

## Article

# Sustainable Agritourism for Farm Profitability: Comprehensive Evaluation of Visitors' Intrinsic Motivation, Environmental Behavior, and Satisfaction

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**Abstract:** Unstable farm income and the desire to diversify revenue sources have increased the significance of agritourism as an alternative economic opportunity for farmers and ranchers. Agritourism integrates the top economic drivers—agriculture and tourism—and has been identified as a highly effective complementary business for farmers to generate additional income and mitigate the financial uncertainties associated with traditional farming enterprises. Visitors' satisfaction is critical for operating a successful agritourism business, as it influences destination choice, consumption of products and services, and the decision to return. This study examined the relationship between agritourism visitors' intrinsic motivation, environmental behavior, satisfaction, and intentions to revisit and recommend. With a total of 615 survey responses, the study reveals a significant relationship between agritourism visitors' intrinsic motivation, environmental behavior, and satisfaction related to destination, risk, and food attributes. Furthermore, visitors' overall satisfaction with these three attributes significantly influences their intentions to revisit and recommend the destination. The findings of this study will enable agritourism operators and policymakers to formulate appropriate policies for the sustainable development of this sector. Future promotional and educational tools could be developed based on these findings.

**Keywords:** agritourism; environmental behavior; food safety; intrinsic motivation; rural tourism; satisfaction; sustainability



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## 1. Introduction

The agricultural sector has changed dramatically over the last four decades. The primary factors driving these changes include farm sustainability, the development of value addition, and motivations for generating additional revenue through farm establishments [1]. Farm diversification, which includes adding recreational and leisure activities to farming operations, has provided intrinsic and economic benefits to farmers/ranchers, visitors, and rural communities. The motivation to generate additional revenue through farm establishments has led to developing agritourism concepts associated with farms [2,3]. Agritourism is defined as traveling to a working farm to participate in on-farm recreational or educational activities [4]. This includes various activities such as farm tours, honey and cheese making, u-pick, corn mazes, fishing and hunting, and other similar experiences. Unstable farm incomes and the desire to diversify revenue sources have increased the importance of agritourism as an alternative economic opportunity for farmers and ranchers. As a widely accepted developmental strategy for rural communities and farmers, agritourism has gained attention among farmers' organizations, policymakers, and state governments [5].

The advantages of visiting agritourism destinations have been widely discussed from various global perspectives, and multiple studies have investigated the benefits of agritourism for providers, visitors, and rural communities [6]. For visitors, farm visits provide

a unique experience of understanding farming and related activities, and thereby it changes the visitors' perceptions of farms and farming operations. Such visits demonstrate that farms could be enjoyable places for fun. The concept of "farms and fun" became a primary demand-generating factor [7] and led to the higher acceptance of agritourism among suburban and urban populations. For farmers, engaging in agritourism helps to develop and promote farm operations [8], attain farm sustainability [2], diversify and improve revenue sources, create awareness of agricultural products, and involve family members in farming operations [9]. From the perspective of rural communities and socioeconomic development, agritourism has created additional employment opportunities, attracted more visitors to rural areas [2], promoted rural development, supported local businesses and networking, and revitalized the rural economy overall [10].

### 1.1. Agritourism in the United States

Agritourism has gained wide acceptance in the United States and has helped farm and ranch owners generate additional income by incorporating agritourism services. According to the U.S. Census of Agriculture, there was a significant increase in total agritourism revenue from USD 567 M in 2007 to USD 1.260 B in 2022 and in revenue per farm from USD 24,276 in 2007 to USD 44,004 in 2022. Proximity to natural settings and regional characteristics were major drivers influencing agritourism revenue. Farms or ranches near recreational activities, specialty farms, and livestock operations have significantly boosted agritourism revenue. Furthermore, along with traditionally established agritourism operations, the concept of community-based agritourism also gained importance during this time period. These establishments provided more employment opportunities, improved living standards, and strengthened community networks, thereby contributing to the development of rural areas. In addition, institutions such as government agencies, tourism boards, agricultural organizations, and NGOs primarily focused on the development of the five central aspects of agritourism: production, legal, management, marketing, and finance. This contributed to the systemic growth of agritourism in the United States.

### 1.2. Agritourism in Missouri

Missouri has a diverse agricultural sector, which is the number one industry in the state. The sector is strong in grains, soybeans, hog and cattle farming, food processing, and forestry-related products, and in 2021, the agricultural sector in Missouri produced an economic impact of USD 93.7 B. The tourism industry is the second-largest industry in the state, and in 2023, the tourism industry generated an economic impact of USD 19.9 B. Agritourism in Missouri combined the top two industries in the state. It is a critical complementary business for farmers, providing additional income and helping to mitigate the financial uncertainties associated with traditional farming enterprises. Indeed, Missouri is one of the states in the U.S. that has successfully adopted the agritourism concept alongside agricultural production [11]. As of 2022, there were 803 active agritourism service providers in the state, compared to 588 in 2007. These service providers are generally classified by their areas of operation: entertainment, education, farmers' markets, pumpkin patches, orchard/u-picks, farm stays, and nurseries.

One significant gap in the research related to agritourism in Missouri is to analyze the sector from the visitors' point of view. Visitor satisfaction is crucial for destination promotion and marketing because it influences the choice of destination, the consumption of products and services, and the decision to return [11]. Therefore, it is essential to measure visitors' satisfaction with each destination attribute, as satisfaction or dissatisfaction with one attribute could affect overall satisfaction with the destination. Satisfied visitors are more likely to revisit and recommend a destination to others. Visitors' satisfaction is also vital for ensuring the long-term sustainability of a destination [12]. Even service providers running small agritourism operations are highly motivated to evaluate visitor satisfaction, as it could be an essential tool for improving service quality. This could lead to a positive word of mouth and increase revenue by attracting more visitors to the destinations. Thus,

for Missouri agritourism, it is essential to analyze visitors' motivations, satisfaction related to various attributes, and future behavioral intentions.

The current study was important for several reasons. First, previous research analyzing the performance of Missouri's agritourism sector from the perspective of service providers recommended initiating analyses of visitors' motivations and satisfaction related to various attributes [13]. The researchers suggested exploring the agritourism sector by properly analyzing visitors' needs, wants, and satisfaction levels. Furthermore, after studying stakeholders' perceptions in the Missouri agritourism sector, the authors of [4] suggested that Missouri's farmers offer a range of activities with authentic experiences aimed at maximizing visitors' satisfaction, and future studies should examine whether such initiatives could attract more visitors. Second, recommendations from agritourism conferences and meetings with stakeholders, industry experts, and business owners supported the need to research agritourism visitors' motivations and satisfaction related to various attributes. Third, there has been an increasing preference for rural tourism destinations after COVID-19. Since the pandemic, with much international travel having been canceled, people have turned to domestic destinations, which are primarily rural [14]. This shift led to the rising popularity of agritourism destinations, necessitating a greater emphasis on destination attractiveness, risk management, food quality, and other related aspects.

Understanding why visitors wish to visit agritourism destinations—to have fun, relax with family, taste and buy farm-raised foods, and engage in educational and recreational experiences [15,16]—is crucial for determining the success of agritourism businesses. Failing to understand visitors' motivations and satisfaction with various attributes related to destinations can hinder sustainable growth in agritourism [17]. This research specifically focuses on the following objectives: (1) to assess the influence of agritourism visitors' intrinsic motivations and environmental behavior on satisfaction with destination, risk, and food attributes; and (2) to assess the influence of agritourism visitors' satisfaction with destination, risk, and food attributes on their revisit and recommendation intentions (Figure 1). Analyzing visitors' intrinsic motivations, environmental behavior, satisfaction, and intentions will help identify the driving forces behind demand for the sector. Future promotions, educational efforts, and marketing tools could be designed based on the findings of this study. Such data will also assist in crafting tailored promotional messages for specific areas and inform various marketing initiatives. Additionally, it will help farm owners, industry experts, stakeholders, and other interest groups make informed decisions and frame policies for the sector's sustainable development.

## 2. Literature Review

Both supply and demand factors drive the recent growth in the agritourism sector. On the supply side, economic pressures have prompted farmers and ranchers to diversify their income through agricultural and non-agricultural pursuits [18]. On the demand side, factors such as the impact of COVID-19, the increasing popularity of farm-related recreational activities, greater acceptance of local foods, and a preference for rural tourism destinations have contributed to the growth of agritourism [19]. Previous studies on the agritourism sector in Missouri have primarily focused on the supply side, mainly concerning farm and ranch owners. However, to understand the sector's output and performance comprehensively, it is essential to analyze visitors' motivations, behaviors, and satisfaction related to various attributes.

### 2.1. Intrinsic Motivation

Tourist destinations offer various services and products to attract visitors. Depending on their preferences, visitors can choose from these different offerings. Research indicates that several factors influence destination choices, including income, age, cost, risk, distance, and motivation. Intrinsic motivation refers to tourists' internal drives, such as autonomy, personal satisfaction, pleasure, and self-determination, without external control. Previous studies on the travel, tourism, and hospitality sectors have explored tourists' intrinsic

motivations and yielded notable findings [20]. For instance, Ref. [21] identified five major intrinsic motivational factors for leisure travelers: socializing, developing children's intellectual skills, family competence, family closeness, and relaxation and escape.

As agritourism is a sub-segment of the tourism sector, these intrinsic motivational factors are also relevant to visitors of agritourism destinations. Intrinsic motivational factors drive visitors to farms or ranches. Previous research has identified several common motivational factors, including the desire for farm experiences, participation in farm activities, entertainment, family time, education, farm product purchases, and socialization [2,8,13,22]. Agritourism visitors seek farm experiences, which include learning about farm work, production facilities, types of operating farms, and seasonal operations [13,22]. In addition to participating in farming activities, visitors gain educational insights into the importance of agritourism for farmers, its role in developing rural communities, and the connection between agriculture and tourism in the local area. Another intrinsic motivational factor is spending time with family. Agritourism provides recreational family time, exploration of rural community life, and education about local food production and agriculture [8,22]. Furthermore, farm product purchases have been identified as a significant motivator that attracts visitors to agritourism destinations [13,22].

## 2.2. Environmental Behavior

Environmental behavior can be defined as taking all necessary actions and steps to avoid causing harm to the environment while consistently supporting and being motivated to safeguard it [23]. Such behavior includes engaging responsibly when outdoors and recycling household waste. Environmental behavior can also involve adaptive responses to the impact of climate change, such as purchasing sustainable products (e.g., local food, green cleaning products), conserving water or energy, changing travel modes (e.g., from driving to walking or cycling), buying an electric vehicle, or building an off-grid home [24]. Environmental behavior often implies personal costs, while the benefits primarily accrue to the environment and society. Ref. [25] suggested four types of environmental behavior: altruistic values (focusing on others' well-being), egoistic values (promoting and saving personal resources), biospheric values (caring about the environment and nature protection), and hedonic values (reducing effort and seeking pleasure). Among these, biospheric values are the most significant, as they motivate and encourage people to act environmentally even when it is costly [26].

In recent years, tourists' environmental concerns have increased significantly. Factors such as public pressure, heightened awareness, changing public opinion, media coverage, and supportive legislation have driven these changes [27]. As many tourist attractions and operations rely directly on natural resources, environmental issues must be considered, as they support a destination's competitiveness. Destinations now attract intrinsically motivated tourists who are focused on protecting the environment and developing more environmentally friendly attitudes and positive behaviors, which all are essential for promoting sustainable tourism [28,29]. One of the biospheric values associated with agritourism visitors is their support of local food systems and locally produced items. Agritourism aims to connect local food production with the marketing of farm-raised food products [19]. Agritourists are interested in the experiential consumption of local products, which includes not only the products themselves but also aspects such as environmental commitment, scenic views, and the smells and sounds of nature [30]. These tourist attributes indicate a strong connection between their environmental behavior and preference for agritourism destinations.

## 2.3. Value–Belief–Norm Theory

Two supporting theoretical approaches have played a lead role in developing the value-based norm theory: the Norm Activation Theory and the Values Theory [31,32]. These theories have advanced the notion that individuals' attitudes and behaviors are a function of deeply held "enduring, trans-situational beliefs about desired end states of

social interaction". The VBN model proposes a causal chain of psychological antecedents to an individual's opportunity to perform or act in a particular manner. This starts with an individual's values, which are measured as being altruistic, egoistic, and biospheric. These values support an individual's ecocentric or environmental viewpoints. According to the VBN theory, consumers will likely protect and safeguard the environment when they feel morally obliged. These groups of consumers have a feeling of moral obligation, which is more robust when they are already aware of the environmental problems their behavior may cause. Therefore, the higher the awareness, the greater the environmental concern.

Previous studies have found that people visiting nature-based tourism destinations such as agritourism, eco-tourism, wine tourism, and park tourism will have a higher level of environmentally supportive behavior. Ref. [33], using the VBN theory, studied tourist intentions to visit agritourism destinations and found that biospheric values, aesthetic values, the new ecological paradigm, awareness of consequences, assignment of responsibility, and personal norms are the determinants of intention to take part in agrotourism trips and intention to support environmental activities. Furthermore, Ref. [34] studied the supportive environmental behavior of people visiting national parks and found that awareness of consequences significantly predicts environmental and personal norms, which in turn predicts supportive environmental behavior. Thus, it is evident from the literature that nature-based recreation and tourism visitors have supportive environmental behavior. Rather than looking at the elements of the VBN theory in depth, this study employs the environmental behavior element to see how this behavior influences agritourism visitors' satisfaction with various attributes.

#### 2.4. Agritourism Destination Attributes

Destination attributes encompass a range of tourism services and facilities, and they exhibit multi-dimensional characteristics like those of other consumer products [35]. The greater the variety of tourism services or experiences, the more individual service providers are involved in creating a tourism value chain. Previous research on tourism and recreation has evaluated visitors' satisfaction with various destination attributes, which may differ depending on the destination type, visitors' wants and motives, and the offerings available [36]. Ref. [37] examined the relationship between evaluating destination attributes, satisfaction, and behavioral intentions. They considered price, location, transportation, traffic, service quality, and attractions and found significant support for their model concerning destination attributes. Similarly, Ref. [38] investigated tourist satisfaction with various attributes, including accommodation, transportation support, staff support, tourist facilities, and pricing, and identified a significant relationship between destination attributes and tourist satisfaction. Thus, it is evident that destination attributes play a crucial role in the success of any tourist destination. This can be assessed by continuously evaluating visitor satisfaction with various destination attributes. Higher satisfaction with these attributes positively impacts revisit and recommendation intentions [39].

Agritourism destination attributes encompass various elements that attract visitors to these destinations and are significant for several reasons. First, nature lovers and rural visitors often compare the attributes of different destinations when making their choice. Generally, these attributes relate to a destination's ability to attract visitors and depend on the perceived capacity to provide benefits and fulfill visitors' needs and wants. Second, agritourism destination attributes significantly influence the formation of a favorable destination image [30]. Given this, the current study focuses on agritourism, emphasizing four significant and essential elements of agritourism destinations: content-related, infrastructure-related, service-related, and accessibility-related attributes. Previous tourism studies have highlighted the relationship between visitors' motivation and satisfaction with destination attributes [36]. This relationship is similarly noted in studies examining visitors' environmental behavior and satisfaction with destination attributes [40]. With these considerations, we propose the following hypotheses:

**H1.** *Agritourism visitors' intrinsic motivations significantly influence their satisfaction with the destination attributes.*

**H4.** *Agritourism visitors' environmental behavior significantly influences their satisfaction with the destination attributes.*

### 2.5. Agritourism Risk Attributes

Risk can be defined as the uncertainty and severity of the consequences, events, or outcomes related to an activity concerning something and individual values [41]. Tourism businesses must adhere to and abide by rules, regulations, and guidelines, and legal and other associated risks are the most common in this industry [42]. Some of the main areas of legal risk in the tourism industry include permits, licenses, insurance, and liability risks arising from accidents and other casualties [43]. These risks are prevalent in segments such as adventure tourism, disaster tourism, nature-based tourism, agritourism, and sports tourism. Proper insurance can help tourism business owners reduce costs and legal risks. Venue and activity risks are significant concerns in agritourism as it has become more popular. Venue risks are associated with the agritourism destination, including employee behavior, uneven layout, and emergency support. Activity risks are related to accidents and casualties from farm activity participation, the risk of operating farm equipment, accidents associated with children's play areas, animal petting incidents, and so forth [44]. Even though farmers and ranchers may have all the required insurance policies (depending on the severity and complexity of the activities), concerns remain about terms and conditions, premiums, new approvals, and so on. As the agritourism sector grows exponentially year after year, properly implementing and adopting safety and risk management/risk prevention strategies will maximize visitors' enjoyment and experience while minimizing liability for business owners.

The agritourism sector has grown and operated in a dynamic environment [45]. The risks associated with the agritourism sector have had a long-term impact on the sector's image and the number of visitors [46]. Planning for and understanding how to manage risk during a crisis and dealing with the issues that arose from unforeseen events have been vital to mitigating adverse effects. Even if agritourism business owners take all the necessary steps to reduce risk, evaluating risk from the visitor's point of view is also essential. Measuring satisfaction is the best way to assess the aspects of agritourism risk management. Such measurements would help ensure management's steps to avoid risk were adequate and achieved the right results. Additionally, previous studies suggested that motivation and behavior were the causes, and satisfaction was the final state [39,47]. In evaluating satisfaction related to agritourism risk attributes, it was essential to investigate how visitors' motivations and environmental behavior influenced satisfaction related to risk attributes. Therefore, we propose the following hypotheses.

**H2.** *Agritourism visitors' intrinsic motivations significantly influence their satisfaction with the risk attributes.*

**H5.** *Agritourism visitors' environmental behavior significantly influences their satisfaction with the risk attributes.*

### 2.6. Agritourism Food Attributes

Increasing the consumption of local foods can stimulate local economies and foster environmental sustainability [48,49], and it calls for identifying innovative and more effective approaches to promote local foods. Ref. [50] defined the local food system as "a format including commercial and personal food production, processing, distribution, marketing, and consumption of food products. All the activities are concentrated on a particular community, place, area, or region". Promoting local food systems supports local

farmers and communities and builds a relationship between the person who is cultivating and the person who is consuming; it can also help consumers better understand the seasons, soil, and food systems [51]. Agritourism farms and ranches serve and sell foods that are mostly raised locally and from their farms. Recent studies that have tried to connect local food systems with agritourism suggest that it can attract visitors to local farms that serve and sell local foods [52–54]. Thus, agritourism strives to link local food production to marketing farm-raised food products [19]. This is the best way to engage visitors and contribute to sustainable local food systems.

Agritourism promotes local food experiences (e.g., tasting and purchasing farm-raised products) and is one of the primary motivations for visitors to visit agritourism destinations. Nevertheless, there are risks related to the quality of locally produced food, including packaging, employee hygiene, foodborne diseases, and food standards concerning food and product sales. Foodborne illness is a growing health concern and endangers many people in Missouri [55]. These risks can lead to adverse consequences if they are not adequately managed. These food safety issues and challenges related to agritourism operations can be classified into three categories: (1) physical food safety issues (e.g., the presence of metal, pits, glass, stones, and plastic items); (2) chemical food safety issues (e.g., related to fertilizers, pesticides, sanitizers, and cleaners); and (3) biological food safety issues (e.g., the presence of pathogens and related allergens). In this context, aspects such as food standards, hygiene, diseases, and quality are gaining more importance. Food safety issues in the agritourism industry can be related to the safety and health risks arising while preparing, handling, and consuming farm-raised foods in agritourism venues or post-purchase. Previous studies have highlighted that tasting farm-raised foods and buying value-added food items are essential motivations for people to visit agritourism destinations [56]. In addition, a strong connection has been identified between agritourism visitors' environmental behavior and their preferences for farm-raised or locally grown food items [22]. We propose the following hypothesis to connect visitors' motivations, their environmental behavior, and their satisfaction with food attributes.

**H3.** *Agritourism visitors' intrinsic motivations significantly influence their satisfaction with the food attributes.*

**H6.** *Agritourism visitors' environmental behavior significantly influences their satisfaction with the food attributes.*

### 2.7. Visitors' Revisit and Recommendation Intentions

In tourism research, visitor intentions are closely related to visitor satisfaction. Satisfied visitors are likely to revisit a destination [57]. Visitors' revisit and recommendation intentions are significant in tourism marketing and can help achieve long-term sustainability. Destination attributes, such as services, content, infrastructure, attractions, ambiance, and other components, affect tourist revisit and recommendation intentions. Revisit and recommendation intentions are proximate determinants and significant predictors of loyalty in the competitive market. Prior studies on tourism and recreation have highlighted the strong relationship between tourist satisfaction and their revisit and recommendation intentions [58]. It is critical to understand the determinants affecting a visitor's intention and the relationships between these determinants, as positive intention is related to several critical behavioral outcomes, including (1) saying positive things about the products/services; (2) recommending the products/services to other customers; (3) remaining loyal to the products/services (i.e., repurchasing them); (4) spending more on the products/services; and (5) paying price premiums for the products/services [59]. Recommendations from current visitors, which may be word-of-mouth, referrals, or references, are essential sources of information for other visitors. In this study, we analyze agritourism visitors' satisfaction with the destination, risk, and food attributes, and we investigate how this satisfaction

related to various attributes (destination, risk, food) influences their revisit and recommendation intentions.

**H7.** *Agritourism visitors' satisfaction with destination attributes significantly influences their revisit intentions.*

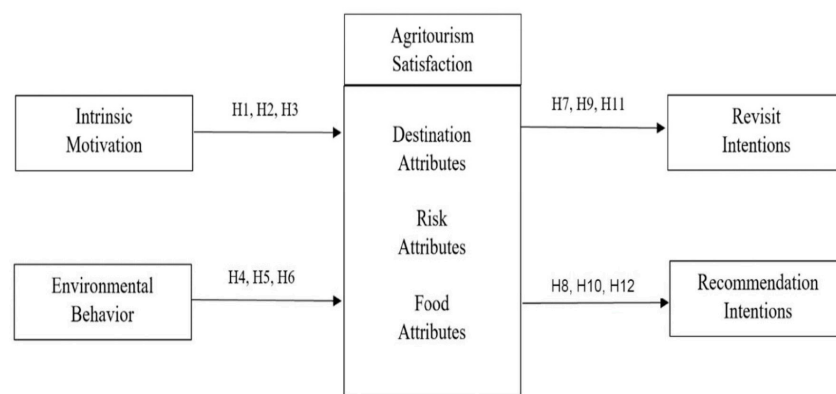
**H8.** *Agritourism visitors' satisfaction with destination attributes significantly influences their recommendation intentions.*

**H9.** *Agritourism visitors' satisfaction with risk attributes significantly influences their revisit intentions.*

**H10.** *Agritourism visitors' satisfaction with risk attributes significantly influences their recommendation intentions.*

**H11.** *Agritourism visitors' satisfaction with food attributes significantly influences their revisit intentions.*

**H12.** *Agritourism visitors' satisfaction with food attributes significantly influences their recommendation intentions.*



**Figure 1.** Research framework.

### 3. Methodology

The primary objectives of this study are to assess the influence of agritourism visitors' intrinsic motivations and environmental behavior on their satisfaction with destination, risk, and food attributes and to evaluate how satisfaction with these attributes influences their intentions to revisit and recommend the destination. This study employed an online survey method to explore the relationships among the primary constructs: intrinsic motivations (IMs), environmental behavior (EB), destination attributes (DAs), risk attributes (RAs), food attributes (FAs), revisit intentions (RVs), and recommendation intentions (REs). Each construct was measured using Likert scale survey questions. A pilot study was conducted to develop a robust research instrument for assessing the chosen variables, focusing on the validity and reliability of the measurement items before finalizing the questionnaire. Data were collected from seventy respondents during the pilot study. Reliability is crucial, as responses should be consistent and stable over time [60]. Cronbach's alpha was utilized to assess the reliability of the constructs. Based on the pilot study results, necessary adjustments were made to the final survey instrument used in the study.

#### 3.1. Survey Instrument

Guided by the literature, we designed a survey instrument to address the study objectives. The construct for agritourism visitors' intrinsic motivations (IMs) included five measurement items. These items were adapted from previous studies examining the mo-



tivations of rural and agritourism travelers [6,61]. The items were as follows: “I visited the agritourism destination to rest and relax”, “to spend time with my family”, “to have fun/enjoy/playfulness”, “to have a novel experience”, and “to gain knowledge”. The construct for agritourism visitors’ environmental behavior (EB) included five measurement items. These items were adapted from studies examining rural travelers’ pro-environmental behavior and consumer preferences and attitudes toward local foods [19,62,63]. The items were as follows: “Agritourism supports and helps local farmers”, “it is more environmentally friendly”, “it supports the local economy”, “it brings the community together”, and “it supports sustainable agriculture”. The items for these two constructs were measured on a five-point Likert scale ranging from strongly disagree to strongly agree.

The construct for agritourism visitors’ satisfaction with destination attributes (DAs) included twelve measurement items. These items were adapted from studies examining destination attributes [27,37]. The construct for agritourism visitors’ satisfaction with risk attributes (RAs) included seven measurement items. These items were adapted from studies examining destination risk attributes [64,65]. The construct for agritourism visitors’ satisfaction with food attributes (FAs) included ten measurement items. These items were adapted from studies examining food-related aspects and local food promotions [19,66,67]. All items for these three constructs were measured on a five-point Likert scale ranging from highly dissatisfied to highly satisfied (Table 1).

**Table 1.** Measurement items for agritourism visitor’s satisfaction.

Destination Attributes (DAs)	Risk Attributes (RAs)	Food Attributes (FAs)
Convenient location	On-site help from employees	Food served appears fresh
Parking and Disability accommodations	Emergency information’s (with contact name, phone numbers, farm name and address)	Serving at appropriate temperature
On-site restrooms	Visitors’ personal protective equipment (helmets, seat belts, and gloves)	Clean surroundings and utensils
Adequate rest areas (bench, rest lounge etc.)	Drinking water facilities	Free from contaminations
Employee behavior	Protection from farm animals	Properly arranged, packed, and sealed
Price/value of activities	Handling of pesticides and hazardous chemical	Away from animal area and restrooms
Availability to use credit card	Limiting kids’ access to hazardous areas (farm equipment, pesticides, and chemicals)	Description/labeling of the ingredients
Wi-Fi availability		Food safety certification
Enjoyable activities and programs		Employee attire (apron, gloves, etc.)
Information about facilities and program		Employee personal hygiene
Road signages		
COVID-19 safety policy/practice		

The items for the construct of agritourism visitors’ revisit intentions (RVs; how likely are you to revisit this destination, how likely are you to visit other agritourism destinations in Missouri) and recommendation intentions (REs; how likely are you to recommend to others regarding this destination, how likely are you to recommend to others regarding agritourism in Missouri) were adapted from previous studies which examine travelers’ and visitors’ trip satisfaction, loyalty, and revisit intentions [12,68]. The items of these constructs were measured on a five-point Likert scale ranging from very unlikely to very likely.

### 3.2. Data Collection and Data Analysis

The population for this study was defined as individuals aged 18 years and older who have visited agritourism destinations in Missouri since 2020. This study used an online survey company, Qualtrics, to collect the data. The company partnered with Survey Sampling International (SSI) to obtain representative samples. SSI recruits participants from multiple panels using various sourcing methods and channels. This strategy employs a broad sample frame to minimize coverage bias and avoid the limitations of convenience sampling from existing online surveys, thus ensuring better population representation. Screening questions were included at the beginning of the questionnaire to ensure the sample met the eligibility criteria. The minimum required sample size for this study was determined using the priori sample size calculator. The recommended minimum sample

size for a 95% confidence level, 5% margin of error, and a population of 10 million is 425 samples. The data collection was carried out in 2022, and the initial stage yielded more than 690 online responses. After applying the necessary screening conditions (eligibility and response rate), 615 samples were selected for analysis. Data analysis was conducted in three steps: first, frequency analysis was performed to examine the socio-demographic characteristics of the respondents; second, the Exploratory Factor Analysis (EFA) was conducted; and finally, structural equation modeling (SEM) was performed with maximum likelihood estimation. The reliability and validity of all scales in the proposed model were assessed, with a satisfactory level of reliability and convergent validity indicated by composite reliability exceeding 0.70, which is the accepted threshold.

## 4. Results

### 4.1. Demographics of Respondents

Frequency distribution was designed to describe the demographic characteristics of the respondents (Table 2), and more than half of the respondents were female (52.2%), while the remaining half were male (47.8%). Regarding the annual income earning capacity, 43.2% of the respondents earn more than USD 75,000, and 39.6% earn less than USD 50,000. A large proportion of respondents have a bachelor's degree, which accounts for 26.7%, and the respondent group with the lowest education level is an associate degree, which accounts for 12.5%. Regarding the Race/Ethnicity profile of the respondents, 77.7% belong to the Caucasian or White race, followed by African American or Black Race/Ethnicity, which accounts for 11.5%, followed by Other Race/Ethnicity, which accounts for 6.2%. The Asian or Pacific Islander respondents are the lowest Race/Ethnicity group, accounting for only 4.6%.

**Table 2.** Respondents' socio-demographic profile.

Socio-Demographic Indicators	Number	Percentage
<b>Gender</b> ( <i>n</i> = 615)		
Male	294	47.8%
Female	321	52.2%
<b>Annual Income</b> ( <i>n</i> = 615)		
Less than USD 20,000	71	11.5%
USD 20,000–USD 34,999	96	15.6%
USD 35,000–USD 49,999	77	12.5%
USD 50,000–USD 74,999	105	17.2%
USD 75,000–USD 99,999	80	13.0%
USD 100,000–USD 149,999	103	16.7%
USD 150,000 or more	83	13.5%
<b>Education</b> ( <i>n</i> = 615)		
High School Graduate (includes Equivalency)	134	21.8%
Some College, No Degree	131	21.3%
Associate degree	77	12.5%
Bachelor's Degree	164	26.7%
Graduate or Professional Degree	109	17.7%
<b>Race/Ethnicity</b> ( <i>n</i> = 615)		
African American or Black	71	11.5%
Caucasian or White	478	77.7%
Asian or Pacific Islander	28	4.6%
Others	38	6.2%

### 4.2. Confirmatory Factor Analysis

Confirmatory Factor Analysis was conducted to test the reliability and validity of the variables (Table 3), and we found that all items of variables under study have high factor loadings and achieved the threshold level of 0.70, as suggested by [69]. Reliability was tested

using a composite reliability tool in AMOS and Cronbach Alpha in SPSS. Results indicated that environmental behavior, intrinsic motivation, revisit, and recommendation have good reliability, ranging between 0.80 and 0.90, whereas destination attributes, risk attributes, and food attributes have excellent reliability, ranging from 0.90 to 0.95. Furthermore, CFA is used to evaluate both convergent and discriminant validity of constructs within a measurement model, which allows us to test whether theoretically distinct constructs are measured as separate entities. Validity was tested using average variance extracted (AVE). All variables have an AVE score higher than 0.50, which indicates that they have achieved convergent validity. The squared values of AVE were less than the AVE scores, which pointed to having achieved discriminant validity. The model fit indices for the measurement model were assessed to determine the goodness-of-fit of the overall model, which will later be assessed for hypothesis testing in the structural model. Results indicated that the model fits well with the data ( $\chi^2(961) = 1844.470, p < 0.001$ ). All goodness-of-fit indices achieved the acceptable threshold levels as suggested by [69] ( $\chi^2/df = 1.919$ ; CFI = 0.954, GFI = 0.885, TLI = 0.950, RMSEA = 0.039). All paths in the measurement model were significant ( $t > 1.96, p < 0.001$ ). Hence, the Confirmatory Factor Analysis indicated that the model is reliable and valid enough to proceed to the structural equation modeling.

**Table 3.** Confirmatory Factor Analysis.

Dimension	Variables	Mean	SD	Factor Loading	C.R.	AVE	Cronbach Alpha
Intrinsic Motivation	IM1	3.93	0.970	0.776	0.870	0.573	0.870
	IM2	4.04	0.970	0.751			
	IM3	4.07	0.936	0.759			
	IM4	3.91	0.936	0.729			
	IM5	3.86	0.967	0.768			
Environmental Behavior	EB1	4.16	0.858	0.808	0.893	0.625	0.893
	EB2	4.25	0.822	0.804			
	EB3	4.14	0.872	0.783			
	EB4	4.23	0.807	0.784			
	EB5	4.28	0.827	0.773			
Destination Attributes	DA1	4.02	1.064	0.774	0.950	0.615	0.950
	DA2	4.02	1.051	0.801			
	DA3	3.97	1.092	0.782			
	DA4	4.05	1.063	0.780			
	DA5	4.08	1.015	0.779			
	DA6	4.06	1.055	0.794			
	DA7	4.13	1.056	0.804			
	DA8	4.01	1.058	0.792			
	DA9	3.95	1.079	0.778			
	DA10	4.03	0.992	0.773			
	DA11	3.98	1.034	0.770			
	DA12	4.05	1.038	0.783			
Risk Attributes	RA1	3.99	0.928	0.781	0.915	0.607	0.915
	RA2	4.06	0.855	0.797			
	RA3	4.08	0.900	0.817			
	RA4	4.03	0.869	0.769			
	RA5	4.02	0.912	0.766			
	RA6	3.97	0.924	0.767			
	RA7	3.97	0.860	0.753			
Food Attributes	FA1	4.21	0.796	0.759	0.934	0.585	0.933
	FA2	4.19	0.828	0.802			
	FA3	4.23	0.794	0.777			
	FA4	4.23	0.848	0.761			
	FA5	4.24	0.810	0.747			
	FA6	4.23	0.793	0.762			

Table 3. Cont.

Dimension	Variables	Mean	SD	Factor Loading	C.R.	AVE	Cronbach Alpha
	FA7	4.24	0.778	0.750			
	FA8	4.25	0.795	0.768			
	FA9	4.18	0.836	0.779			
	FA10	4.20	0.839	0.740			
Revisit Intentions	RV1	4.38	0.805	0.839	0.827	0.706	0.849
	RV2	4.38	0.810	0.841			
Recommendation Intentions	RE1	4.43	0.775	0.850	0.850	0.739	0.827
	RE2	4.35	0.813	0.869			

Measurement model:  $\chi^2 = 1844.470$ ,  $df = 961$ ,  $p < 0.001$ ,  $\chi^2/df = 1.918$ , CFI = 0.954, GFI = 0.885, TLI = 0.950, RMSEA = 0.039; IM = intrinsic motivation, EB = environmental behavior, DA = destination attribute, RA = risk attribute, FA = food attribute, RV = revisit intention, RE = recommendation intention.

#### 4.3. Pearson's Correlation Analysis

Pearson's correlation analysis was conducted to determine the strength of a linear association between the variables, and the results indicated that the association between all variables was significant at a 0.1% level ( $p < 0.001$ ; Table 4). The association between intrinsic motivation (IM) and environmental behavior (EB), between intrinsic motivation (IM) and recommendation intentions (REs), and between revisit intentions (RVs) and destination attributes (DAs) is weak and positive as the value of correlation lies between +0.20 and +0.39. The association of environmental behavior (EB) with risk attributes (RAs) and food attributes (FAs), of risk attributes (RAs) with destination attributes (DAs) and food attributes (FAs), and of revisit intentions (RVs) and recommendation intentions (REs) is strong and positive as the value of correlation lies between +0.60 and +0.79. The association of all remaining variables is moderate and positive, as the correlation value lies between +0.40 and +0.59.

Table 4. Pearson's correlation analysis.

Variables	IM	EB	DAs	RAs	FAs	RVs	REs
IM	1.000						
EB	0.484 ***	1.000					
DA	0.313 ***	0.478 ***	1.000				
RA	0.468 ***	0.622 ***	0.606 ***	1.000			
FA	0.521 ***	0.666 ***	0.519 ***	0.772 ***	1.000		
RV	0.403 ***	0.434 ***	0.351 ***	0.520 ***	0.493 ***	1.000	
RE	0.327 ***	0.454 ***	0.504 ***	0.525 ***	0.490 ***	0.785 ***	1.000

\*\*\*  $p < 0.001$ ; IM = intrinsic motivation, EB = environmental behavior, DA = destination attributes, RA = risk attributes, FA = food attributes, RV = revisit intentions, RE = recommendation intentions.

#### 4.4. Structural Equation Modeling

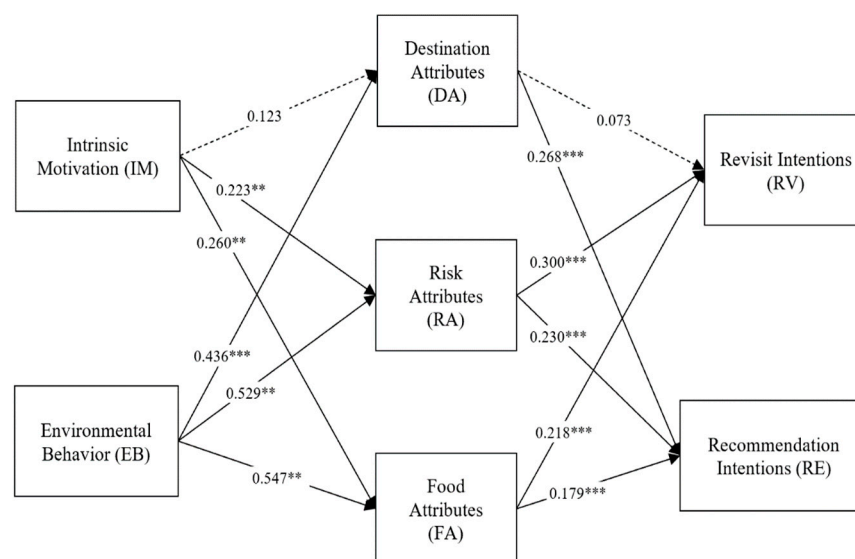
After achieving the desired results from the Confirmatory Factor Analysis, hypothesis testing was conducted in the structural model using structural equation modeling (SEM). The goodness-of-fit indices indicated that the model fits with the data ( $\chi^2 (847) = 1988.525$ ,  $p < 0.001$ ), and all indices achieved the acceptable threshold level as suggested by [69] ( $\chi^2/df = 2.348$ ; CFI = 0.935, GFI = 0.870, TLI = 0.931, RMSEA = 0.047). Hence, the hypothesis testing proceeded. Results from the structural equation modeling indicated that there is a significant positive relationship between intrinsic motivation with risk attributes ( $\beta = 0.223$ ,  $p < 0.01$ ) and food attributes ( $\beta = 0.260$ ,  $p < 0.01$ ). However, there is no significant relationship between intrinsic motivation and destination attributes ( $\beta = 0.123$ ,  $p = 0.064$ ). Furthermore, there is a significant positive relationship between environmental behavior and destination attributes ( $\beta = 0.436$ ,  $p < 0.01$ ), risk attributes ( $\beta = 0.529$ ,  $p < 0.01$ ), and food attributes ( $\beta = 0.547$ ,  $p < 0.01$ ). Moreover, there is no significant relationship between destination attributes and revisit intentions ( $\beta = 0.073$ ,  $p = 0.222$ ); however, there is a signifi-

cant positive relationship between destination attributes and recommendation intentions ( $\beta = 0.268, p < 0.01$ ). There is a significant positive relationship between risk attributes and revisit intentions ( $\beta = 0.300, p < 0.01$ ) as well as recommendation intentions ( $\beta = 0.230, p < 0.01$ ). There is also a significant positive relationship between food attributes and revisit intentions ( $\beta = 0.218, p < 0.05$ ) as well as recommendation intentions ( $\beta = 0.179, p < 0.05$ ). Hence, only hypotheses H2, H3, H4, H5, H6, H8, H9, H10, H11, and H12 were supported (Table 5; Figure 2).

**Table 5.** Standardized direct effects of hypothesis path—structural equation modeling.

Hypothesis	Path	Coefficient	S.E.	<i>p</i> -Value	Decision
H1	Intrinsic Motivation → Destination Attributes	0.123	0.066	0.064	Not Supported
H2	Intrinsic Motivation → Risk Attributes	0.223 **	0.079	0.008	Supported
H3	Intrinsic Motivation → Food Attributes	0.260 **	0.078	0.008	Supported
H4	Environmental Behavior → Destination Attributes	0.436 **	0.062	0.004	Supported
H5	Environmental Behavior → Risk Attributes	0.529 **	0.077	0.004	Supported
H6	Environmental Behavior → Food Attributes	0.547 **	0.077	0.004	Supported
H7	Destination Attributes → Revisit Intentions	0.073	0.060	0.222	Not Supported
H8	Destination Attributes → Recommendation Intentions	0.268 **	0.068	0.004	Supported
H9	Risk Attributes → Revisit Intentions	0.300 **	0.101	0.004	Supported
H10	Risk Attributes → Recommendation Intentions	0.230 *	0.095	0.011	Supported
H11	Food Attributes → Revisit Intentions	0.218 *	0.104	0.027	Supported
H12	Food Attributes → Recommendation Intentions	0.179 *	0.093	0.039	Supported

\*  $p < 0.05$ , \*\*  $p < 0.01$ , \*\*\*  $p < 0.0001$ ; S.E. = standard error; structural model:  $\chi^2 = 1988.525$ ,  $df = 847$ ,  $p < 0.001$ ,  $\chi^2/df = 2.348$ , CFI = 0.935, GFI = 0.870, TLI = 0.931, RMSEA = 0.047.



**Figure 2.** Result of hypotheses analysis—structural equation modeling.

## 5. Discussion

Agritourism is becoming increasingly popular in the United States, generating additional farm revenue and alleviating the economic burden imposed by current agricultural market conditions [70]. A similar trend is occurring in Missouri, where farm operators perceive agritourism activities as critical for sustaining farm operations and positively impacting farm profits [71]. In support of this, the satisfaction of agritourism visitors is crucial in determining the sustainability of this sector. This study aims to enhance the performance of Missouri's agritourism sector by comprehensively assessing visitors' intrinsic motivations, environmental behaviors, and satisfaction with destination attributes, risk, and food, as well as their intentions to revisit and recommend. The findings reveal that visitors' intrinsic motivations significantly influence their satisfaction with risk and food

attributes, while their environmental behaviors significantly influence their satisfaction with destination, risk, and food attributes. Additionally, visitors' overall satisfaction with risk and food attributes significantly influences their intentions to revisit and recommend the destination. Satisfaction with destination attributes also significantly influences visitors' intentions to recommend. These results support previous research and align with findings from earlier recreational and tourism studies [39,47]. The study's findings are relevant to the theme of World Tourism Day 2020—"Tourism and Rural Development". Thus, this study advances the tourism literature and contributes to sector performance by enriching the understanding of how visitors' motivations and behaviors support their satisfaction and future behavioral intentions.

### 5.1. Theoretical and Practical Implications

The major theoretical implication of this study is that it contributes to the agritourism literature by illuminating visitors' intrinsic motivations, environmental behavior, and satisfaction with various attributes. This is a significant contribution, as these aspects have yet to be previously examined. The results of this study are consistent with previous research applying the value–belief–norm (VBN) theory in tourism and recreation contexts [33,34]. This study extends the VBN theory framework by incorporating the relationship between environmental behavior and satisfaction. The theoretical contribution of intrinsic motivation provides a deeper understanding of satisfaction related to various agritourism attributes. In choosing a destination, visitors often classify their alternatives based on several criteria, such as personal motivation (push factors) and perception of the destination (pull factors). While some aspects of intrinsic motivation have been studied before, pull factors offer new insights into research on agritourism visitors' motivations. These motivational factors thus provide a solid foundation for future empirical studies on travel motivation related to specific agritourism destinations. Traditionally, research employing personal motivation networks investigates the relationship between visitors' motivations and satisfaction. The theoretical implication of this study extends and develops personal motivation networks through the lens of intrinsic motivation. Studying agritourism visitors' environmental behavior helps explain why individuals and groups engage in behaviors that impact the environment and how these behaviors can influence their satisfaction by highlighting the interplay of individual, social, and contextual factors. Moreover, unlike past studies exploring environmental behavior as a separate trait, this study finds a significant relationship between agritourism visitors' environmental behavior, satisfaction, and intentions to revisit and recommend the destination. When visitors perceive benefits from participating in agritourism activities, they tend to identify with and feel connected to the natural environment. This connection fosters their concern for and sensitivity toward the environment, which, in turn, shapes environmentally responsible behavior.

As tourism increasingly becomes an essential sector in Missouri's economy, the major findings of this study have significant managerial implications. Agritourism links two top economic drivers and has been identified as a key complementary business for farmers to generate additional income and mitigate the financial uncertainties associated with traditional farming. Analyzing visitors' intrinsic motivations helps identify the primary factors that encourage visits to agritourism destinations in Missouri. The analysis revealed that spending time with family and having fun with spouses and children were the most preferred motivational factors. Based on these findings, future promotional, educational, and marketing tools could be designed. Farm owners and destination marketing organizations (DMOs) should promote agritourism establishments as family-friendly destinations and consider adding attractions for children, such as animal petting, u-pick games, and extended corn mazes. This approach will likely attract more visitors, generate additional revenue, and ensure the sector's sustainability.

The analysis of visitors' satisfaction with destination attributes revealed comparatively low satisfaction with onsite restrooms, Wi-Fi availability, and road signage. Regarding risk attributes, visitors reported low satisfaction with handling pesticides and hazardous

chemicals and limiting children's access to hazardous areas. Concerning food attributes, low satisfaction was reported regarding employee personal hygiene. These elements with low levels of satisfaction should be given special attention, as lower satisfaction with destination attributes can influence future revisit and recommendation intentions. Issues with risk and food attributes may pose significant problems for agritourism business owners and could lead to legal complications [44]. Implementing appropriate risk management strategies can mitigate these risks and ensure smooth operations. Inherent risks are a major factor deterring new farm owners from entering agritourism. We recommend that agritourism business owners develop a written business plan and ensure their operations comply with its guidelines. Along with the business plan, a risk management plan should be established to address and manage various risk elements in agritourism operations. Supportive actions related to risk attributes will likely encourage more new farm owners to venture into agritourism. Once these issues are addressed, tailored educational, promotional, and marketing programs should be developed to communicate this information to customers better.

Based on our study findings, corrective actions related to food attributes will help business owners mitigate future food-related risks and foster a positive attitude among visitors toward locally produced food without compromising safety and quality. We also suggest developing and testing new business models related to primary agritourism operations, particularly given the growing demand for traditional and authentic experiences. These new business models could include adding more value-added products like pickles, jams, and other food items, opportunities to add accommodations to capture the demands of overnight visitors, farm-based workshops, agri-arts, and agritourism networking. These additions enable business owners to improve revenue with limited investment in existing resources. These findings also offer meaningful suggestions to marketers and business promoters. First and foremost, prioritizing service quality and visitor satisfaction is crucial. Visitor satisfaction will largely influence word-of-mouth promotion, with unsatisfied visitors likely communicating their experiences to more people than satisfied visitors. Additionally, business owners should utilize social media to target audiences within a two- to three-hour driving radius of their destinations. Platforms like Facebook, Instagram, and TikTok are effective mediums for reaching target visitors. Agencies such as the Department of Agriculture and farmers' organizations can provide support and guidelines for promoting businesses through social media. The value addition of the farm products could be marketed to the visitors with higher satisfaction, which could also help sustain the business during the off-season (e.g., adding meat products and selling to existing customers during off-seasons). Furthermore, the outcomes of this research will enable business owners, event planners, destination managers, investors, and other relevant stakeholders to understand visitor expectations better and formulate improved strategies, regional policies, and a balanced approach to agritourism development in Missouri.

### *5.2. Limitations and Future Studies*

Our study has some limitations, but it guides future research initiatives. This study focused on agritourism visitors in Missouri. It is still being determined whether the results would be the same if similar studies were conducted in other states' agritourism sectors. The applicability of the findings may depend on factors such as the number of agritourism attractions, geographical location, institutional support, and other external variables. The results could be more robust, effective, and explanatory if the study was conducted among visitors in other Midwestern states. Furthermore, our study investigated the influence of visitors' intrinsic motivations and environmental behavior on their satisfaction with various agritourism attributes. We also suggest that future research should investigate the impact of visitors' extrinsic motivations and attitudes on their satisfaction with these attributes. Finally, while this study significantly contributes to understanding the intrinsic motivations, environmental behavior, and satisfaction of Missouri agritourism visitors, further application and testing of motivation and involvement theories are recommended.

for other tourism segments like nature and rural tourism, which would open opportunities for more in-depth exploration.

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