and other farm entrepreneurs in their entrepreneurial motivations and business structure.

Since the Brundtland Commission drafted the concept of sustainable development in the late 1980s (World Commission on Environment and Development [WCED], 1987), sustainability has been used as a framework to holistically examine the impacts of different entrepreneurial activities across the social, economic and environmental dimensions of local communities and their surroundings. Although definitions of sustainable tourism vary based on the approach behind (e.g. political, environmental) and mostly because of the multidimensionality of both (sustainability and tourism) terms (Butler, 1999; Saarinen, 2006), it is common knowledge that tourism activities are sustainable only when they are economically viable without destroying the environment or the social fabric of the local community (Swarbrooke, 1999). In this sense, sustainable tourism ensures the perpetuation of the tourism activity over an infinite period while promoting the stewardship of both physical and human environments (Butler, 1999). Such principles, in the case of agritourism and the wider case of rural tourism, can be translated into preserving the farmer's historic ties to the land and traditional knowledge, employing stewardship and sustainable agricultural practices, increasing farm revenues and profits, sustaining the landscape, habitats and soil productivity, preserving the family farmland for future generations and sustaining rural economies (Barbieri & Tew, 2010; Carlsen, Getz, & Ali-Knight, 2001; Choo & Jamal, 2009; Lane, 1994; Smit & Brklacich, 1989).

Previous studies on sustainable tourism have focused on understanding the attitudes and perceptions of local residents, tourists and other stakeholders (e.g. Andereck, Valentine, Vogt, & Knopf, 2007; Bramwell & Alletorp, 2001; Budeanu, 2005; Carlsen et al., 2001; Stoddard, Evans, & Davé, 2008). Some evidence also exists related to agritourism as a

form of sustainable tourism, especially stressing its entrepreneurial value, either pursuing direct (e.g. revenues enhancement) or indirect (e.g. cross marketing of other farm products) economic gains or fulfilling intrinsic entrepreneurial goals (Barbieri & Mahoney, 2009; Barbieri & Mshenga, 2008; McNally, 2001; Nickerson, Black, & McCool, 2001; Tew & Barbieri, 2012). Agritourism has been suggested to foster rural development through youth retention, revitalization of local economies and preservation of agricultural and natural heritage (Fleischer & Pizam, 1997; Hegarty & Przebórska, 2005; Sharpley, 2002; Wicks & Merrett, 2003).

However, there is a gap in the literature that simultaneously examines all three sustainability dimensions (i.e. economic, sociocultural and environmental) of agritourism at the farm level. Given the multisectoral and holistic nature of tourism, auditing environmental, economic and social indicators of tourism endeavors together is important to assess their real level of sustainability (Butler, 1999; Wall, 1997); it is even more critical when assessing the sustainability of agrifood systems (Smit & Brklacich, 1989) that are involved in agritourism. Furthermore, there is a need to assess sustainable implications of agritourism as compared with other farm entrepreneurial ventures, especially related to their performance (Barbieri, 2009). To fill this research gap, this study examined several economic, socio-cultural and environmental indicators of sustainability among US farms with a diversified entrepreneurial portfolio, and compared indicators of sustainability between farms offering agritourism and those with other types of diversified enterprises. The paper's next section presents the theoretical framework used in this study; it defines the farm enterprise diversification grand scheme and then positions agritourism as an entrepreneurial venture, and within the sustainability framework. The remaining sections detail study methods, results and conclusions.

### **Farm enterprise diversification**

Early studies on farm enterprise diversification defined it as the reallocation and recombination of farm resources (i.e. land, labor or capital) into new unconventional crops/animals or into nonagricultural enterprises (Ilbery, 1991). However, the broadness of this definition made unclear the distinction between on-farm enterprises and other forms of off-farm enterprises developed with farm household resources, such as off-farm employment (Barbieri, Mahoney, & Butler, 2008; Daskalopoulou & Petrou, 2002; Maye, Ilbery, & Watts, 2009; Turner, Whitehead, Millard, Barr, & Howe, 2006). Most studies suggest that the entrepreneurial development needs to have a utilitarian purpose, defined by increase of revenues, reduction of risks, maximization of resource use, cross marketing of farm products or any other form of adding value to farm assets (Barbieri et al., 2008; Knutson, Smith, Anderson, & Richardson, 1998; Turner et al., 2003; Valdivia & Konduru, 2004).

Although previous studies have attempted to develop typologies of farm enterprise diversification, those classifications have been intended to be demonstrative rather than definitional (Barbieri et al., 2008; Ilbery, 1991). Developing a typology of farm enterprise diversification is very complex, mainly because farmers are constantly creating new ventures as an adjustment strategy to their changing contexts (Barbieri & Mahoney, 2009; Turner et al., 2003, 2006). Given such complexity, and taking into consideration its geographic applicability, this study is framed upon the farm enterprise diversification model developed for North America (Barbieri et al., 2008), which recognizes eight types of on-farm enterprises: (1) nontraditional farming, including the incorporation of

nontraditional crops, livestock or the adoption of unusual agricultural practices (Barlas, Damianos, Dimara, Kasimis, & Skuras, 2001; Damianos & Skuras, 1996); (2) direct marketing, defined as the use of a variety of merchandising activities, communication and promotional media mix (e.g. private labeling, virtual markets) to make the farm products and services more accessible to different markets (Ilbery, 1991; McNally, 2001); (3) agritourism, defined as any recreation (e.g. hay rides), tourism (e.g. festivals) and hospitality (e.g. on-farm lodging) activities or services (Barbieri & Mshenga, 2008; Bowler, Clark, Crockett, Ilbery, & Shaw, 1996; McGehee & Kim, 2004); (4) passive diversification, including the lease, rental, easements and time-shares of the farm and its resources such as hunting leases and conservation easements (Ilbery, 1991; McNally, 2001); (5) contracting services provided to others, such as farrier or nursery (Bowler et al., 1996; McNally, 2001; Turner et al., 2003); (6) value-added processes such as making jams or gift baskets (Barbieri et al., 2008); (7) historic preservation and restoration of old buildings, structures and farm equipment either to support a farm activity (e.g. old barns converted into wine-tasting rooms) or to enhance the farm's appeal (Barbieri et al., 2008); and (8) consulting and educational programming including a variety of classes, workshops, internships and apprenticeships offered on the farm.

### **Agritourism as an entrepreneurial venture**

Within the farm enterprise diversification grand scheme, agritourism is defined as an entrepreneurial endeavor with the purpose of attracting visitors to the farm (Barbieri et al., 2008; Blacka et al., 2001; Che et al., 2005; Ilbery, 1991; Tew & Barbieri, 2012). Agritourism includes a wide variety of activities and services, including leisure and educational tours, nature contemplation, U-pick vegetables/fruits, on-farm lodging (e.g. cabins, camping sites), hunting and fishing for a fee, on-farm sales and gift shops, lodging and food services, programming special events such as private parties and festivals, among many others activities (Nilsson, 2002; Tew & Barbieri, 2012). More recently, Phillip et al. (2010) postulated a five-class theoretical typology of agritourism operations: nonworking farm agritourism; working farm, passive contact agritourism (e.g. bed and breakfast on a current farm); working farm, indirect contact agritourism (e.g. on-farm dining); working farm, direct contact, staged agritourism (e.g. appreciation of farm demonstrations); and working farm, direct contact, authentic agritourism (e.g. participation in farm chores). However, taking into consideration that agritourism is framed in this study as one type of farm entrepreneurial venture (i.e. an enterprise developed by a working farm), nonworking farm agritourism operations were excluded.

Being considered a business component of the entire farm structure, agritourism shares some common elements with other farm entrepreneurial development. First, its development is intended to increase farm revenues or value (Tew & Barbieri, 2012; Barry & Hellerstein, 2004; McGehee, 2007). Another major common ground relates to the motivations behind the entrepreneurial development. Studies consistently conclude that a complex set of goals, including those economic and intrinsic in nature, drive overall farm enterprise diversification (Barbieri & Mahoney, 2009; Bowler et al., 1996; Turner et al., 2003) and agritourism development (McGehee & Kim, 2004; McGehee et al., 2007; Nickerson et al., 2001; Ollenburg & Buckley, 2007; Tew & Barbieri, 2012). This mix of economic and noneconomic goals is derived from the entrepreneurial nature of these developments (Alsos, Ljunggren, & Pettersen, 2003) and farmer-specific goals such as lifestyle and the pride of being a farmer (Burton, 2004; Gasson, 1973; Getz & Carlsen, 2000).

Although sharing many elements of the farm enterprise diversification grand scheme, agritourism seems to have distinctive elements from other farm enterprises such as value-added processing and services offered to others. In a study conducted across the US and Canada, Barbieri (2009) found that agritourism providers are significantly more motivated by firm profitability, market opportunities and family pursuits than other farm entrepreneurs. In terms of business structure, Barbieri (2009) also found that agritourism farms have more managerial capabilities (i.e. firm network, availability of business and marketing plans) and marketing strategies than other enterprise-diversified farms. Using an importance-performance analysis, Barbieri (2010) found that Canadian agritourism farmers not only have different goals than other farm entrepreneurs, but that they also differ on the levels of attainment of these goals; specifically, agritourism farmers perceived a higher realization of goals related to their interaction with customers and the creation of jobs for family members.

### **Agritourism within the sustainability framework of analysis**

Agritourism is suggested to produce various economic, sociocultural and environmental benefits that, although primarily concern the farm household, also extend to surrounding communities. Most studies stress the value of agritourism in generating supplemental income, especially in times of economic distress (Brandth & Haugen, 2007; Busby & Rendle, 2000; Fisher, 2006; Hegarty & Przebórska, 2005; McGehee, 2007; Reeder & Brown, 2005; Veeck et al., 2006), or serving as a substitute for off-farm employment (Ollenburg & Buckley, 2007). A study conducted in Missouri (US) suggests that although agritourism does not always generate direct economic gains through entrance or activity fees, operators perceive that it is important for the continued operation of their farm because of its cross-marketing value, as recreational activities increase overall farm revenues and profits through the sale of other farm products (Barbieri & Tew, 2010). However, the economic benefits of agritourism for the farm household are not universal as economic performance may vary based on several factors such as the length of time they have been in operation, closeness to other tourism attractions or the intensity of their offerings (Busby & Rendle, 2000; Fisher, 2006; Fleischer & Tchetchik, 2005; Saxena, Clark, & Ilbery, 2007; Veeck et al., 2006).

Fewer studies have examined the role of agritourism from the sociocultural and environmental dimensions. This is most likely due to the disconnection of those dimensions from the economic implications when examining tourism development in rural areas (McAreavey & McDonagh, 2011). From the sociocultural dimension, agritourism has been suggested as a means to provide employment for family members, preserving the farmland for future generations, or as a plan for farm succession (Carlsen et al., 2001; Fleischer & Tchetchik, 2005; Ollenburg & Buckley, 2007; Veeck et al., 2006) – impacts that, although within the economic realm, have social implications for the farm household members. According to Lane (1994), sustainable goals of rural tourism are the preservation of the rural landscapes and natural habitats. Along these lines, Choo and Jamal (2009) found that organic farmers offering ecotourism activities in South Korea are very knowledgeable about strategies to preserve natural habitats and to minimize their environmental damage as they have strong ties with the health of their lands. Carlsen et al. (2001) found that family businesses involved in rural tourism and hospitality in Western Australia were positively inclined toward adopting sustainable tourism practices as they were driven by heritage or nature conservation. As for environmental impacts, they found that the majority of respondents followed water conservation procedures or a recycling program for materials, and educated their guests on conservation matters.

Studies also suggest that the positive impacts of agritourism extend beyond the farm gates. Lane (1994) argued that in order to be sustainable, rural tourism should help sustain the rural economy. Consistently, previous studies found that the increased revenues in agritourism farms can boost local economies through increased sales taxes, generation of local employment and stimulation of local businesses (Barbieri, 2009; Che et al., 2005; Reeder & Brown, 2005; Saxena et al., 2007; Sharpley, 2007; Veeck et al., 2006; Wicks & Merrett, 2003). Revitalized local economies in turn foster youth retention in rural communities who work in either agriculture or other local businesses (Oppermann, 1995; Sharpley, 2002). Agritourism is also thought to produce other noneconomic societal benefits, including maintenance of rural lifestyles, increased awareness and preservation of local customs and crafts, as well as agricultural, natural and built heritage as these farms are embedded in local traditions (Everett & Aitchison, 2008; Fleischer & Pizam, 1997; Hegarty & Przezbórska, 2005; McGehee, 2007; Nilsson, 2002; Ollenburg & Buckley, 2007; Sharpley, 2002; Turnock, 2002). Finally, enabling traditional family farms to remain in business can contribute to the overall conservation of communities, landscapes and ecosystems (Clarke, 1997; McGehee, 2007).

In sum, evidence suggests that agritourism has the capacity to produce economic, sociocultural and environmental benefits to society. At the farm level, previous studies stress the suitability of agritourism to accomplish a variety of entrepreneurial goals and to increase the economic performance of the farm household. However, further knowledge is needed on the sociocultural and environmental impacts of agritourism on the farm, especially as little effort has been invested in distinguishing sustainable from unsustainable forms of agritourism (Carlsen et al., 2001; Choo & Jamal, 2009). The assessment of tourism's economic, sociocultural and environmental impacts is important because its development requires the simultaneous use of land, water, labor and capital resources (Wall, 1997) – attributes critical for agritourism development as tourists' needs can place an additional burden to family farms which may be already short in human (e.g. family labor) and natural (e.g. water) resources.

## Study methods

### *Sampling frame and data collection*

The North American Farmers' Direct Market Association (NAFDMA) provided their member list as an initial sample frame to initiate snowball sampling. The NAFDMA list included 423 farmers and 430 nonfarmer members. Although this sample frame could not claim to be representative of farm entrepreneurial development, its use was convenient for several reasons: the majority of NAFDMA members were farmers with diversified enterprises; it was not restricted to one specific agricultural sector; it covered a wide geographic range across the US and Canada; and it facilitated study referrals as it also included nonfarmer members involved in agriculture such as extension agents. Finally, a probability sampling was not feasible as the population of enterprise-diversified farmers was not available in a comprehensive directory.

A web-based survey was used to collect data between July and September 2005. The online instrument collected information about the characteristics of the farm and their main operators, agricultural and conservation practices, entrepreneurial motivations and portfolio, farm economic indicators in terms of sales and profits, and several business management and marketing descriptors. The invitation email was followed by one mail postcard and four reminder emails to nonrespondents. To initiate the snowball sampling,

NAFDMA members were asked to forward the invitation email with the survey link to other diversified farms they would know, and encourage them to take part in this study.

The study produced 1135 useable surveys that met the study criteria (i.e. working farm with at least one diversified enterprise). From these, 192 were from the original NAFDMA list (45.4% response rate) and 943 from snowball referrals. Statistical analysis revealed that the profiles of respondents who were NAFDMA members were similar to those who were not. The examination of key variables showed no significant differences between both groups regarding age and education levels of their main operator, number of years they have been farming, number of years having diversified their operations and in their average farm size. However, results showed that a larger proportion of NAFDMA members reported farming as their main occupation (NAFDMA = 87%; non-NAFDMA = 58%;  $p < 0.001$ ); more NAFDMA members also reported farm gross sales over \$500,000 (NAFDMA = 28%; non-NAFDMA = 5%;  $p < 0.001$ ).

Because of the purpose of this study, only US respondents ( $n = 873$ ) were included in the analysis. Farmers from 47 states responded to the survey, representing the four US geographic regions: Northeast ( $n = 172$ ; 20.1%), Midwest ( $n = 228$ ; 26.7%), South ( $n = 253$ ; 29.0%) and West ( $n = 201$ ; 23.0%). The top three production lines in all four regions were crops, agritourism and livestock. The most common activities offered by those farmers involved in agritourism were the following: tours (86.2%), hayrides (63.8%) and recreational self-harvest (60.6%) in the Northeast; tours (82.6%), outdoor recreation (67.4%) and hayrides (58.7%) in the Midwest; tours (79.0%), outdoor recreation (57.1%), and special events and festivals (54.6%) in the South; and tours (80.5%), special events and festivals (60.9%), and outdoor recreation (48.3%) in the West. A small proportion of respondents from the Northeast (9.6%), Midwest (10.9%), South (11.8%) and West (10.3%) regions were offering some sort of lodging. The numbers offering lodging are quite low in comparison with other forms of agritourism involvement, and provide a useful reality check. In many parts of Europe and elsewhere, agritourism is perceived to be largely lodgings-based, although comprehensive survey evidence for that perception is weak.

### ***Development of study groups***

Based on their entrepreneurial portfolio, responding farms were first classified into two groups following the North American agriculture diversification model (Barbieri et al., 2008). The first group was composed by those *agritourism* farms ( $n = 453$ ; 51.9%), which were offering at least one type of recreational/tourism-related (e.g. tours, recreational self-harvest) or hospitality-related (e.g. lodging, food services, event planning) activity or service. Within this group, the most common agritourism activities offered were tours (14.8%), outdoor activities (10.5%) and the programming of events (10.1%).

The second group was composed by *other entrepreneurial* farms ( $n = 453$ ; 48.1%) having a diversified portfolio through innovative marketing and merchandising such as online direct sales; nontraditional agriculture such as raising bison or organic production; value-added processes such as cheese production; historic preservation such as the conversion of historic barns into gift shops; consulting and education such as classes and training workshops; passive diversification including any leases, easements or time-shares of the land or other resources; and other types of contracting or services such as gardening services.

The simultaneous development of various types of enterprises that has been reported in Europe and the Americas (Barbieri & Valdivia, 2010; Ploeg et al., 2000; Turner et al., 2003; Valdivia & Konduru, 2004) was also present among study participants. On average,



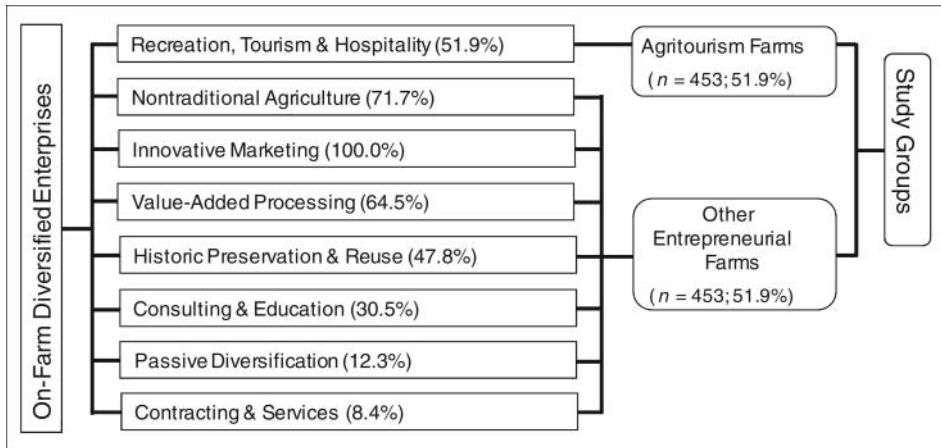


Figure 1. Study groups based on the on-farm enterprise diversification model (Barbieri et al., 2008).

responding farms offered about four types of enterprises ( $M = 3.8$ ) and none of them were “pure” or specialized operations. Given such high entrepreneurial diversification behavior in the sample and recognizing Wilson’s (2008) argument for its encouragement to foster sustainability, those farms having diversified through agritourism and other enterprises were placed in the first group. Figure 1 summarizes the occurrence of diversified enterprises among the study sample using the farm diversification model (Barbieri et al., 2008) and illustrates the classification of respondents into both study groups.

### **Research design and statistical analysis**

Two objectives drive this study: (1) to examine economic, sociocultural and environmental indicators of sustainability among US farms with a diversified entrepreneurial portfolio; and (2) to compare indicators of sustainability between agritourism farms and other entrepreneurial farms. To address the first objective, several indicators of sustainability commonly found in the agritourism, rural tourism and sustainable tourism literature were examined using descriptive statistics. To address the second objective, a series of chi-square (observed frequency distribution) and  $t$  (observed means) tests were conducted to examine whether those economic, sociocultural and environmental indicators of sustainability differ between the study groups (agritourism farms and other entrepreneurial farms).

The economic dimension of sustainability encompasses the perpetuation of the tourism activity over a period of time and the extension of those benefits to local communities (Butler, 1999; Carlsen et al., 2001; Choo & Jamal, 2009; Lane, 1994; Swarbrooke, 1999). From the farm enterprise diversification framework, this translates into the enhancement of the farm household economic standing in terms of increased farm revenues and profits, employment of family members and increased household income – benefits that in turn can extend to surrounding localities through the generation of local employment (Barbieri & Tew, 2010; Brandth & Haugen, 2007; Fisher, 2006; Hegarty & Przeborska, 2005; McGehee, 2007; Reeder & Brown, 2005; Saxena et al., 2007; Veeck et al., 2006). Thus, to represent those economic impacts at the farm level, this study examined farm household income, farm gross sales, diversification impact on farm profits and number of family employees. The broader economic impact in rural societies was operationalized

in terms of number of farm employees and number of jobs created post-entrepreneurial diversification.

A variety of socioeconomic indicators of sustainability are found in the literature, the most salient being the endurance of the family-agriculture attachment, especially enabling farm succession (Choo & Jamal, 2009; Fleischer & Tchetchik, 2005; McGehee, 2007; Tew & Barbieri, 2012); the reduction of farmer's off-farm employment (Carlsen et al., 2001; Ollenburg & Buckley, 2007; Tew & Barbieri, 2012; Veeck et al., 2006); and the preservation of traditional agricultural knowledge and heritage (Barbieri et al., 2008; Choo & Jamal, 2009). Consistently, this study examined the number of years farming, whether the farm is multigenerational, and whether farm succession plans to operationalize attachment to agriculture; the reduction of off-farm employment was examined concerning the principal operator and their spouse, and with the number of adult kids living on-farm; and whether the farm has preserved or adaptively reused heritage were used as indicators of historic/cultural preservation.

Many environmental indicators have been used to assess the sustainability of tourism activities, especially related to rural areas, including the implementation of sustainable agricultural practices such as biological pest management (Choo & Jamal, 2009) and overall stewardship efforts such as the preservation of rural landscapes, natural habitats and natural resources (Butler, 1999; Carlsen et al., 2001; Choo & Jamal, 2009; Clarke, 1997; Lane, 1994; McGehee, 2007; Smit & Brklacich, 1989). Thus, this study assessed environmental sustainability through engagement in two environment-friendly agricultural practices (i.e. farm waste management and integrated pest management) and in three conservation practices (i.e. protection/propagation of native plants, wildlife habitat improvement and water conservation).

## Results

### *Respondents' profile*

Two-thirds (66.8%) of the respondents had a male principal operator; about a quarter (23.8%) of the respondents were younger than 45 years, 35.5% aged between 45 and 54, 28.7% between 55 and 64, and 12.0% were 65 years or older (Table 1). Two-thirds of the respondents (67.3%) had at least one college degree. Over a quarter of the respondents (26.8%) reported being retired and the majority (65.0%) reported farming as their main occupation. Statistical analysis revealed no significant differences in the age distribution and retired condition of the operators between agritourism and nonagritourism farms. Agritourism operations, as compared with their counterparts, had a larger proportion of male principal operators (75.8% vs. 56.4%;  $p < 0.001$ ) and operators mainly dedicated to farming (72.2% vs. 56.6%;  $p < 0.001$ ). On the other hand, other entrepreneurial farms had a larger proportion of operators (34.4%) with at least some advanced studies as compared with operators of agritourism farms (24.7%;  $p = 0.016$ ).

Overall, the majority of respondents (63.0%) had an individual farming operation. However, when comparing both groups, a larger proportion of agritourism farms was incorporated or under a limited liability corporation (37.6%) as compared with other entrepreneurial farms (15.0%;  $p = 0.001$ ). Participating farm size averaged 322 acres (2.7 ha), with agritourism farms being larger ( $M = 412$  acres; 3.4 ha) than their counterparts ( $M = 222$  acres; 1.9 ha;  $p = 0.036$ ). Agritourism farms reported that their income from agricultural production was significantly lower (52.3%) as compared with other entrepreneurial farms (86.4%;  $p < 0.001$ ). On average, agritourism farms have more on-farm diversified

Table 1. Socioeconomic profile of operators and attributes of responding farms engaged in agritourism and other entrepreneurial ventures.

	Agritourism farms	Other entrepreneurial farms	All farms	Statistical values	
Farmer's gender					
Female	24.2%	43.6%	33.2%	$x^2 = 31.83$	$p < 0.001^*$
Male	75.8%	56.4%	66.8%		
Farmer's age (years)					
Less than 45	24.1%	23.3%	23.8%	$x^2 = 6.63$	$p = 0.469$
45–54	33.8%	37.5%	35.5%		
55–64	28.5%	28.9%	28.7%		
65 or more	13.6%	10.3%	12.0%		
Farmer's education level					
High school or less	11.9%	11.3%	11.7%	$x^2 = 15.66$	$p = 0.016^*$
Some college	20.8%	21.1%	21.0%		
College degree	42.6%	33.2%	38.2%		
Some advanced studies	24.7%	34.4%	29.1%		
Farmer's main occupation					
Farming	72.2%	56.6%	65.0%	$x^2 = 20.57$	$p < 0.001^*$
Other than farming	27.8%	43.4%	35.0%		
Farmer's labor condition					
Retired from previous job	24.1%	29.9%	26.8%	$x^2 = 3.29$	$p = 0.070$
Nonretired	75.9%	70.1%	73.2%		
Type of farm					
Individual	52.8%	74.4%	63.0%	$x^2 = 58.37$	$p < 0.001^*$
Partnership	6.9%	8.9%	7.9%		
Incorporated	22.4%	8.1%	15.6%		
LLC	15.2%	6.9%	11.3%		
Other	2.7%	1.7%	2.2%		
Farm size					
In acres	412.3	221.6	322.0	$t = -2.10$	$p = 0.036^*$
In hectares	3.4	1.9	2.7		
Income from agricultural production					
Percentage of agricultural income	52.3	86.4	68.5	$t = 15.11$	$p < 0.001^*$
Portfolio diversification development					
Number of years with a diversified portfolio	12.0	19.5	15.4	$t = 0.944$	$p = 0.346$
Number of diversified enterprises	4.7	2.9	3.9	$t = -21.98$	$p < 0.001^*$
Have further entrepreneurial plans	59.3%	54.0%	56.9%	$x^2 = 2.26$	$p = 0.145$

\*Statistically significant (critical value  $p < 0.05$ ).

enterprises ( $n = 4.7$  enterprises) than their counterparts ( $n = 2.9$ ;  $p < 0.001$ ). With no statistical differences between groups, respondents reported having an average of 15.4 years with a diversified entrepreneurial portfolio and the majority (56.9%) had plans for continuing their portfolio diversification in the future.

**Economic indicators of sustainability among entrepreneurial farms**

Farm entrepreneurial diversification is suggested to be primarily undertaken because of its economic benefits. In this regard, this study found that agritourism appears to be overall more successful than other farm entrepreneurial endeavors when examining economic indicators at the farm household and business levels. Over one quarter (26.1%) of agritourism farms reported having household incomes of at least \$100,000 a year as compared with 14.7% of other entrepreneurial farms ( $p = 0.001$ ; Table 2). The proportion of agritourism farms (64.9%) with \$50,000 annual gross sales is significantly larger than other entrepreneurial farms (24.5%;  $p < 0.001$ ), which is not surprising taking into consideration the intertwined relationship between the farm household and their business (Bowler et al., 1996).

Although gross sales are important because they provide cash flow to the farm, profits may be a better economic indicator of farm entrepreneurial diversification. Under this light, the majority of respondents stated that their farm profits increased after diversifying their operations, especially among agritourism farms (80.6%) as compared with other diversified farms (65.1%;  $p < 0.001$ ). Differences based on the impact of agritourism are even more pronounced in terms of the amount increased; agritourism farms reported an average increase of 68.5% in their profits after beginning their diversification development, as compared with 33.9% increase on the other entrepreneurial farm groups ( $p < 0.001$ ).

Table 2. A comparison of economic indicators at the farm (household and business) level between agritourism and other entrepreneurial farms.

Economic indicators (farm level)	Agritourism farms	Other entrepreneurial farms	Statistical values	
Farm household income				
Less than \$25,000	12.4%	20.6%	$x^2 = 24.64$	$p = 0.001^*$
\$25,000–\$49,999	28.5%	29.0%		
\$50,000–\$99,999	33.0%	35.7%		
\$100,000 or more	26.1%	14.7%		
Farm gross sales				
Less than \$10,000	15.2%	48.8%	$x^2 = 153.79$	$p < 0.001^*$
\$10,000–\$49,999	19.9%	26.7%		
\$50,000–\$249,999	32.8%	14.7%		
\$250,000 or more	32.1%	9.8%		
Diversification effect on farm profits				
Profits increased	80.6%	65.1%	$x^2 = 32.99$	$p < 0.001^*$
Profits did not change	15.9%	33.6%		
Profits decreased	3.5%	1.3%		
Percent change (mean)	(68.5)	(33.9)	$t = -5.20$	$p < 0.001^*$
Employment of family members (in numbers)				
Total family employees <sup>a</sup>	4.2	2.2	$t = -8.70$	$p < 0.001^*$
Full-time year-round employees	1.7	1.0	$t = -6.06$	$p < 0.001^*$
Full-time seasonal employees	0.5	0.3	$t = -2.81$	$p = 0.005^*$
Postdiversification employees gain	1.9	0.8	$t = -4.86$	$p < 0.001^*$

<sup>a</sup>This includes the total number of employees in the following categories: full-time year-round, full-time seasonal, part-time year-round and part-time seasonal family employees.

\*Statistically significant (critical value  $p < 0.05$ ).

Table 3. A comparison of the potential economic effect on rural society in terms of employment generation between agritourism and other entrepreneurial farms.

Economic indicators (society level)	Agritourism farms	Other entrepreneurial farms	Statistical values	
			<i>t</i>	<i>p</i>
Number of farm employees				
All farm employees <sup>a</sup>	38.2	8.4	<i>t</i> = -3.96	<i>p</i> < 0.001*
Nonfamily employees	34.0	6.2	<i>t</i> = -3.73	<i>p</i> < 0.001*
Number of full-time employees <sup>b</sup>				
Full-time year-round (all)	3.7	1.6	<i>t</i> = -3.26	<i>p</i> = 0.001*
Full-time seasonal (all)	7.1	2.8	<i>t</i> = -2.09	<i>p</i> = 0.037*
Diversification effect on employees				
All employees <sup>a</sup>	25.8	3.1	<i>t</i> = -3.01	<i>p</i> = 0.003*
Nonfamily employees	23.9	2.3	<i>t</i> = -2.89	<i>p</i> = 0.004*

<sup>a</sup>This includes the total number of employees in the following categories: full-time year-round, full-time seasonal, part-time year-round and part-time seasonal family and nonfamily employees.

<sup>b</sup>This includes family and nonfamily employees.

\*Statistically significant (critical value  $p < 0.05$ ).

Study results also show economic benefits derived from agritourism diversification in terms of employment generation for family members. As compared with their counterpart farms, agritourism farms have significantly more overall family employees ( $M_{\text{AgTmo}} = 4.2$ ;  $M_{\text{Other}} = 2.2$ ;  $p < 0.001$ ) as well as full-time year-round ( $M_{\text{AgTmo}} = 1.7$ ;  $M_{\text{Other}} = 1.0$ ;  $p < 0.001$ ) and full-time seasonal ( $M_{\text{AgTmo}} = 0.5$ ;  $M_{\text{Other}} = 0.3$ ;  $p = 0.005$ ) family employees. In addition, the increase in family employees after diversifying their entrepreneurial development was significantly higher among agritourism farms than other entrepreneurial farms ( $M_{\text{AgTmo}} = 1.9$ ;  $M_{\text{Other}} = 0.8$ ;  $p < 0.001$ ).

Examining the overall number of total and nonfamily employees among responding farms as an indicator of a broader economic impact, results suggest that agritourism has a significantly greater impact on employment generation, which may positively impact local communities. Agritourism farms have significantly more total employees ( $M_{\text{AgTmo}} = 38.2$ ;  $M_{\text{Other}} = 8.4$ ;  $p < 0.001$ ) and specifically more nonfamily employees ( $M_{\text{AgTmo}} = 34.0$ ;  $M_{\text{Other}} = 6.2$ ;  $p < 0.001$ ) than their counterparts (Table 3). Examined by employment categories, agritourism farms also exceeded their counterparts in the number of full-time year-round ( $M_{\text{AgTmo}} = 3.7$ ;  $M_{\text{Other}} = 1.6$ ;  $p = 0.001$ ) and full-time seasonal ( $M_{\text{AgTmo}} = 7.1$ ;  $M_{\text{Other}} = 2.8$ ;  $p = 0.037$ ) employees. Furthermore, the impact of entrepreneurial diversification in terms of the total number of employees ( $M_{\text{AgTmo}} = 25.8$ ;  $M_{\text{Other}} = 3.1$ ;  $p = 0.003$ ) and nonfamily employees ( $M_{\text{AgTmo}} = 23.9$ ;  $M_{\text{Other}} = 2.3$ ;  $p = 0.004$ ) hired after developing on-farm enterprises is also significantly higher among agritourism farms as compared with other entrepreneurial farms.

### **Sociocultural indicators of sustainability among entrepreneurial farms**

Entrepreneurial farming, especially related to agritourism, also produces several sociocultural benefits to farm households and society. Overall, entrepreneurial farmers, especially those engaged in agritourism, seem to be very attached to farming and agriculture. At the time of the study, respondents reported on average about 20 years of farming experience, with no significant differences between both groups (Table 4). Most agritourism farm owners have been for at least two generations within the same family (52.4%) and

Table 4. A comparison of sociocultural indicators between agritourism and other entrepreneurial farms.

Sociocultural indicators	Agritourism farms	Other entrepreneurial farms	Statistical values	
Attachment to agriculture				
Number of years farming	19.1	19.6	$t = 0.097$	$p = 0.923$
Multigenerational farmers	52.4%	35.6%	$x^2 = 24.09$	$p < 0.001^*$
Willingness for in-family succession	73.3%	60.6%	$x^2 = 15.32$	$p < 0.001^*$
Off-farm employment				
Principal operator working off-farm	38.2%	56.6%	$x^2 = 26.13$	$p < 0.001^*$
Spouse working off-farm	53.0%	73.8%	$x^2 = 27.82$	$p < 0.001^*$
Adult kids (21 years) living on-farm	41.1%	26.4%	$x^2 = 20.78$	$p < 0.001^*$
Historic and cultural preservation				
Preserved or restored heritage	63.0%	35.9%	$x^2 = 60.65$	$p < 0.001^*$
Adaptive reuse of heritage	63.6%	27.0%	$x^2 = 66.01$	$p < 0.001^*$

\*Statistically significant (critical value  $p < 0.05$ ).

are willing to pass the farm on to their offspring (73.3%), proportions that are significantly higher than other entrepreneurial farms (35.6% and 60.6%, respectively;  $p < 0.001$ ). These results suggest that agritourism is enabling the retention of farmland within the family and opening job/career opportunities for the next generation of farmers, results that constitute very positive impacts from agritourism, taking into consideration the steady decrease of farm income and the reduction of small family farms during the last decade (Hoppe, 2010).

Agritourism appears to have a greater impact on farm human capital than other entrepreneurial ventures, allowing their adult household members to work on the farm. A significantly lower proportion of principal operators and their spouses on agritourism farms have off-farm employment (38.2%, 53.0%) as compared with their counterparts (56.6%, 73.8%;  $p < 0.001$ ). These results are critical, taking into consideration that off-farm employment and exiting from farming are not always desired conditions, but strategies are needed to compensate for low farm profits or to provide benefits to farm households (e.g. health insurance). In addition, 41.1% of agritourism farm operators reported that their adult children are living on the farm as compared with 26.4% ( $p < 0.001$ ) of other farm entrepreneurs. Such large retention of adult children living on the farm supports the argument that agritourism may be providing job opportunities for the next farming generation – a finding that deserves further exploration as it may smooth farm succession and help retain youth in farming and rural areas, benefits previously associated with tourism in rural areas (Carlsen et al., 2001; Oppermann, 1995).

In addition, agritourism farms contribute significantly more to the preservation of American agricultural heritage than other entrepreneurial farms. A larger proportion of agritourism farms reported preserving and restoring historic buildings, equipment and artifacts on their farms (63.0%) than their counterparts (35.9%;  $p < 0.001$ ). The proportion of agritourism farms (63.6%) reusing such cultural and historic heritage in various ways (e.g. reusing old tractors for hay rides, adapting old barns into tasting rooms) is more than twofold that in other entrepreneurial farms (27.0%;  $p < 0.001$ ). This is a major finding that agritourism providers and agencies promoting this type of entrepreneurial

Table 5. A comparison of environmental indicators between agritourism and other entrepreneurial farms.

Environmental indicators	Agritourism farms	Other entrepreneurial farms	Statistical values	
Environment-friendly farming				
Farm waste management	36.6%	48.1%	$x^2 = 11.72$	$p = 0.001^*$
Integrated pest management	49.9%	39.3%	$x^2 = 9.91$	$p = 0.002^*$
Stewardship practices				
Protection/propagation of native plants	37.3%	43.6%	$x^2 = 9.91$	$p = 0.035^*$
Wildlife habitat improvement	47.7%	46.9%	$x^2 = 0.53$	$p = 0.818$
Water conservation	64.7%	65.5%	$x^2 = 0.61$	$p = 0.805$

\*Statistically significant (critical value  $p < 0.05$ ).

diversification should capitalize on. Agritourism farmers should advertise themselves as stewards of the American agricultural heritage, thus adding value to their agritourism offerings. Agriculture, heritage and tourism agencies should also recognize the additional value that family farms are providing to society, especially when developing or promoting agritourism regions because collaborative promotion efforts are crucial for the sustainability of rural tourism endeavors (Clarke, 1999).

### ***Environmental indicators of sustainability among entrepreneurial farms***

Overall, entrepreneurial farming appears to be sensitive to environmental issues associated with agriculture: a relatively large proportion of diversified farms are engaged in several environment-friendly farming and conservation practices on their lands (Table 5). Chi-square tests showed that a larger proportion of agritourism farms practice integrated pest management (49.9%) as compared with other entrepreneurial farms (39.3%;  $p = 0.002$ ). However, agritourism farms are not as engaged in farm waste management (36.6%) as their counterparts (48.1%;  $p = 0.001$ ), which may be associated with a lower production intensity or the variety of their agricultural products (e.g. livestock vs. crop production). A significantly smaller proportion of agritourism providers (37.3%) protect or propagate native plants on their farmlands as compared with other entrepreneurial farms (43.6%;  $p = 0.035$ ). These results suggest that there is room for increasing sustainability in the environmental dimension among agritourism farms. It is important that agritourism farmers recognize that sustainable farming practices and stewardship efforts to improve natural habitats (e.g. native plant conservation) constitute part of the farm landscape and attractiveness they are offering (Carlsen et al., 2001), which in turn visitors may appreciate.

About half of respondents implement some type of wildlife habitat improvement, and impressively about two-thirds practice water conservation on their farmlands, with no differences between agritourism and other entrepreneurial farms, results that should be capitalized on. For example, engagement in water conservation and in any sort of wildlife and habitat improvement should be incorporated into farm advertising materials, especially when offering agritourism, to be more appealing and to capture those tourists/customers who may favor environmentally and socially responsible businesses (Ateljevic & Doorne, 2000).

### Concluding remarks

This study examined various indicators of the economic, sociocultural and environmental dimensions of sustainability among US farms with a diversified entrepreneurial portfolio. Results showed that entrepreneurial farms produce several positive impacts, especially in terms of employment generation, increased farm profits and water conservation, and outputs that not only favor farms but also reach their surrounding communities. These results support the need to recognize the multiple functions that small farmers deliver to society along the production of food and fiber in their path to sustainability (Wilson, 2008). This study emanates the need to encourage farm entrepreneurial diversification to retain farmers in the practice of farming. This is a critical issue in the current US agricultural context because while small family farms hold a large proportion of the agricultural wealth accumulated through generations, national statistics show a steady decline of the number of small family farms in the last decade as they are unable to compete with larger corporations (Hoppe, 2010).

By comparing farms having diversified through agritourism versus other entrepreneurial farms, this study found that agritourism appears to be more sustainable. From the economic standpoint, agritourism produced significantly more revenue and profit to the farm business, which may also explain their higher household incomes, notwithstanding a larger payroll, than their counterparts. Additionally, agritourism farms have significantly more total and nonfamily employees than other farms with diversified entrepreneurial portfolios, which can be interpreted as an indicator of the economic impact of agritourism in their surrounding communities. Results also suggest that agritourism produces significantly more sociocultural benefits than other entrepreneurial farmers by strengthening the family farm institution and engaging in the preservation of American rural heritage (e.g. historic barns, antique tractors). Agritourism also produces positive environmental impacts, especially through wildlife habitat improvement and water conservation, although results suggest that there is room for further improvement in the environmental dimension of sustainability. These results are important taking into account that farm entrepreneurial diversification, especially through agritourism, has been heavily promoted by several state and federal agencies in the US as a strategy to compensate for reduced agricultural incomes and for the revitalization of rural localities.

The purpose of this study was to assess the level of sustainability of agritourism farms, compared with other forms of farm entrepreneurial diversification. However, since one of the limitations of this study was the exclusion of nonentrepreneurial farms as a baseline for comparison as well as the lack of “pure” agritourism farms, the evidence of agritourism as a sustainable activity cannot be conclusive, but only applicable in regard to other forms of farm diversified enterprises. Future studies should consider the sustainability of agritourism with regard to nonentrepreneurial farms. It is also suggested that future studies examine whether agritourism differs from other specific forms of entrepreneurial developments (e.g. value-added production); this study placed all nonagritourism enterprises in one single group – thus some forms of entrepreneurial developments may be increasing or decreasing some indicators of sustainability.

Results from this study shed light on the standing of agritourism pertaining to the three dimensions of sustainability (economic, environmental and sociocultural), especially as compared with other forms of entrepreneurial diversification. Economic and political contextual changes after data was collected (2005) call for a follow-up of this study as the reality of agritourism in the US may have changed. The onset of the global economic recession in 2007 may have affected the economic indicators of sustainability in opposing



ways: while at early stages of the economic crisis revenues associated with agritourism may have shrunk, campaigns encouraging shorter vacations and trips to local destinations may have benefited agritourism farms. The strengthening of initiatives for consuming local products as well as incentives for using alternative energy sources may have increased environmental awareness in the US, and thus, the implementation of environmental practices at the farm level may have changed. Qualitative methods, including face-to-face interviews and on-the-ground observations, can help provide a deeper understanding of the standing of agritourism and other farm entrepreneurial ventures in terms of sustainability and to unveil how major shifts in the economic and political contexts affect their performance.

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