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Agro-tourism: Sustainable diversification strategy for enhancing farmers income in Goa state

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Abstract

Agro-tourism has emerged as an effective strategy for promoting sustainable agriculture by diversifying farm income, improving resource utilization and strengthening rural livelihoods. The present study was conducted in Goa state to assess the contribution of Agro-tourism towards sustainable agricultural systems. A total of 30 Agro tourism centres were selected randomly from the study area. Primary data was collected from the selected Agro-tourism entrepreneurs and the data was analysed using simple percentages, averages and other descriptive statistical measures. The findings revealed that the majority of Agro tourism centres in the study area was established during 2015-2025. The average operational landholding of the Agro-tourism entrepreneurs was 15.95 ha, of which 4.08 ha was utilized for Agro-tourism activities while the remaining land continued to be used for agricultural production, indicating the complementary nature of Agro-tourism rather than the replacement of farming. On average, each Agro-tourism centre attracted 6,653 visitors annually. The average annual income generated was ₹54.15 lakh from tourism activities and ₹50.71 lakh from agriculture and allied enterprises. With an average total cost of ₹66.00 lakh, the Agro-tourism centres realized an average net return of ₹38.86 lakh and recorded a benefit-cost ratio of 1.59, indicating that Agro-tourism is an economically viable enterprise. The study concludes that Agro-tourism enables efficient utilization of farm resources while retaining agricultural production, generates diversified income and enhances the economic sustainability of farming households. Strengthening policy support, infrastructure, skill development and promotion of Agro- tourism can further contribute to sustainable and regenerative agricultural development in Goa.

Keywords: Agro-tourism, Sustainable, Farm diversification, Goa

Introduction

Agri-tourism, a relatively new segment in the agriculture sector, connects agriculture and tourism, which open up a wide range of potential for both industries. Gannon (1994) defined Agro tourism as “A range of activities, services and amenities provided by farmers and rural people to attract tourists to their area in order to generate extra income for their business.” The last few years have seen the concept of Agro tourism gaining impetus as an allied area of income generation in agriculture. “Agro-tourism has been identified as a possible crucial tool for employment generation, poverty alleviation and sustainable human development. The basic principles of Agri-Tourism are; to provide something to observe for guests; provide activities for visitors to engage in; lastly have something for visitors to buy.

Goa located at the southern end of the Konkan region, is a tiny state on the west coast of India and renowned worldwide as a popular tourist destination. In recent years, Goa has been

emerging as a preferred destination for Agro and eco-tourism. Farmers, whose primary occupation is agriculture, are increasingly venturing into tourism-related businesses. Agro-tourism in Goa is gaining momentum as the state diversifies its tourism offerings beyond beaches and nightlife. With its rich agricultural heritage and biodiversity state is encouraging sustainable tourism via introducing tourists to organic farming, rural life, and traditional customs. Last year, the Goa government passed the Amritkal Agricultural Policy 2025 as one of its agrotourism initiatives in Goa State. Present research was conducted to identify status of Agro tourism centres in study area and how this was helpful them to maximize their profitability of farm.

Material and Method

The present study was based on primary data. The primary data from 30 Agro tourism centres from Goa state was collected by Survey Method using a pre tested structured

questionnaire. The data and information for the present study were collected for the financial year 2024-25. The collected data were analysed for arriving at useful and desired conclusions by using MS Excel. Simple statistical and arithmetical tools such as averages, frequency distribution and percentages were used for analysis.

Estimation on cost and returns

The standard cost concepts were used for estimating the total cost of Agro-tourism centres by using concept of fixed cost and variable cost.

Cost concepts

Variable cost

Variable cost includes the Maintenance cost, (electricity charge, landscape maintenance charges, transportation charges, advertisement charges etc), labour charges, food and non-food expenses, interest on working capital.

Fixed cost

Fixed cost include depreciation, interest on fixed capital, rental value of land and Amortisation value on fixed investment.

Depreciation: calculated by the formula;

Annual depreciation = (Purchase value - Salvage value) ÷

(Useful years of life)

Amortisation value on fixed investment: To estimate this amortisation cost, the following formula was used (Geetha and Umesh, 2024):

Amortisation cost = $P \frac{i(1+i)^n}{(1+i)^n - 1}$

Where,

- P = Total fixed investment
- n = Economic life of Agro-tourism centre (taken as 35 years)
- i = Interest rate (2%)

Gross Returns, Net Return and B:C ratio

Gross return was calculated based on tourist arrivals and returns from them and other activities income like from crop production, livestock, subsidiary business. Net return is calculated by value of returns after deducting the total cost. Profitability of the business was evaluated based on B:C ratio which was calculated as gross return divided by total cost.

Result

The general information with respect to establishment of Agro tourism centre in study area was presented in Table 1.

Table 1: General information with respect to establishment of Agro Tourism centres

Establishment Year	ATC owners of Goa	Percentage (%)
<2005	4	13.33
2005-2014	8	26.66
2015-2025	18	60.00
Total	30	100

The distribution of Agro tourism centre (ATC) indicates that Agro tourism is a relatively recent and rapidly expanding enterprise in Goa. In Goa, majority (60.00%) of ATC were established in 2015-2025 followed by 26.66 per cent during 2005-2014 and rest 13.33 per cent were established before 2005.

The land use pattern of the Agro tourism centres (ATC)

The land use pattern of the Agro tourism centres in study area

was shown in Table 2. The average total landholding was 15.95 ha. Out of which 12.50 percent was fallow, 13.77 percent was unirrigated, and 73.73 percent was irrigated. Farming continued to be the primary land use even after diversification into Agro tourism, with an average of 25.55 percent of the total area being used for Agro tourism activities and the remainder 74.48 percent being kept under crop cultivation.

Table 2: Land use pattern of Agro tourism centres (ha)

Particulars	Types of Land				Used for ATC	Area for crop production
	Unirrigated area	Irrigated area	Fallow area	Total area		
Area (ha)	2.20 (13.77)	11.76 (73.73)	1.99 (12.50)	15.95 (100)	4.08 (25.55)	11.87 (74.48)

(Figures in parenthesis indicate percentage to total)

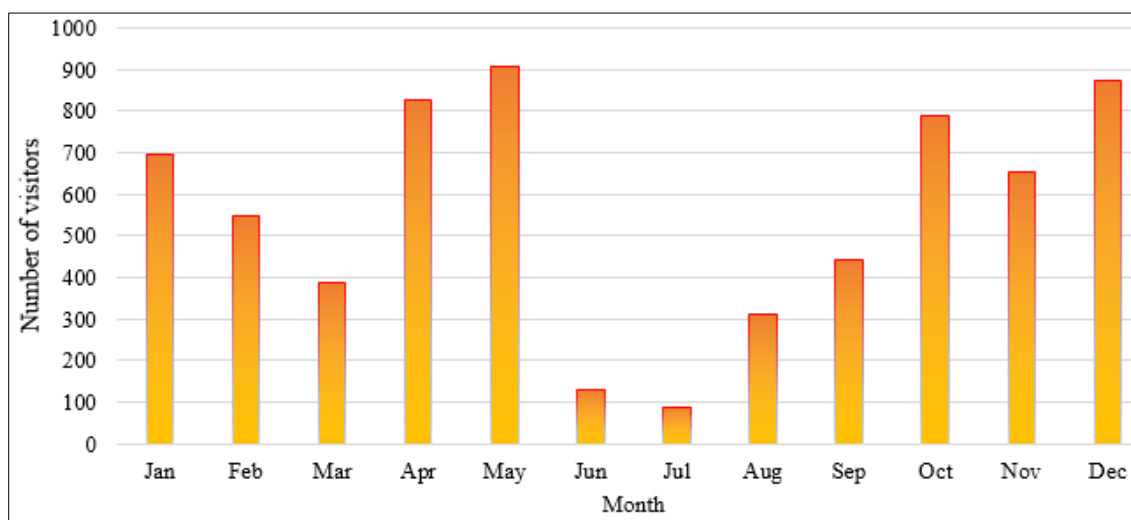
Average tourist Arrivals in Agro tourism centres

The pattern of tourism arrivals in Agro tourism centre in the study area was presented in Table 3 and Fig. 1. The average number of visitors per Agro tourism centre each year was 6,655. May has the highest number of visitors (908), followed

by December (874), April (828), and October (790). On the other hand, in monsoon months, July (86.27 tourists) and June (130.93 tourists) saw the less visitor arrivals. The majority of visitors were men, followed by women and kids.

Table 3: Month wise tourist Arrivals in Agro tourism centres (Numbers of tourist)

Month	Male	Female	Children	Total
Jan	298	275	123	696
Feb	236	223	89	548
Mar	173	168	48	389
Apr	354	313	161	828
May	403	348	157	908
Jun	59	50	22	131
Jul	41	31	14	86
Aug	136	127	48	311
Sep	189	163	90	442
Oct	352	310	128	790
Nov	296	243	113	652
Dec	384	345	145	874
Total	2921	2596	1138	6655

**Fig 1:** Month wise tourist arrivals in agro tourism centres in the study area

The findings reveal that tourist arrivals are highly seasonal, with the highest inflow during the summer (April-May) and winter (October-December) months, while the monsoon season (June-September) records comparatively fewer visitors. The peak arrivals during summer are mainly associated with school and college vacations, enabling families to undertake leisure trips. Similarly, the winter season attracts a large number of tourists due to pleasant weather, festive season holidays.

Capital investment in different infrastructure and other facilities of Agro tourism centres: Table 4. Present the

capital investment in different infrastructure and other facilities of Agro tourism centres in the study area. The total investment was 45.28 lakhs excluding the value of land. Investment in plantation and landscaping constituted the largest share of total investment (47.17%), followed by investment in construction (25.04%) and irrigation structures (8.50%). So it was observed that ATC allocated the largest share of their capital investment to plantation and landscaping (47.18 %), reflecting greater emphasis on developing and enhancing the farm environment as a key tourism attraction.

Table 4: Capital investment in different infrastructure and other facilities of Agro tourism centres

Particulars	Amount (Rs in lakhs)	Percentage (%)
Land	163.58	-
Investment in construction (Residential building, restaurant, tourist Nivas)	11.34	25.04
Swimming pool	2.89	6.38
Investment in plantation and landscaping	21.36	47.17
Investment in furniture and other materials	2.43	5.37
Investment in vehicles	1.84	4.06
Livestock	0.58	1.28
Machinery and implements	0.19	0.42
Investment in irrigation structure	3.85	8.50
Other structures	0.8	1.77
Total investment cost (excluding land)	45.28	100.00

Total cost of Agro tourism centres: The total cost of Agro tourism centres was worked out by estimating the costs

incurred on variable cost, fixed cost. The Table 5. Represent the total cost of Agro tourism centres.

Table 5: Total cost of Agro tourism centres

	Particulars	Amount (Rs. in lakhs)	Percentage (%)
A	Variable cost		
1.	Maintenance expenses	2.14	3.24
2.	Food and non-food expenses	5.34	8.09
3.	Labour cost	8.69	13.17
4.	Other Activity cost (crop production, livestock, subsidiary business)	23.51	35.62
5.	Working capital	39.68	60.12
6.	Interest on working capital @6%	2.38	3.61
	Total variable cost	42.06	63.73
B	Fixed cost		
1.	Depreciation	0.07	0.11
2.	Interest on fixed capital @10%	4.53	6.86
3.	Amortisation value on fixed investment	1.81	2.74
4.	Rental value of land	16.36	24.79
	Total Fixed cost	22.77	34.50
C	Family labour	1.17	1.77
	Total Cost (A+B+C)	66.00	100.00

It was observed that the ATC incurred total cost of ₹ 66 lakhs. The proportion of variable cost was 63.73 per cent, fixed cost was 34.50 per cent and remaining 1.77 per cent was imputed family labour cost. The other variable cost on crop production, livestock, subsidiary business, poultry and others constituted the highest share of the total cost (35.62%) followed by rental value of land (24.79%). Maintenance expenses, food and non-food expenses and labour cost were in the proportion of 3.24 per cent, 8.09 per cent and 13.17 per

cent of the total cost respectively

Total return of Agro tourism centres

Table 6 displays the total returns of ATC from different sources. The average gross returns of the ATC were ₹ 104.86 lakhs, out of which major share of income was from Agro tourism enterprise i.e. 51.64 per cent followed by 43.45 per cent from crop production returns, 3.51 per cent from subsidiary business and 1.38 per cent from livestock.

Table 6: Total return of Agro tourism centres

Particular	Amount (Rs. in lakhs)	Percentage (%)
Returns from tourism	54.15	51.64
Returns from crop production	45.57	43.46
Returns from Livestock	1.45	1.38
Returns from Subsidiary business	3.69	3.51
Gross Returns	104.86	100.00

Profitability of Agro tourism centres

From the table 7, it can be observed that the total variable cost and fixed cost were ₹42.06 lakhs and ₹22.77 lakhs respectively. Total sum of cost including family labour was ₹66.00 lakhs. From this amount of investment ATC owners

had gain ₹104.86 lakhs and ₹ 38.86 lakhs as gross and net returns respectively, with B:C ratio of 1.59. B:C ratio shows the returns obtained per unit of cost. Since the B:C ratio is more than one, indicated that the ATC in the study area is profitable and economically viable.

Table 7: Profitability of Agro tourism centres

Particular	Total variable cost	Total fixed cost	Total Cost	Total income	Net return	B:C ratio
Amount (Rs. in lakhs)	42.06	22.77	66.00	104.86	38.86	1.59

Conclusion

Agrotourism is increasingly recognized as an important strategy that can contribute to agricultural development through diversification of farming activities. Though the Agro-tourism demand was highly seasonal it generated substantial return to investment. The highest arrivals were observed during winter and summer seasons attracting the highest number of tourists, while the rainy season accounted for less number. In Agro tourism centres, Farm tours; indoor and outdoor games; stage events and trekking were the most commonly offered Agro-tourism activities. The total investment of Agro tourism was 45.28 lakhs with major share of investment was in Plantation and landscape. The total cost

of running the Agro tourism centres was 66.00 lakhs, among total cost highest cost was incurred on other activity cost followed by rental value of land and labour cost. Tourism was the major source of income, contributing 51.64 per cent of total income in Agro tourism centres. Agro-tourism centres generated average net returns of ₹38.86 lakh with B:C ratio of 1.59. Overall, Agro tourism emerged as a profitable and sustainable farm diversification strategy that enhances farm income.

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