Original Research Article

A study on customers preferences towards landscape features of agri-tourism in Tamil Nadu

ABSTRACT

The agricultural landscape is the base for agri-tourism development. This paper focuses on customer preferences for agricultural landscape features when participating in agri-tourism. The prime objective of the study includes identifying the attractive features of agricultural landscapes and comparing those features across a category of customer's annual family income, family size, tour frequency and levels of farming and linkage. Data were collected in farm resorts located in Coimbatore, Tamil Nadu. Forty customers were randomly selected as respondents in ten resorts with total arrival of 400 sample customers. Results show that customers liked mostly natural features followed by agricultural and cultural features. Multivariate analyses of variance (MANOVA) show significant differences across selected segments such as annual family income, family size, tour frequency and levels of farming and linkage.

Keywords: Agri-tourism, customer, landscape, preference

1. INTRODUCTION

The most ingenious inventions fail if they do not meet customers needs. In any sector, customers are a source of knowledge for innovation and design. Therefore, the development of new tourism services requires a complete understanding of customer 'push' factors, to which destinations can respond by connecting 'pull' factors [13]. In agri-tourism, landscape features are a fundamental phenomenon for customer attractions.

The number of farmers in rural areas has decreased due to farm sector consolidation, resulting in societies where most people do not perform agriculture but benefit from the landscapes since they chose to live in these regions. This leads to demand for agricultural products, processing, and beautiful living environments, particularly in 'everyday' sceneries [18]. Visual aspects such as open sights, range of crops, exciting architectural elements, land use diversity and topography and more special attributes such as sensitive attachment, family tradition, everyday experience and intimate knowledge of the area are all valued landscape elements in rural communities [21]. This landscape aesthetics must be established in rural communities to meet social demand [18].

Many countries encouraged farmers to implement beneficial management practices and agricultural methods to diminish adverse environmental impacts. Elsewhere, positive effects on the value of agri-ecosystems beneficial management practices expansion could significantly influence the landscape [11]. It also leads to the positive visual appearance of the farm.

The worldwide intensive urban development process is constantly threatening agricultural and natural areas. This results in a decline of aesthetic open landscapes and

their ecosystem services [17]. Thus, urban planners and policymakers must consider the value of the entire range of ecosystem services provided by open, natural and agricultural space when making land-use allocation decisions. Applying the concept of agri-tourism services to determine a land-use change is not a novel approach. Indeed, many western studies have applied this concept [19] by integrating the consequences of land-use change on the provision of agri-tourism services into enhancing farmers' income. Given the evidence that visitors to various rural tourism markets incur utility from the surrounded landscape and base their site choice on it (among other attributes of the tourism facility), this study integrates landscape as an attribute in the agri-tourism attraction market. This study contributes to the body of knowledge on landscape preferences for leisure purposes in two ways. It expands prior knowledge of visitor's affection for natural components in rural landscapes (e.g., lakes, ponds and native tress) to various agricultural and cultural features found in farmlands. It also tends to know about the customer choices for natural settings by relating their agri-tourism experience with agricultural landscapes.

2. LITERATURE REVIEW

Agri-tourism

Agri-tourism is becoming more popular among customers, as seen by farm visits. It has resulted in an extensive choice of different interpretations of the concept and estimates of its value to farmers and communities. World Tourism Organization defined agri-tourism as "Agri-tourism involves accommodation being offered in the farmhouse or a separate guest house, providing meals and organizing guests' activities in the observation and participation in the farming operations". Correspondingly, when tourism events take place on a farm, it can be called agri-tourism [7]. Barbieri [4] specified that agri-tourism permits farmers to augment their privileged space.

Globally, the status of landscape in rural tourism markets was established in many geographical areas and mainly agricultural landscapes in the USA and European countries [2]. Furthermore, [9] claimed that rural tourism firms in the UK would not have a viable product without an attractive landscape.

Developing agri-tourism provides ample opportunities to farmers and provides extra income through agri-tourism activities [15]. In Europe and North America, agri-tourism is a policy instrument to regenerate regional economies and protect rural traditions and landscapes because of its vast advantages.

Agricultural landscapes and their role

OECD defined agricultural landscapes as the products derived from the contact between agriculture, natural resources and the environment. Further, it states that agricultural landscapes have three dimensions: structure, function, and value. The structure is about the visual presence of the landscape. In contrast, function represents cultural, environmental and economic assistances that agricultural landscapes deliver to society and value describes an economic assessment of the landscapes. This study deals with only agricultural landscapes structure in agri-tourism.

Agricultural landscapes are composite because they are formed by the physical features and supply of the farmland resources and their environmental connectivity [8]. Agricultural landscape features can be organized into natural, agricultural and cultural features. Natural features denote the natural environment and it constitutes natural habitats like a wetland, forests, native trees, flowers, soils and climate, whereas agricultural features rely upon crop cultivation practices. Cultural Features represent human interaction with the environment, farm-related structures, artificial structures like trails and value-added agricultural processes [5]. The distinct features of the agricultural landscape with cultural, natural and agricultural features can be identified for academic purposes, maybe not be viable on the ground because landscape feature varies with the different segments [12].

The visual appearance of agricultural landscapes brings a strong note of rurality composed of integral nature, a reliable way of countryside living and cultural attractions [2]. Tyndall and Colletti [20] suggested that customers prefer well-landscaped farm operations with farm animals and native trees in terms of agricultural features. Exactly, integrating trees or shrubs in grouping with other farming features like intensive crop cultivation helps diversify agricultural landscapes appearance and increase chances for leisure activities [10]. In terms of cultural features, well-maintained artificial structures and buildings and farm mechanization features (e.g., tractors, windmills), have been proposed as essential components linked with the visual quality of rural landscapes [1]. However, past studies show that cultural, natural and agricultural features of the landscape tend to enhance more preference among customers for their recreation [20, 5, 10, 14, 3, 8]. This study also explored the same natural, cultural and agricultural features with modified variables suited for Tamil Nadu, India.

3. METHODOLOGY

This study extensively deals with the customers landscape preferences in agri-tourism by having three landscape features: natural, agricultural and cultural. This article focuses on customers agricultural landscape preferences when participating in agri-tourism activities. The main objective is to compare customer preferences across a category of their annual family income, family size, tour frequency and levels of farming and linkage.

Study area and selection

In India, Tamil Nadu enjoyed a number one status in engaging domestic and foreign tourists from 2014 to 2018. The study is taken in farm resorts located in the Coimbatore district because it is the prominent one to capture customers' preferences towards agri-tourism. It has the highest number of farm resorts (28 farm resorts), followed by Nilgiris (22 farm resorts) and Theni (20 farm resorts). Based on maximum customers footfalls, ten farm resorts located in the Coimbatore district would be selected for the study. Forty customers were randomly selected in each resort, with total arrival of 400 sample respondents. A random selection of 40 customers from each farm resort gave a wide range of their preferences for agri-tourism. The well-prepared questionnaire was used for collecting socio-demographic details and agri-tourism preferences among customers. This study is categorized into three segments viz., annual family income (>5 lakh, 5-10 lakh, 11-15 lakh, 16-20 lakh and >20 lakh), family size (2-3, 4-5, 6-7 members), tour frequency (Rare, some time and often) and levels of farming and linkage (direct, indirect and no connection).

Statistical analysis

Descriptive analysis was performed to know about customers socio-demographic features. Multivariate analyses of variance (MANOVA) were performed to compare landscapes preferences across respondents with various characteristics. Natural, agricultural and cultural features were considered the dependent variables. Independent variables include annual family income, family size, tour frequency and agricultural attachment. As applicable, significant MANOVA results were adopted with post hoc analyses of variance or independent t-tests. Wilks' Lambda is used to know significant differences between selected independent variables. If the significance level is less than 0.05, we can conclude that our groups have a difference. The selected variables significant levels were measured based on Bonferroni adjustment. It involves dividing the original alpha level of 0.05 by the number of analyses we intend to do. In this case, if we have three dependent variables to investigate; therefore, we would divide 0.05 by 3, giving a new alpha level of 0.017. We will consider our results significant only if the probability value (Sig.) is less than 0.017.

4. RESULTS AND DISCUSSION

Socio-demographic profile of respondents

Most of the respondents in this study belong to the female category (56.50 percent). On average, respondents were in young level age (M=33.64) falls between 26-35 (45.75 percent) followed by the 36-45 (23.25 percent) age category. More than half of the respondents education qualifications were graduate-level (60.50 percent) followed by post-graduate (30.25 percent).

In terms of occupation, 52.75 percent of respondents were employees followed by a housewife (23.00 percent), business people (9.50 percent) and students (14.75 percent). Overall respondents income of 5-10 lakh (38.50 percent) was high, followed by 11-15 lakh (32.25 percent) and 16-20 lakh (18.50 percent).

Comparison of landscape preferences across various family income customers

Landscape features were compared between the various level of family income customers presented in Table 1. Annual family income with different levels (>5 lakh, 5-10 lakh, 11-15 lakh, 16-20 lakh and >20 lakh) was used as an independent variable that has more than one categorical dependent variable like natural, agricultural and cultural features.

Table 1 Landscape preferences between various family income customers

Landscape features	Preference Mean**					Statistical values	
	Annual family income (Rs. in lakh)						
	>5 (3.50 %)	**5-10 (38.50 %)**	**11-15 (32.25 %)**	**16-20 (18.50 %)**	**>20 (7.25 %)**	**F**	**P-value**
Natural features							
Wildlife	4.14	3.87	3.72	3.86	3.75	1.236	0.295
Water resources	4.28	4.17	3.95	4.13	4.24	3.695	**0.006***
Native plants and flowers	4.35	4.18	4.33	4.17	4.13	0.810	0.519
Forests	3.92	3.93	3.93	3.77	4.00	0.651	0.626
Wetlands	4.35	4.13	3.89	4.24	4.27	3.035	**0.005***
Agricultural features							
Farm animals	3.50	3.72	3.72	3.31	3.69	9.076	**0.001***
Planted trees	4.07	4.07	3.78	3.98	3.96	2.318	0.057
Variety of specialty crops	3.64	4.21	4.02	4.21	4.00	2.561	**0.005***
Grassland and pastures	3.57	3.93	3.60	3.80	3.79	1.906	0.109
Intensive crop farm	3.92	3.99	4.06	4.14	4.20	0.612	0.654
Cultural features							
Historic elements	4.35	4.14	4.11	4.09	4.06	0.340	0.851
Trails	3.85	3.76	3.41	3.47	3.55	3.882	**0.004***
Petting animals	3.71	3.53	3.58	3.56	3.55	0.141	0.967
Farm-related buildings	3.78	3.50	3.29	3.33	3.44	1.315	0.264
Farm equipment	3.64	3.44	3.10	3.12	3.17	2.733	0.029

***Measured on a 5-point scale ranging from 1(dislike very much) to 5 (like very much)*

**p<0.010 (based on Bonferroni adjustment)*

A comparison of landscape features between the various level of family income customers shows that water resources, wetlands, farm animals, a variety of specialty crops and trials were found statistically significant and the remaining other features were found non-significant. F= 3.22, P= 0.018; Wilk's Lambda= 0.803 shows a statistically significant difference between the various level of family income customers. Mean scores indicate that low-income customers have more preference for water resources (M=4.28) and trials (M=3.85) and high-income customers prefer mostly farm animals (M=3.69) and a variety of specialty crops (M=3.55) than low-income level customers.

Comparison of landscape preferences between three levels of family size

The family size with three levels is presented in Table 2. Family size with three levels (2-3 members, 4-5 members and 6-7 members) was used as an independent variable that has more than one categorical dependent variable like natural, agricultural and cultural features.

Table 2 Landscape preferences between three levels of family size

Landscape features	Preference Mean**			Statistical values	
	Family size				
	2-3 (40.00 %)	4-5 (38.50 %)	6-7 (21.50 %)	F	P-value
Natural features					
Wildlife	3.81	3.79	4.05	0.810	0.445
Water resources	4.03	4.26	4.45	3.152	**0.010***
Native plants and flowers	4.23	4.17	4.50	1.168	0.312
Forests	3.95	3.82	3.55	2.791	**0.013***
Wetlands	4.08	4.14	4.05	0.166	0.847
Agricultural features					
Farm animals	3.35	4.00	3.00	2.552	0.052
Planted trees	3.86	4.14	4.45	7.732	**0.000***
Variety of specialty crops	4.09	4.08	4.60	3.656	0.027
Grassland and pastures	3.60	4.20	4.65	7.683	**0.000***
Intensive crop farm	4.17	3.70	3.80	9.667	**0.000***
Cultural features					
Historic elements	4.16	3.96	4.35	2.454	0.087
Trails	3.45	3.85	4.35	5.355	**0.000***
Petting animals	3.52	3.65	3.85	1.612	0.201
Farm-related buildings	3.33	3.65	3.45	3.261	0.039
Farm equipment	3.06	3.73	4.20	3.226	0.022

***Measured on a 5-point scale ranging from 1(dislike very much) to 5 (like very much)*

**p<0.017 (based on Bonferroni adjustment)*

Landscape features with different family sizes were compared. Under the natural features, water resources and forests were found statistically significant. Agricultural features

like planted trees, grassland and pastures and intensive crop farms were significant. In terms of cultural features, trails show significant differences among various levels of family size customers. The mean score level shows that an increase in family size leads to more preference for water resources (M=4.45), planted trees (M=4.45), grassland and pastures (M=4.65) and trails (M=4.35). Family sizes with 2-3 members prefer forests (M=3.95) and intensive crop farms (M=4.17). F= 5.298, P= 0.000; Wilk's Lambda= 0.743 shows a statistically significant difference between various level of family size.

Comparison of landscape preferences between different levels of frequency of tour

The frequency of travel differs among customers. Rare, sometimes and often are the three levels of tour frequency and it is presented in Table 3 to know about landscape features among customers. The frequency level of the tour (rare, sometimes and often) was used as an independent variable that has more than one categorical dependent variable like natural, agricultural and cultural features.

Table 3 Comparison of landscape preferences between different levels of frequency of tour

Landscape features	Preference Mean			Statistical values	
	Rare (14.50 %)	Sometime (45.75 %)	Often (39.75%)	F	P-value
Natural features					
Wildlife	3.81	3.79	3.97	1.054	0.350
Water resources	4.11	4.03	4.34	3.158	**0.010***
Native plants and flowers	4.28	4.21	4.21	0.320	0.727
Forests	3.99	3.80	4.02	2.664	**0.016***
Wetlands	4.08	4.09	4.16	0.160	0.852
Agricultural features					
Farm animals	3.44	3.49	3.84	3.385	**0.015***
Planted trees	4.01	3.91	3.95	0.703	0.496
Variety of specialty crops	4.16	4.02	4.31	6.030	**0.009***
Grassland and pastures	3.70	3.80	3.91	0.930	0.395
Intensive crop farm	4.11	4.01	4.07	0.456	0.634
Cultural features					
Historic elements	4.17	4.10	4.12	0.298	0.742
Trails	3.55	3.50	3.95	6.606	**0.002***
Petting animals	3.60	3.50	3.64	4.231	**0.009***
Farm-related buildings	3.51	3.28	3.55	2.903	0.056
Farm equipment	3.27	3.17	3.50	20.103	0.124

Measured on a 5-point scale ranging from 1(dislike very much) to 5 (like very much)

**p<0.017 (based on Bonferroni adjustment)*

Landscape features like water resources, forests, farm animals, a variety of specialty crops, trails and petting animals were found significant. Customers who often travel (M=

4.34) have more preference towards water resources than rare and sometimes travellers category. Forests are also preferred mostly among often (M=4.02) tour frequency customers. Likewise, often travel customers preferred more for farm animals (M=3.84), a variety of specialty crops (M=4.31), trails (M=3.95) and petting animals (M=3.64) to rare and sometimes category travelling customers. This result was supported by Gao's [8] study, i.e., frequent visitors have more preference for landscape features. F= 3.14, P= 0.005; Wilk's Lambda= 0.897 shows a statistically significant difference between rare, sometimes and often type-level customers.

Comparison of landscape features with customers farming and linkage levels

The agricultural attachment was divided into three levels viz., no connection, indirect and direct connection. The results are reported in Table 4. Three levels of agricultural attachment were considered as an independent variables having more than one categorical dependent variable like natural, agricultural and cultural features.

Table 4 Comparison of landscape features with different levels of agricultural attachment

Landscape features	Preference Mean			Statistical values	
	No connection (32.00 %)	Indirect Connection (44.75 %)	Direct connection (23.25 %)	F	P-value
Natural features					
Wildlife	3.90	3.79	3.77	4.811	**0.004***
Water resources	4.13	4.04	4.19	6.130	**0.001***
Native plants and flowers	4.20	4.25	4.27	3.229	**0.011***
Forests	3.88	3.92	3.19	0.084	0.919
Wetlands	4.13	4.13	3.99	0.967	0.381
Agricultural features					
Farm animals	3.56	3.45	3.61	0.913	0.402
Planted trees	3.86	3.96	4.08	1.877	0.154
Variety of specialty crops	4.16	4.12	4.06	6.532	**0.002***
Grassland and pastures	3.60	3.83	3.92	2.993	0.051
Intensive crop farm	4.21	4.02	3.91	3.002	**0.005***
Cultural features					
Historic elements	4.19	4.09	4.12	3.445	**0.010***
Trails	3.52	3.54	3.76	2.705	0.068
Petting animals	3.63	3.50	3.61	0.781	0.459
Farm-related buildings	3.48	3.34	3.44	0.807	0.447
Farm equipment	3.14	3.17	3.60	0.332	0.718

Measured on a 5-point scale ranging from 1(dislike very much) to 5 (like very much)

**p<0.017 (based on Bonferroni adjustment)*

Under the natural features wildlife, water resources, native plants and flowers were found statistically significant. Agricultural features like a variety of specialty crops, intensive

crop farms and cultural features like historic elements show significant differences among various levels of customers agricultural attachment. Customers with no connection in agriculture prefer mostly wildlife (M=3.90), a variety of specialty crops (M=4.16), intensive crop farms (M=4.21) and historic elements (M=4.19) than indirect and direct connection customers. Customers without an agricultural background always cherished knowing about crop cultivation practices because their involvement in exploring the agricultural field was new. Working farm with various crop cultivation attracts new customers to the farm [16]. Customers with direct connection prefer mostly water resources (M=4.19) and native plants and flowers (M=4.27) than no connection and indirect connection customers. F= 4.647, P= 0.017; Wilk's Lambda= 0.882 shows a statistically significant difference between agricultural attachment with various level customers.

5. CONCLUSION

This study deals with landscape preferences among farm customers with four-segment categories: annual family income, family size, tour frequency, and farming and linkage levels. Overall, the customers preferred natural features as the predominant one in agri-tourism. Agri-tourism is not a homogeneous concept and it has different structures with naturally associated features. High-income level customers preferred a variety of specialty crops and farm animals to low-income level customers.

Simultaneously, an increase in family size leads to more preference for water resources, planted trees, grassland and trails. Often travelling customers preferred more for farm animals, a variety of specialty crops, trials and petting animals. Customers with direct connection mostly prefer water resources, native plants and flowers to customers with no connection and indirect connection towards agriculture. Almost, agri-tourism with selected segments like annual family income, family size, tour frequency and farming and linkage levels could be improved by including the most preferred related features for engaging better service in a farm resort.

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