

Tourist Arrivals and Revenues of Recreational Agriculture Districts in Western Taiwan

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Abstract: Agritourism industry is growing in Taiwan. Numerous farms and ranches are providing agricultural experiences as recreational activities to attract tourists. To integrate the resources of individual farms and to improve the income of farming households, the Taiwan Government has established many Recreational Agriculture Districts (RADs) to activate the local economy and strengthen the sustainable development of rural communities. Since most of the RADs located in western Taiwan, this study aimed at presenting the economic contribution of these districts by investigating their tourist arrivals and revenues. Primary data from the recreational farms in the targeted RADs of western Taiwan through a questionnaire survey were collected. The main items of the questionnaire included the amount of tourists, travel types of tourists, average expenditure per tourist, total revenues, and share of revenue sources of the RADs. The results showed that these districts received more than 4 million tourists and generated above 47 million USD in a year. The latest established districts had more tourists and better economic performance than the earliest ones did. Catering and lodging, however, had not been effective to increase sales of farm products as expected. To increase revenues, the findings also suggest farms that target group tourists and field trip students may elaborate experiential activities and packaged tours while those target independent tourists may address typical cuisines.

Keywords: agritourism, Recreational Agriculture District, recreational farm, tourist arrivals, rural development

INTRODUCTION

Agritourism can be defined as farm-based enterprises that use agricultural operations to entertain or educate visitors and generate additional income for the farming households. The business model of agritourism is different from other farm ventures in terms of entrepreneurial goals, farm household characteristics, and business structures [1]. The focus of farm management in agritourism is not only on the use of agricultural inputs and production efficiency, but also on marketing strategies and the provision of hospitality services. The diverse operational activities and inadequate policy environment sometimes become challenges to the managers of recreational farms [2,3]. Particularly when the increased number of tourists may help farm sales and profits [4], it is crucial to study how to raise tourist arrivals and revenues of recreational farms to support the development of agritourism.

Studies worldwide have reported the potential of agritourism for adding values to agricultural products, providing employment, promoting urban-rural interaction, preserving cultural heritage, biodiversity, and natural environment [5-7]. With the economic growth and urbanization in Taiwan, agritourism has emerged to divert agriculture from primary production to the service sector. Numerous orchards, ranches,

wineries, timberlands, and aqua farms are open to tourists for rural experiences. Taiwanese Government has also targeted agritourism as one of the market diversification strategies to promote sustainable agriculture. It was estimated that there were more than 5,600 recreational farms in 2005 [8], and 14 million tourists contributed 242.7 million US dollars during farm visits in 2011 [9].

To foster agglomeration economies and community development, the Taiwan Council of Agriculture (COA) has been integrating individual recreational farms within areas between 10 and 600 hectares to set up Recreational Agriculture Districts (RADs) for agritourism since 2000. These districts are rich in agricultural products, rural cultures, and natural resources, which complement farm assets and intensify attraction to meet diverse needs of tourists. From 2000 to 2010, 71 RADs have been established in 15 of the total 22 Taiwanese counties [10]. Two thirds of these districts are distributed in the western part of Taiwan where the majority of the population is located with great market potential. The COA follows the progress of all the RADs by appointing a committee of experts to evaluate them every two years. According to the organizational performance, agricultural features, marketing effectiveness, service quality, environmental

management, and community participation, each district is classified as Class A+, Class A, Class B, Class C, or Class D [11]. The biennial evaluation grade also serves as a determinant of the amount of subsidies for the annual development projects of the RADs.

Nevertheless, the economic contributions of these districts to the agriculture sector and the local livelihood have not been fully stated. In the past, pioneering researches on the tourist arrivals and revenues of the RADs were only conducted in the eastern part of Taiwan [12-14]. The output values of the RADs in the western part of Taiwan and their demographic characters, however, remained unclear. This study, therefore, aimed to investigate the tourist arrivals and revenues of the RADs in the western part of Taiwan, and further analyze the differences according to their locations, evaluation grades, and founding periods. The results may deepen understanding of the current performance of Taiwan's agritourism industry to the policymakers and agricultural extension workers, and also lead to enhancing the profitability and efficiency of the RADs in the future.

METHODOLOGY

A. Research Framework

To evaluate the economic value of the RADs in the western part of Taiwan, this study identified the annual number of tourists and revenues of recreational farms in these districts. Literature also indicated the main activities generated incomes for recreational farms in Taiwan were parking, entrance fee, catering, lodging, venue rental, sales of products, and others [8]. This study, therefore, evaluated the revenues of recreational farms in Recreational Agriculture Districts based on the following six dimensions: (1) basic revenues (e.g. tour fare and entrance fee); (2) experience revenues (e.g. interpretation, exhibition, farm experience, travel by traditional transportation, handcraft DIY, and folk toy playing); (3) catering revenues (e.g. typical cuisines, tea and snacks, and cookout); (4) lodging revenues (e.g. camping and accommodations in cottages or barns); (5) sale revenues (e.g. agricultural products and souvenirs); and (6) other revenues (e.g. home delivery, internet, venue rental, karaoke, and parking fee).

Furthermore, the comparisons between different locations, biennial evaluation grades, and founding years of the RADs were conducted to examine the balanced development of agritourism. Finally, the association between tourist arrivals and revenues was analyzed to explore what could be requisites for RADs to enhance the income of recreational farms in the future.

B. Research Methods

This study collected primary data from the recreational farms in the 48 RADs of western Taiwan through a questionnaire survey. Based on the 2010 Evaluation Report of Recreational Agriculture Districts [11], we got the list of the RADs and their evaluation grades in 2010. Then through the RADs' committees and the administrative governments, we obtained the checklist of all the 868 recreational farms in the targeted 48 RADs. Owing to one of the RADs was not operating in 2011 because of the damage of natural disasters, this study targeted a total of 47 RADs with 846 recreational farms and conducted a questionnaire survey from July to October 2011. The questionnaire design was adopted from the pioneering researches of RADs in the eastern part of Taiwan [12, 13, 14]. The main items included the number of total tourists, tourists by travel type, average expenditure per tourist, total revenues, and share of revenue sources of the RADs during July 2010 to June 2011. To reduce the farm managers' concerns about providing financial information, we gave interview training to field research workers to facilitate data collection and ensure the quality of results.

Using the SPSS 19.0 statistical software, this study analyzed the primary data collected from the recreational farms in the 47 RADs of western Taiwan. Both descriptive statistics and correlation analysis were applied to explore the sample distribution and the relationship of the variables. After carrying out the Kruskal-Wallis H test to examine the regional, graded, and yearly differences among the recreational farms, we performed the Mann-Whitney U tests with a Bonferroni correction for pairwise multiple comparisons when a significant Chi-square value was obtained. Also, we used the Spearman correlation analysis to determine the association between tourist arrivals and revenues of the RAD farms. The degree of the correlation of two variables was considered weak if the absolute value of ranked Spearman correlation coefficient r_s was less than 0.3. The absolute value between 0.3 and 0.7 would indicate a moderate correlation, and a strong one if $|r_s|$ was higher than 0.7.

RESULTS AND DISCUSSION

A. Profile Analysis of the Responding RAD Farms

Of the 846 distributed questionnaires, a valid response rate of 73.5% was obtained for data analysis. Some targeted recreational farms declined the questionnaire survey for the involvement of financial information or the suspended operation in 2011 due to the damage of natural disasters. The results indicated the responding recreational farms were mostly located in the central region (59.1%), followed by the north region (26.6%) and the south region (14.3%). According to the evaluation grades of the RADs, the

majority of the responding recreational farms belonged to the RADs ranked as Class C (64.1%), and one fifth of them were under the RADs ranked as Class B (20.2%).

Table 1 lists the number of tourist arrivals and revenues of the responding RAD farms. The results showed the scale of tourist arrivals varied in the RAD farms of western Taiwan. Most of the farms (62.4%) received less than 2,500 tourists in a year while few (13.9%) received more than 10,000 tourists. The mean of tourist arrivals per farm even reached to 6,632 people because of the huge amount of tourists visited the large-

scale farms. According to the travel type of tourists, independent tourists (69.1%) were the main customers of the RAD farms. Group tourists and field trip students accounted for 24.0% and 7.0% of the annual amount of tourists, respectively. Moreover, one third of the responding farms (31.1%) only received independent tourists while very few of the farms fully relied on group tourists (2.9%) or field trip students (0.5%). These findings implied the RADs of Western Taiwan mostly attracted independent tourists, and the market of group tourists and field trip students would need further development.

Table 1: Tourist arrivals and revenues of the responding RAD farms

Variable	Item (Unit)	Number of Farms	Mean	Standard Deviation	Sum
Total Tourists	Annual Number of Tourists (Person)	604	6,631.96	20,801.00	4,005,704
Number of Tourists by Travel Type	Number of Independent Tourists (Person)	589	3,871.71	11,247.12	2,280,437
	Number of Group Tourists (Person)	593	2,286.85	10,024.92	1,356,101
	Number of Field Trip Students (Person)	593	513.28	2,795.53	304,375
Average Expenditure per Tourist	Amount of Average Expenditure per Tourist (USD)	598	16.65	20.88	-
Total Revenues	Annual Amount of Revenues (USD)	612	77,240.21	368,492.06	47,271,010
Share of Revenues by Source	Share of Basic Revenues (%)	597	4.64	17.41	-
	Share of Experience Revenues (%)	597	11.04	27.46	-
	Share of Catering Revenues (%)	597	30.55	41.17	-
	Share of Lodging Revenues (%)	597	24.86	39.61	-
	Share of Sale Revenues (%)	597	28.27	40.85	-
	Share of Service Revenues (%)	597	0.64	6.19	-

This study investigated the average expenditure per tourist, total revenues, and the share of revenue sources of the RAD farms in the western part of Taiwan. Around half of the tourists (47.1%) spent less than 10 USD per person, and only few (5.6%) spent 50 USD or more. On average, the expenditure per tourist in one farm was approximately 16.6 USD. Table 1 shows among the revenue sources, food catering accounted for the highest percentage of 30.6%, followed by sales of farm products (28.3%), and lodging (24.9%). Revenues from the experiential activities (11.0%), basic fees (4.6%), and additional services (0.6%) were relatively low.

B. Regional, Graded, and Yearly Comparisons

Based on the one-sample Kolmogorov-Smirnov Test, the data were found not normally distributed. This study, therefore, applied a non-parametric test, the Kroskal-Wallis H Test, to determine the differences in tourist arrivals and revenues of recreational farms according to their RADs' locations, evaluation grades, and years established.

To clarify the economic performances of RAD farms in different regions, this study examined the relationship of location with tourist arrivals and revenues. Results revealed that the share of tourist types and revenue sources varied in regions. As Table 2 shows, the RAD farms in the south region (11.8%) had significantly higher share of field trip students than those in the central region (6.1%). The south region (11.9%) also showed relatively higher share of basic revenues than the north (2.8%) and central (3.7%) regions. But lodging appeared to be a more important revenue source for recreational farms in the north (25.3%) and central (28.1%) regions than in the south region (10.9%). The RADs in the north region (19.9%) also had higher share of revenues from experiential activities than the central (7.6%) and south (8.5%) regions. On the other hand, one third of the revenues in the central (31.1%) and south (35.8%) came from sale revenues, but it only accounted for less than one fifth in the north region (18.2%). Furthermore, the number of tourists, average expenditure per tourist, and total

revenues in three regions showed no significant difference.

Table 2: Tourist arrivals and revenues of farms by location of RADs

Item	Location of RADs						H Value	p-value	Post Hoc Test (M-W test with Bonferroni correction)	
	North Region		Central Region		South Region					
Total Tourists (Person)	6,593.53		7,148.30		4,554.07		2.240	.326		
Independent Tourists (Person)	4,796.54		3,915.32		1,928.33		5.408	.067		
Group Tourists (Person)	1,368.76		2,750.29		2,135.69		0.061	.970		
Field Trip Students (Person)	465.60		534.55		516.34		3.614	.164		
Average Expenditure per Tourist (USD)	16.48		16.68		16.83		1.636	.441		
Total Revenues (USD)	71,855.30		84,864.92		55,716.98		3.204	.202		
Share of Basic Revenues (%)	2.75	b	3.72	b	11.90	a	11.338	**	.003	N, C < S
Share of Experience Revenues (%)	19.87	a	7.57	b	8.51	b	32.713	***	<.001	N > C, S
Share of Catering Revenues (%)	33.65		28.58		32.71		3.413		.182	
Share of Lodging Revenues (%)	25.25	a	28.11	a	10.91	b	9.895	**	.007	N, C > S
Share of Sale Revenues (%)	18.19	b	31.08	a	35.83	a	12.862	**	.002	N < C, S
Share of Service Revenues (%)	0.28		0.93		0.13		0.564		.754	

Note: * $p < .05$, ** $p < .01$, *** $p < .001$. Letters a, b, c next to values denote significant differences between groups; those that share the same letter are not significantly different from each other (Mann-Whitney test with bonferroni correction, $p < .017$). N = north region, C = central region, S = south region.

To understand the nature of RAD farms and improve the marketing strategies as well as economic effect of RADs, this study tested the relationship of RADs' grades with tourist arrivals and revenues. Results showed significant differences in total tourists, share of field trip students, average expenditure per

tourist, total revenues, share of experience revenues, share of lodging revenues, and share of sale revenues among graded RADs. The best grade, however, did not guarantee the relatively high amount of tourists and revenues.

Table 3: Tourist arrivals and revenues of farms by evaluation grade of RADs

Item	Evaluation Grade of RADs in 2011								H Value	Post Hoc Test (M-W test with Bonferroni correction)			
	Class B		Class C		Class D		Vulnerable				New		
Total Tourists (Person)	5,583.72	b	7,150.11	a	5,829.15	b	1,323.11		7,735.42	a	34.096	***	B, D < C, N
Independent Tourists (Person)	4,143.79		3,950.87		3,429.73		639.33		3,588.21		8.916		
Group Tourists (Person)	1,187.35		2,672.50		2,232.11		340.44		2,554.65		1.369		
Field Trip Students (Person)	315.92	c	579.96	ab	174.28	bc	343.33		1,324.48	a	22.577	***	B < C, N; D < N
Average Expenditure per Tourist (USD)	13.34	b	16.61	b	23.72	a	32.38		9.72	b	16.328	**	B, C, N < D
Total Revenues (USD)	69,201.08	b	86,877.28	a	39,814.87		43,665.99		72,503.00		16.207	**	B < C
Share of Basic Revenues (%)	3.70		3.69		12.03		0.00		8.00		2.442		
Share of Experience Revenues (%)	8.87	bc	12.09	b	1.52	c	0.00	bc	32.20	a	32.488	***	B, C, D, V < N; C > D
Share of Catering Revenues (%)	30.43		32.10		26.69		14.13		22.96		3.245		
Share of Lodging Revenues (%)	24.63	bc	21.90	c	42.53	ab	67.79	a	12.44	c	25.937	***	B, C, N < V; C, N < D
Share of Sale Revenues (%)	32.25	a	29.27		17.23	b	18.08		24.08		9.829	*	B > D
Share of Service Revenues (%)	0.12		0.94		0.00		0.00		0.32		5.299		

Note: * $p < .05$, ** $p < .01$, *** $p < .001$. Letters a, b, c next to values denote significant differences between groups; those that share the same letter are not significantly different from each other (Mann-Whitney test with bonferroni correction, $p < .005$). B = Class B, C = Class C, D = Class D, V = vulnerable, N= New.

For example, the farms of Class B had less tourists (5,584 people) and revenues (69,201.1 USD) than those of Class C (7,150 people and 86,877.3 USD). The farms of Class D also had a higher value of average expenditure per tourist (23.7 USD) than those of new establishment (9.7 USD), Class B (13.3 USD), and Class C (16.6 USD). In addition, the farms of new RADs had larger share of field trip students (17.5%) than those of Class B (2.8%) and Class D (4.2%). As for the revenue sources, sales of farm products were more significant to the farms of Class B (32.2%) than those of Class D (17.2%). Experience revenues were found most important to the farms of new RADs (32.2%) while it also accounted for higher share to Class C (12.1%) than Class D (1.5%). The lodging revenues, on the other hand, were more essential to farms of unevaluated RADs (67.8%) and Class D (42.5%) than those of Class C (21.9%) and new RADs (12.4%). Overall, these results presented the potentials of Class C and new RADs. The development of Class D and unevaluated RADs, however, might be hindered by the dependence on lodging revenues rather than on experiential activities and sales of agricultural products.

Time can be a factor to the strategies, revenues, and even customers' satisfaction of hospitality industries [15]. Results showed the founding period of the RAD would significantly affect the number of tourists, total revenues, and share of experience, catering, and lodging revenues. On average, the recreational farms of the later period RADs

(established in 2008-2010) attracted two to three times more tourists (14,493 people) than those of the middle period (6,429 people) and the early period (4,313 people) RADs. The group of early period also appeared to have lower revenues (83,573 USD) than the group of later period (104,828 USD) but higher than the group of middle period (68,728 USD and 7.23%). In addition, experience revenues were most important to the group of later period (30.2%) while the group of early period mainly relied on catering revenues (35.1%). The group of middle period, on the other hand, had much higher share of lodging revenues (31.0%) than the other groups. These findings indicated a better economic performance of recent established RADs than that of the earlier ones.

The differences in the revenue structure also assumed the change of agritourism in terms of type of activities and tourists' preferences with time. These results might further suggest despite the new RADs were most popular in the western part of Taiwan, the earliest RADs with more years of management experiences still could adapt to the market environment to maintain certain levels of revenues. The middle period RADs, meanwhile, had less diverse revenues, particularly from the experiential activities. But the groups of founding periods did not have significant differences in share of tourist type, average tourist expenditure, share of basic revenues, sale revenues, and service revenues.

Table 4: Tourist arrivals and revenues of farms by founding period of RADs

Item	Founding Period of RADs						H value	p-value	Post Hoc Test (M-W test with Bonferroni correction)	
	2000-2003		2004-2007		2008-2010					
Total Tourists (Person)	4,312.68	c	6,429.43	b	14,492.63	a	19.107	***	<.001	08-10 > 04-07 > 00-03
Independent Tourists (Person)	2,158.42	c	3,985.28	b	8,078.13	a	17.763	***	<.001	08-10 > 04-07 > 00-03
Group Tourists (Person)	1,916.77		1,999.45		4,809.66		4.937		.085	
Field Trip Students (Person)	315.80		445.45		1,410.46		1.840		.398	
Average Expenditure per Tourist (USD)	16.56		16.82		15.94		2.684		.261	
Total Revenues (USD)	83,572.55	b	68,727.92	c	104,828.42	ac	27.381	***	<.001	00-03 > 04-07; 08-10 > 00-03
Share of Basic Revenues (%)	5.69		4.05		4.76		1.536		.464	
Share of Experience Revenues (%)	11.33	b	7.23	c	30.19	a	41.842	***	<.001	08-10 > 00-03 > 04-07
Share of Catering Revenues (%)	35.13	a	29.08	b	25.37		7.627	*	.022	00-03 > 04-07
Share of Lodging Revenues (%)	17.77	b	30.99	a	12.81	b	16.997	***	<.001	04-07 > 00-03, 08-10
Share of Sale Revenues	29.42		27.96		26.64		2.732		.255	

(%)									
Share of Other Revenues (%)	0.66		0.70		0.24		2.034		.362

Note: * $p < .05$, ** $p < .01$, *** $p < .001$. Letters a, b, c next to values denote significant differences between groups; those that share the same letter are not significantly different from each other (Mann-Whitney test with bonferroni correction, $p < .0167$). 00-03 = RADs established between 2000 and 2003, 04-07 = RADs established between 2004 and 2007, 08-10 = RADs established between 2008-2010.

C. Correlation Analysis of Tourist Arrivals and Revenues

To reveal the importance of tourist types and revenue sources to RAD farms, this study analyzed the relationship between tourist arrivals and revenues. Results showed a strong positive correlation ($r_s = 0.795$, $p < .001$) between the number of tourists and total revenues (Table 5). Group tourists and field trip students also significantly contributed to tourist arrivals and total revenues while independent tourists seemed to be adverse. Independent tourists only had a significantly positive correlation with lodging revenues, which implied that independent tourists were more likely to stay overnight in the RAD farms. But they might not

highly participate in package tours, experiential activities, farm product purchase, and extra service requirement. Group tourists, on the other hand, could increase the revenues from basic fees, experiential activities, and sales of farm products. Field trip students might also help generate revenues from experiential activities (particularly), basic fees, and extra services; but they had a significantly negative correlation with lodging revenues. These findings showed different types of tourists might affect the weight of revenue sources in RAD farms. The reliance on independent tourists rather than group tourists or field trip students could suggest the low publicity of farms with few tourists and revenues.

Table 5: Correlations between tourist arrivals and revenues of the RAD farms

Item	TT	IT	GT	FTS	AET	TR	SBR	SER	SCR	SLR	SSR	SOR
TT	1.000											
IT	0.858 ***	1.000										
GT	0.647 ***	0.368 ***	1.000									
FTS	0.290 ***	0.099 *	0.395 ***	1.000								
AET	-0.234 ***	-0.219 ***	-0.093 *	-0.012	1.000							
TR	0.795 ***	0.679 ***	0.547 ***	0.296 ***	0.335 ***	1.000						
SBR	0.102 *	0.008	0.175 ***	0.237 ***	0.108 **	0.139 **	1.000					
SER	0.086 *	-0.035	0.143 ***	0.335 ***	-0.134 **	0.013	0.130 **	1.000				
SCR	0.290 ***	0.316 ***	0.095 *	-0.001	-0.332 ***	0.071	-0.095 *	-0.151 ***	1.000			
SLR	-0.189 ***	-0.149 ***	-0.091 *	-0.112 **	0.497 ***	0.082 *	-0.024	-0.218 ***	-0.274 ***	1.000		
SSR	-0.072	-0.091 *	0.041	0.056	-0.036	-0.046	-0.015	-0.046	-0.374 ***	-0.373 ***	1.000	
SOR	0.126 **	0.045	0.119 **	0.179 ***	0.036	0.132 **	0.103 *	0.132 **	-0.053	-0.038	0.091 *	1.000

Note: * $p < .05$, ** $p < .01$, *** $p < .001$. TT = total tourists, IT = independent tourists, GT = group tourists, FTS = filed trip students, AET = average expenditures per tourist, TR = total revenues, SBR = share of basic revenues, SER = share of experience revenues, SCR = share of catering revenues, SLR = share of lodging revenues, SSR = share of sale revenues, SOR = share of other revenues.

Moreover, high average tourist expenditure appeared to connect with high revenues but low number of tourists. Farms relied on basic fees and lodging revenues were also found have high average tourist expenditure while low expenditure tended to be in farms relied on experiential activities and catering revenues. Among the revenue sources, basic fees, lodging, and extra services were significantly favorable to total revenues. But catering and lodging were relatively monopolistic revenue sources and both had negative correlations with most of other sources, particularly sales of farm products. This may suggest providing catering and lodging in a RAD has not

effectively helped increase sales of farm products as expected. Furthermore, the dependence on experiential activities might accompany relatively high revenue shares of basic fees and extra services but low ones of catering or loading. These revealed the specialized revenue sources of RAD farms. But they have not jointly supported the total revenues.

CONCLUSIONS

This study indicated the economic contribution and characteristics of the Recreational Agriculture Districts in the western part of Taiwan. According to the data collected from nearly three fourths of the

recreational farms in the RADs, they received a total of more than 4 million tourists and generated above 47 million USD from July 2010 to June 2011. Since the number of tourists showed a highly positive correlation with the revenues and a negative one with the average tourist expenditure, the RADs may create inexpensive but exclusive products and activities to enrich brand identity for tourist attraction and consequently revenue growth. The number of tourists may also need to be limited according to the recreational carrying capacity to maintain the service quality and extend the period of time tourists would stay in the RADs.

In addition, we identified the travel type of tourists and revenue sources of the RADs. Independent tourists were the major visitors and highly correlated to the number of total tourists. Group tourists and field trip students, however, also showed significantly positive correlation with the increase of tourists and revenues. Therefore, the RADs may strengthen the collaboration with travel agents, public institutions, and schools. Furthermore, catering and sales of farm products were the major income sources of the RAD revenues, but basic fees, lodging, and extra services were found to be the relevant factors driving the total revenues. This suggested the farms may reconsider what are the key revenue sources and well use entrance fees, package tours, lodging, venue rental, or other services to increase their income.

In terms of the comparisons among regions, the RAD revenues of the south region showed relatively high dependence on sales of farm products and entrance fees while those of the north region had relatively high reliance on lodging and experiential activities. These variations between regions inferred necessity of applying different managerial strategies for attracting tourists.

As for the graded comparison, the best biennial evaluation grade of RADs did not guarantee the best performance in tourist arrivals and revenues. The Class C RADs received significantly higher number of tourists and revenues than the Class B RADs in 2011. The main revenue sources were also varied in RADs with different grades. Compared with the Class D RADs, there was higher reliance on sales of agricultural products in the Class B RADs and experiential activities in the Class C RADs. Moreover, the Class D and vulnerable RADs were found highly rely on lodging for revenues. These findings may also suggest providing experiential activities and selling farm products to enhance the evaluation grades, tourist arrivals, and revenues of RADs.

The founding period was also related to tourist arrivals and revenues of RADs. The latest established RADs had more tourists and better economic performance than the earliest ones did. This implies the essentiality for the RADs to sustain a stable alliance and close cooperation among the member farms through time. The high share of experience revenues of latest established RADs may also suggest the current preference of tourists for participating in experiential activities.

In sum, this study showed the RADs in the western part of Taiwan have been well developed and attracted a large number of tourists. The evaluation grades and founding periods of these RADs can be determinants of tourist arrivals and revenues. The findings from the comparison analysis also provided clues for the RADs to adopt different managerial strategies according to their characteristics to stand out in the increasingly competitive market. Implications of this study for policymaking and farm management are also discussed below.

Implications for Policy and Practice

The Recreational Agriculture Districts are based on communities with mostly small-scale recreational farms. The results of this study revealed the RADs had substantial contribution to local economy. Moreover, from the pattern of tourist types and revenue sources, this study proposed some recommendations for further growth of agritourism industry in Taiwan.

According to the Article 8-1 of Regulation for Counseling and Governance of Recreation Agriculture amended in 2011, the designation of a RAD with twice evaluations and both classified as Class D will be revoked. To improve the operational performance of Class D and vulnerable RADs, therefore, the local governments may guide them to reduce reliance on lodging revenues but designing more agricultural products and experiential activities. Meanwhile, the revenue estimation of RADs may represent the district effect and progress of agritourism industry. It is also fundamental to constitution amendment, policy revision, and institutional reform for the future development of agritourism. But currently, the collected data were likely to be conservative because some farm managers did not keep full records while some were cautious about providing financial information. Hence, the central government needs to encourage farm managers to record and provide realistic numbers to ensure the accuracy of national estimation.

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REFERENCES

1. Barbieri C. A comparison of agritourism and other farm entrepreneurs: Implications for future tourism and sociological research on agritourism. Paper presented at the the 2008 Northeastern Recreation Research Symposium, Bolton Landing, NY. 2008 Mar 30 - Apr 1.
2. Che D. Agritourism and its potential contribution to the agricultural economy. CAB Reviews: Perspectives in Agriculture, Veterinary Science, Nutrition and Natural Resources. 2007; 2(63):1-7.
3. Demonja D, Bacac R. Agritourism development in Croatia. *Studies in Physical Culture and Tourism*. 2011; 18(4), 361-370.
4. Tew C, Barbieri C. A visitation-based profile of agritourism farms in Missouri. Paper presented at the Proceedings of the 2010 Northeastern Recreation Research Symposium, The Sagamore Resort, Bolton Landing, NY. 2010 Apr.
5. McGehee NG, Kim K. Motivation for agri-tourism entrepreneurship. *Journal of Travel Research*. 2004; 43(2):161-170.
6. Shehrawat PS, Mehta SK, Hu da RS. Agricultural tourism for sustainable rural development. Paper presented at the International Scientific Conference: Rural Development, Akademija, Lithuania. 2011.
7. Tew C, Barbieri C. The perceived benefits of agritourism: The provider's perspective. *Tourism Management*. 2012; 33(1):215-224.
8. Huang TC. Survey of the output value of recreational agriculture. Taipei: Council of Agriculture and National Chung Hsing University; 2005.
9. Council of Agriculture. Agricultural statistics yearbook 2011. Taipei: Council of Agriculture; 2012.
10. Tuan CL, Chang WI. Impact evaluation study of recreational agriculture districts. Taipei: Council of Agriculture and Taiwan Leisure Agriculture Association; 2011.
11. Taiwan Leisure Agriculture Association. Evaluation report of recreational agriculture districts in 2010. Taipei: Council of Agriculture; 2010.
12. Chen KL. Evaluation report on economic effects of agritourism in Hualien County in 2011. Taipei: Council of Agriculture; 2011a.
13. Chen KL. Evaluation report on economic effects of agritourism in Taitung County in 2011. Taipei: Council of Agriculture; 2011b.
14. Chen KL. Evaluation report on economic effects of agritourism in Yilan County in 2011. Taipei: Council of Agriculture; 2011c.
15. Modica P, Landis C, Pavan A. Yield management and coastal hospitality industry demand. *Tiltai-Bridges*. 2009; 47(3):53-66.