



Sustainable Farm Tourism: Understanding And Managing Environmental Impacts Of Visitor Activities

By: **Carol Kline**, David Cardenas, Yu-Fai Leung, and Stacy Sanders

Abstract

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Our nation's rural areas are heavily affected both by sprawl and increased recreational use. Agritourism is rapidly being embraced as a strategy to conserve the family farm, increase revenue, and teach the public about authentic farming life. However, the literature reveals little evidence that the environmental impacts of visitors are being considered by farmers, planners, and tourism professionals. The exploratory study reported here evaluated the awareness of visitor impact problem among farm owners and assessed the types of impacts in five farm destinations in North Carolina. Potential management strategies addressing the impacts in different impact zones are discussed.

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Introduction

The family farm--it's not just for growing food anymore. Today's farms are looking at a new cash crop to supplement their revenue from agricultural commodities--tourism, the world's largest export industry and the third largest employer (TIA, 2002). Farm tourism, which is also known as "agritourism," has been defined as the opportunities for tourists to "reside and sometimes participate in the working activities of farms and ranches" (Smith & Long, 2000:222).

The continual growth of farm tourism in America is a recent phenomenon when compared to farm stay programs and working farms that have existed for decades in Europe (Anthopoulou, 2000; Roberts, 2002). Tourism in rural areas is growing partly because economic developers are gradually embracing tourism and cottage industries as viable means for diversifying their investment and increasing wealth of farmers. Rural landowners are also searching for a means to supplement their incomes, keep children working on the family farm, and act as a farming community ambassador to the urbanized visitors who are disconnected from their food source (Garcia-Ramon, Cannoves, & Valdonvinos, 1995; McIntosh & Campbell, 2001).

Rural farms are becoming attractive tourist destinations also because more visitors are nostalgic for a "simpler" time. They want to escape the hustle of city life and connect with natural and cultural heritage and enjoy a richer and authentic leisure experience. They want to learn, connect with meaning, and meet genuine people engaged in a rural/agricultural lifestyle.

Many traditional farmers are accustomed to growing and selling their tangible commodity at wholesale to a distributor. With the introduction of tourism, farm operators have begun to think beyond crop development and create an intangible experience to sell at a retail price directly to the end consumer (Lynch, 1998; Fogarty & Renkow, 2002). This can be a paradigm leap for some.

Once the mental shift is made, farmers must cultivate their tourism product. They need to determine appropriate price structures for their product, find out how it fits into the regional tourism product, nurture partnering opportunities, employ a number of measures to market it, and then manage and cater to visitors as they arrive (Telfer, 2001). Extension faculty can be of assistance in each of these steps as well as in determining how farm tourists impact the local economy, community, and land.

In an ideal situation, visitors leave behind part of their salaries, but common sense would tell us outsiders might leave litter, congestion problems, and exotic species in their wake as well. While it may be a stretch to imagine the local farm as another over-trampled tourist trap, it is critical to understand how these impacts affect the sustainability of this new venture. Indeed, bucolic beauty is a key element in drawing visitors to our rural communities. If physical/environmental impacts caused by visitors are neglected, the very element that attracts tourism activity may be threatened.

As farm tourism expands in the United States, it is important that its development and potential challenges are investigated extensively to ensure its sustainability. One issue facing any land-based tourism is the impact of tourism operations on natural resources. The exploratory study reported here aimed to address the on-farm environmental impacts relevant to this growing niche of tourism.

Impacts of Visitors

The impacts that visitors have on communities can be classified as economic, socio-cultural, and physical/environmental. The study focused on the physical/environmental impacts of farm visitors. There is only a small body of research literature on agritourism/farm tourism. In the rare instance that agritourism research is conducted, it is often focused on the economic sector (Bushy & Rendle, 2000; Kuehn & Hilchey, 2002), and, while that is a critical piece for justification of effort, it does not tell the entire story of tourism's impact to a farm. The literature especially reveals little evidence that the physical/environmental impacts of visitors are being considered by farmers, planners, and tourism professionals.

Within the past three decades, research attention has been given to the environmental impacts of visitors in a variety of settings, including coral reefs, rock-climbing sites, and park lands in general (Hammit & Cole, 1998). Past research has shown that the amount of impacts is dependent on use-related, environmental, and managerial factors. In the recreational pursuits of rock climbing and camping, a number of impact zones have been identified in order to classify the patterns and types of impacts made by visitors (Pyke, 2001). Each zone needs separate management strategies to correct or minimize the impacts. Similar "zones" on a farm would enable farm management to implement appropriate steps to control these outcomes.

Drawing from the literature on visitor impacts to outdoor and wilderness settings, this study attempts to fill a void by identifying the physical/environmental impacts of farm visitors, reporting rapid visual assessments on selected North Carolina farms and discussing management implications. Three specific questions were addressed:

1. Are farm tourism operators aware of visitor impacts occurring in their establishments?
2. What types of visitor impact problems exist and can be identified by rapid visual assessment on farm tourism establishments?
3. Can visitor impacts on farm tourism establishments be characterized by zones?

The answer to the above questions may assist farm owners or operators in developing effective management strategies based on impact zone.

Study Methods

The data collection occurred during the months of October and November of 2001. The survey team consisted of an Extension associate and doctoral student based out of a College of Natural Resources in the southeastern United States. The five farm sites in central and eastern North Carolina were selected because they offered a variety of agritourism experiences. Soil types in this region of the state range from sandy to clay.

1. A Day at the Farm: children's activities, tour of the dairy farm, nature trail and flower gardens, corn maze
2. The Inn at Celebrity Dairy: country inn and breakfast, farm animals to see, homemade goat cheese for sale
3. Mike's Farm and Country Store: Christmas tree farm, Christmas gift shop, restaurant and bakery, hay rides, outdoor shelter, petting zoo
4. Vollmer Farm: pick your own strawberries, homemade ice cream, corn maze, Autumn Harvest Festival, live music barn stage, Windmill Mountain underground slide, petting zoo
5. Noah's Landing: petting zoo of over 150 animals

A two-part method of data collection was used. The first part consisted of a problem awareness survey that was completed by the farm owner. The survey contained 14 questions that ranged from the number of years the farms had been operating (both as a farm and as a tourist attraction), hours of operations (for visitors), and their average number of visitors. In addition, respondents were asked to rate the severity of the physical/environmental impacts. Data were analyzed by both compiling the descriptive statistics and identifying commonalities between the open-ended responses.

The second part consisted of a rapid visual assessment of the farm site. The site assessment instrument provided space to list the weather, number of visitors during visit, and farm attributes (parking lot, trails etc.). In addition, each farm attribute was assessed for the type and severity of environmental impacts. Impact severity was rated on a 4-point condition class scale, ranging from no visible impacts (1=○), slight or low level of impact (2=☺), moderate level of impact (3=☹), to high level of impact (4=☹). Finally, using Pyke's (2001) reference as a guide, potential

impact "zones" at each of the five farm destinations were identified and classified according to patterns of impacts occurring on all of the farms.

Results

Problem Awareness

The survey instrument, which was initially designed to be completed by a farm manager, became an outline for face-to-face interviews. While all of the farm managers happily obliged, most preferred to be asked questions during the farm tour rather than stopping to complete a survey. Based on their responses, it appears that farm management had a general awareness of physical impacts brought on by their visitors, and the types of impacts perceived were generally consistent with the actual type and severity of impacts observed during the site assessment. However, none of the study farms had developed any kind of systematic assessment of visitor impacts or the condition of tourist facilities.

Impact Types and Zones

Vegetation loss and soil compaction were the most often noted type of impact on the five farms studied, especially on parking lots (Table 1). One or two instances of other types of impacts were observed, but it is unclear if these impacts are common to the farm attribute or specific to a particular site. In the one case of litter that was found around a snack bar, it may have been merely a matter of timing in that the assessment took place immediately following an event. By and large, if litter is a problem caused by visitors to these five farms, it was well controlled by well-placed containers and frequent clean-up "sweeps" by staff. The severity of impacts observed ranged from non-existent to a high level of severity, and, while most instances were slight or low, several cases of moderate severity were seen (Table 1).

Table 1.
The Existence and Level of Impacts Found for Selected Farm Attributes

Attraction\Impact	Vegetation Loss	Soil Compaction	Soil Erosion	Informal Social Trails	Litter	Introduction of New Plant Species
Animal Pens	☺☺☺☺	○○○○	○○○ ○	○○○○	○○○ ○	○○○○
Parking Lot	☺☺☺☺	☺☺○○○	○○○ ○○	○○○○ ○	☺○○ ○○	○○○○○
Picnic Area (Unsheltered)	☺○○○	☺○○○	○○○ ○	○○○○	○○○ ○	○○○○
Pond	○○○	○○○	☺☺○	○○○	○○○	○○○
Restrooms	☺○○	☺○○	○○○	○○○	○○○	○○○

Shelter	😊○○	○○○	○○○	○○○	○○○	○○○
Walking Trail	😊😊○	😊○○	○○○	○○○	○○○	○○○

Note: The number of symbols indicates the number of farms that have the farm attribute. The type of symbols indicates the level of impact on the farm attribute (○ = No visible impacts, 😊 = Slight or low level of impact, 😐 = Moderate level of impact, 😞 = High level of impact).

After considering the various attribute areas of each farm and the common activities and movement patterns at each, general categories or zones were identified.

1. All five farms had a **parking area**.
2. All five farms had a **walking trail** and/or trails between attractions and/or from the parking lot.
3. The **attraction staging area** includes any "station" or stand-alone attraction, such as a restaurant, gift shop, tobacco barn exhibit, and hayride "hitching" area.
4. Another common zone found is a **meeting area**. Meeting areas would include sheltered or unsheltered picnic facilities and any area designated for the purpose of a group gathering. These are different from an attraction staging area because of the traffic patterns and usage of the area.
5. Because of the nature of the farm experience, it is expected to find some part of the experience based in or around farm crops. Therefore, the fifth zone identified is a **field zone**. Included in these areas of the farm are corn mazes, demonstration plots, Christmas tree stands, and pick-your-own fields.
6. Another common element between the farms is a **play area**, which would include swing sets and other stationary playground pieces.

7. Finally, **animal viewing zones** might include fenced petting areas, barns, hen houses, or beehives.

Implications and Conclusion

Extension faculty are often the best link for farmers wishing to engage in sustainable tourism by providing resources that can help them to succeed. As any new ag-related product appears on the horizon, it is their responsibility to explore, evaluate, and educate about the product. In this regard, tourism is no different from a new variety of seed corn.

Management strategies to minimize impacts or facilitate recovery in each of these zones should be considered as visitation to the farm increases in volume and duration. Strategies to control for and counteract negative impacts should also be tested. Based on the seven impact zones identified from the study farms and the common types of impacts that occur in these zones, a summary of potential management strategies and practices for the most common impact is provided in Table 2.

Table 2. Suggested Strategies and Practices for Managing Visitor Impacts by Zone	
Zone	Suggested Management Strategies/Practices
Parking	Install perimeter barriers Install signage to direct visitors
Walking Trail	Replenish with mulching materials Plant highly impact-resistant vegetation
Attraction Staging	Create deliberate walking paths to guide visitors Add platform to formalize staging space Add signage
Meeting	Replenish with mulching materials Plant highly impact-resistant vegetation
Field	Plant highly impact-resistant vegetation Install shoe spray off area Conduct educational programs about invasive species
Play	Add more surfacing material to lessen impacts and improve play area safety
Animal Viewing	Create deliberate walking paths to guide visitors

Further research is needed to understand more about visitor-related environmental effects and how such effects might influence visitor experience. Also, research is needed to refine the

assessment procedures and confirm or improve upon the notion of impacts zones on farms. Additional zones may be considered as more research is conducted in this area. For example, a water-edge zone might include the impacts that are specific to ponds, streams, and boggy areas. Variation in soil type, vegetation, seasons, climates, visitor activity, and current management strategies could have a significant affect on the type and severity of impacts observed. The instruments used for site assessment and manager interviews may be refined to address these factors.

While increasing the objectivity and sophistication of assessment procedures would yield more accurate data, a balance between efficiency and accuracy should be considered if the application of assessment is to be sustained for the long term. Alternative rapid assessment approaches, such as fixed-point photography or photopoint monitoring (e.g., Hall, 2001), should be explored to evaluate their usefulness and efficiency in documenting site conditions. Besides impact monitoring purposes, photos can also help farm owner/manager and visitors appreciate the change of site and landscape conditions over time.

Despite the limitations, the assessment approach taken in this study provides the first assessment example for Extension faculty and farm tourism operators and will stimulate ideas on how the rapid visual assessment tool applied can be refined and customized to maximize its benefits to farm tourism establishments. As tourism becomes an important source of income of many farm owners and a key element in rural development, sustaining the quality of resource conditions and reducing visitor impacts on farm tourism destinations deserves greater attention because it not only reflects the farm's character and the level of care, but it also influences the visitors' experience and the likelihood they will return or recommend the farm to their relatives and friends (Fridgen, 1991). In that sense, it may be one of the factors that determine the long-term success of farm tourism businesses.

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