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Unveiling the Agricultural Productivity of Aida Aurora Nature's Farm in Majayjay, Laguna: Basis for Business Tourism Plan

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ABSTRACT:

Agricultural productivity is a measure of efficiency and effectiveness with which agricultural resources are used to produce crops and livestock. It quantifies how much agricultural output is generated from a given set of inputs like land, labor, fertilizers, seeds, and technology, essentially focusing on maximizing yield while optimizing resource utilization.

This study aimed to assess the agricultural productivity of Aida Aurora Nature's Farm in Majayjay, Laguna for business tourism plan. The researchers examined the farm's demographic profile in terms of farm type, monthly yield, number of workers, farm size, and farm facilities, as well as its productivity levels regarding gross farm income, crop diversity, market demand, technology adoption, and environmental sustainability. It aimed to bridge the gap between agricultural productivity and its potential for business tourism plan.

The study employed a descriptive-correlational survey method, and the data was collected through structured questionnaires distributed to farm owners and workers, selected through purposive sampling. The gathered data were then analyzed using statistical treatments including frequency distribution, percentage, mean, standard deviation, and Pearson correlation coefficient. The study's findings contributed to understanding how agricultural productivity factors could influence business tourism development, specifically in the context of Aida Aurora Nature's Farm's potential for agritourism operations.

The findings indicated that Aida Aurora Nature's Farm is a polyculture farm focused on small-scale production, employing both conventional and organic farming practices. The farm demonstrated high levels of productivity across multiple variables. However, the study found no significant relationship between the farm's demographic profile and its productivity level. These findings suggest that small-scale farms can achieve substantial productivity regardless of demographic profile, indicating that other factors may be more influential in determining farm productivity.

Keywords: Majayjay, Laguna, Aida Aurora Nature's Farm, Agricultural Productivity, Business Tourism, Business Tourism Plan

Introduction:

The Philippines stands as an agricultural country with a rapidly growing tourism industry, focusing on natural attractions and ecotourism. In the context of Majayjay, Laguna, Aida Aurora Nature's Farm exemplifies the potential of integrating agricultural productivity with business tourism development. Business tourism development in the agricultural sector offers opportunities for economic growth and innovation, particularly in regions like Majayjay with abundant natural resources. In recent years, the combination of agricultural productivity and business tourism offers a promising pathway to stimulate rural economic development while showcasing local agricultural capabilities and cultural heritage. Modern agricultural practices, as demonstrated by Aida Aurora Nature's Farm, increasingly integrate efficient farming methods with innovative tourism experiences.

Business tourism in the agricultural sector, often referred to as agribusiness tourism, is gaining traction as businesses and professionals seek authentic experiences that connect them to rural economies and local agricultural innovations. For Aida Aurora Nature's Farm, this approach presents an opportunity to showcase the agricultural practices unique to Majayjay and the broader Laguna region. Tourism-integrated farms allow visitors to explore agricultural operations through specialized tours, workshops, and demonstrations of cutting-edge farming practices. By examining the farm's current operations, agricultural productivity, and tourism potential, the research aims to provide insights that could benefit not only this specific enterprise but also contribute to broader understanding of agricultural diversification in rural Philippine communities.

Methodology:

Quantitative descriptive-correlational research design was utilized in this study to determine the relationship between the farm's profile and its agricultural level of productivity. Ten (10) respondents including the owner, six (6) farmers, and three (3) workers of Aida Aurora Nature's were chosen using the purposive sampling to complete the questionnaire. The data was gathered through a structured survey questionnaire and analyzed in a quantitative way using statistical tools namely: percentage, mean, standard deviation, and Pearson correlation coefficient.

Results

Table 1. Demographic Profile of Aida Aurora Nature's Farm

		Frequency	Percentage
Crop Farm	Polyculture	10	100%
	Monoculture	0	0%
Purpose of the Farm	Subsistence/Small-scale production	10	100%
	Commercial/Large-scale production	0	0%
	Agritourism/Educational	0	0%
Farming Practice	Conventional	5	50%
	Organic	5	50%
Monthly Yield	Less than 1 ton	0	0%
	1 to 5 tons	0	0%
	6 to 10 tons	10	100%
	11 to 20 tons	0	0%
	More than 20 tons	0	0%
Highest Yield	January to March	0	0%
	April to June	0	0%
	July to September	0	0%
	October to December	10	100%
Lowest Yield	January to March	0	0%
	April to June	10	100%

	July to September	0	0%
	October to December	0	0%
Full-Time Workers	1 to 5 workers	10	100%
	6 to 10 workers	0	0%
	11 to 20 workers	0	0%
Seasonal Workers	1 to 5 workers	1	10%
	6 to 10 workers	9	90%
Total Land Area of the Farm	1 hectare	10	100%
	2 hectare	0	0%
	3 hectares	0	0%
Total Land Area Utilized	Less than 25%	0	0%
	25% to 50%	0	0%
	51% to 75%	2	20%
	More than 75%	8	80%
Farm Facilities	Greenhouses, Irrigation System, Storage Facilities, Processing Facilities	5	50%
	Greenhouses	5	50%
Land Area Covered by the Greenhouses	Less than 50 square meters	10	100%
	50 to 100 square meters	0	0%
	100 to 150 square meters	0	0%
	150 to 200 square meters	0	0%
Types of Irrigation System	Drip Irrigation System	0	0%
	Sprinkler Irrigation System	1	10%
	Surface Irrigation System	9	90%

Types of Storage Facilities	Silos	0	0%
	Warehouse	10	100%
	Cold Storage	0	0%
Types of Processing Facilities	Cleaning	1	10%
	Cleaning, Sorting	6	60%
	Cleaning, Sorting, Packaging	3	30%
Types of Machinery and Equipment	Tractors	10	100%
	Plows	0	0%
	Harvesters	0	0%
	Milking Machines	0	0%

Crop Farm

The respondents of the study were on the purpose of polyculture with 100% of responses. Polyculture is a farming system that cultivates multiple crops simultaneously within a specific area. According to the study of Flores (2019), industrial agriculture relies on monoculture systems to grow single crop species in large areas which is not beneficial to the environment. On the other hand, growing organic crops using polyculture is a common design feature in the practice of permaculture, a design-based philosophy for sustainable living.

Purpose of the Farm

The respondents of the study were on the purpose of subsistence/small-scale production with 100% responses. Subsistence farming is a type of agriculture where farmers produce food primarily for their own consumption and their families, with little surplus for sale. Dhillon and Moncur (2023), stated that smallholder farmers are important for global food security. Beyond food production, small-scale farming offers multiple benefits across environmental, social, cultural, and economic domains by enhancing crop diversity, employment stability, and self-reliance.

Farming Practice

The respondents practicing conventional and organic obtained 5 responses which represents 50% of the total sample size. A study by Sheoran et al. (2019) stated that as the world population grows, the demand for food production increases, ultimately creating a huge pressure on our shrinking natural resources. Researchers have realized that with this increased demand for food, conventional farming would neither be able to increase productivity nor would be able to improve the soil quality and there is a need for an alternative farming practice to conserve our environment while sustaining the natural resources. Among the alternative practices, organic farming, which is very popular, aims at reducing the use of synthetic fertilizers and pesticides in order to improve production and ecosystem health.

Monthly Yield

The respondents of the study obtained 6-10 tons of monthly yield with 100% responses. The high yield range indicates that the farms in the area are generally productive, despite potential challenges such as climate variability and limited resources. According to J-PAL and CEGA (2024), farmers require market access both for purchasing agricultural inputs (such as fertilizers, seeds, agro-chemicals, credit, and insurance) and for selling their produce. In many low- and middle-income countries, remote areas experience high transport costs, poorly connected markets, and farmers who may be isolated or marginalized, unable to engage with markets as either sellers or buyers. Small-scale farmers particularly encounter numerous barriers to market access, or accessing markets at the appropriate time, which negatively impacts their profitability.

Highest Yield

Respondents were distributed to the month with the highest yield. The respondents of the study show October to December were the month with the highest yield with 100% responses. A study by Bedane et al. (2022) found that understanding the yearly, seasonal, monthly, and weekly rainfall variability is crucial for improved agricultural practice in areas where agriculture depends on rainfall. In particular, annual and seasonal rainfall information is important to overcome the social and economic problems for farmers who entirely depend on rainfall.

Lowest Yield

The respondents of the study show April to June were the month with lowest yield with 100% responses. Climate change poses a significant threat to the agricultural sector around the world, according to a study by Baltazar (2024), and it could impact the crop yields of the Philippines. Climate change is a serious threat to the agricultural sector worldwide. The changing precipitation patterns and extreme weather events associated with climate change, such as heatwaves, droughts, and heavy rainfall, have the potential to negatively impact crop yields.

Full-Time Workers

The respondents of the study answered 1 to 5 workers that yield with 100% responses. According to Olanrewaju (2020), the results revealed that small scale farmers perceived a lack of access to human labour for agricultural activities. High cost of labour, lack of fund and scarcity of labour are the major challenges experienced by the farmers in accessing labour for agricultural production. Based on the findings, the research concluded that small-scale farmers do not have good access to labour while facing serious challenges which has resulted into increased cost of production for the small-scale farmers.

Seasonal Workers

Out of 10 respondents were mostly 6 to 10 workers or 90% of the respondents. Whereas 1 to 5 workers or 10% are the least number of respondents. According to Feuerbacher et al. (2020), seasonality is a salient feature of rural livelihoods and particularly within agriculture the demand for labor varies with the seasons and weather. Seasonal workers provide the flexible workforce needed to handle peak agricultural activities like planting and harvesting, particularly in Aida Aurora Nature's Farm. Their work is important for food production, economic stability, and rural household income.

Total Land Area of the Farm

The respondents of the study answered 1 hectare that yielded 100% responses. A study by Moreno-Perez et al. (2023) highlights the contribution of small farms to food security, which goes beyond food self-provisioning. The economic activity generated by small farms like Aida Aurora Nature's Farm contributes to the overall development of the local community.

Total Land Area Utilized

Out of 10 respondents were least with 2 or 20% of the respondents utilized 51% to 75% of the land area. Whereas 8 to 10 workers or 80% are the greatest number of respondents with more than 75%. According to Yan (2021), the scale of agricultural land management was scientifically measured to provide a theoretical reference for improving the efficiency of agricultural land utilization, optimizing the industrial structure, and effectively solving the rural problems.

Farm Facilities

The respondents answered greenhouses, irrigation systems, storage facilities, processing facilities and greenhouses only obtained 5 responses which represents 50% of the total sample size. A study by Suwada et al. (2022) found that agricultural and extension facilities are the most influential on the effectiveness of the work of farmer groups. In addition, agricultural facilities have a positive and significant effect on production results through the effectiveness of the work of farmer groups.

Total Land Area Covered by the Greenhouses

The respondents of the study answered less than 50 square meters with 100% responses. According to Li et al. (2022), greenhouse cultivation provides an artificially controlled environment for the off-season production of vegetables and has played an increasingly important role in agriculture production systems in recent decades.

Types of Irrigation Systems

Out of 10 respondents were mostly surface irrigation systems or 90% of the respondents. Whereas sprinkler irrigation systems or 10% are the least number of respondents that fall on this type of irrigation system. According to Goncalves et al. (2021), the advantages of surface irrigation include its simplicity of application at farms in flat areas with low infiltration rates, specifically when water conveyance and distribution are performed with canals or low-pressure pipe systems, accompanied by low capital investment and low energy consumption.

Types of Storage Facilities

The respondents of the study answered the warehouse with 100% responses. According to Sharma (2024), storage of harvested crops is an important step. Many crops are seasonal and are not available throughout the year. Storing crop harvest ensures a stable and continuous supply of food for the population, especially during times of scarcity, natural disasters, or other unforeseen circumstances.

Types of Processing Facilities

Out of 10 respondents were mostly cleaning and sorting or 60% of the respondents. Next is cleaning, sorting and packaging with 3 responses or 30 %. Lastly, cleaning only or 10% are the least number of respondents who fall on this type of processing facility. According to Dogtores (2024), sorting involves assessing quality parameters to ensure uniformity and freshness of crops. By meticulously sorting through the harvest, growers can eliminate defective crops, ensuring only the best-quality produce reaches the market. Additionally, packaging securely is essential to protect crops during

transportation, with logistical considerations ensuring timely and efficient shipping. Choosing the right packaging materials helps to maintain the freshness and quality of the crops.

Types of Machinery and Equipment

The respondents of the study answered the warehouse with 100% responses. According to Boyle (2024), agriculture has undergone a radical transformation in the past century, and at the heart of this revolution is the agriculture tractor. An agriculture tractor is a powerful, versatile vehicle engineered for a wide array of farming tasks.

Table 2. Agricultural Productivity of Aida Aurora Nature's Farm

	Indicators	Mean	SD	VI
Gross Farm Income	The farm has a high gross income.	4.00	0.00	High
	The farm has maintained a stable and consistent gross income over the past months.	2.90	0.94	Average
	The farm can maintain profitability despite fluctuation in market production costs.	3.90	0.30	High
	Average	**3.60**	**0.41**	**High**
Crop Diversity	There is a diversity of crops grown at the farm.	4.20	0.40	High
	The farm can adapt to changing market demands by introducing new crop varieties.	4.10	0.54	High
	Farm efforts are present in preserving and promoting local crop varieties.	4.09	0.54	High
	Average	**4.13**	**0.49**	**High**
Market Demand	The farm's products have a high market demand.	4.80	0.40	Very High
	The farm has a high responsiveness to changing consumer preferences and market trends.	4.00	0.45	High
	The farm is able to meet the current market demand for its products.	4.20	0.40	High
	Average	**4.33**	**0.42**	**Very High**
Technology Adoption	The farm has invested in advanced machinery and equipment for farming operations.	4.51	0.50	Very High
	The farm adopts modern agricultural technologies.	4.60	0.49	Very High
	The farm is willing to adopt new and innovative farming practices.	4.50	0.50	Very High

	Average	**4.53**	**0.50**	**Very High**
Environmental Sustainability	The farm implements environmentally sustainable practices.	4.90	0.30	Very High
	The farm promotes biodiversity conservation and habitat protection on its premises.	4.80	0.60	Very High
	The farm is committed to sustainable waste management and recycling practices.	4.50	0.50	Very High
	Average	**4.73**	**0.47**	**Very High**

Gross Farm Income

The respondents obtained a total mean of 3.60 indicating that the level of productivity in terms of gross farm income among the respondents is high. Mishra et al. (2020) examined farm income and its variability among U.S. farm households. They found that while many farms reported high gross incomes, there was significant variability in income stability over time, particularly for smaller farms and those specializing in certain commodities. Farm households, on average, report higher incomes than non-farm households, but this income is subject to greater variability due to factors such as weather, pests, and market fluctuations".

Crop Diversity

The respondents obtained the total mean of 4.13 indicating that the level of productivity in terms of crop diversity among the respondents is high. Tamburini et al. (2020) conducted a global meta-analysis on the effects of crop diversity on the sustainability of agricultural systems. They found out that crop diversification consistently improved ecosystem services and crop productivity. They noted, "Diversification practices generally resulted in win-win support of both ecosystem services and crop productivity".

Market Demand

The respondents obtained the total mean of 4.33 indicating that the level of productivity in terms of market demand among the respondents is very high. A study by Suvedi et al. (2017) examined the relationship between market demand and farm productivity in developing countries. They found that market demand significantly influences farmers' decisions and productivity levels. Suvedi et al. (2017) also noted farmers who perceive high market demand for their products are more likely to invest in productivity-enhancing technologies and practices. This aligns with the high scores for market demand in the study, suggesting that the farmers' perception of strong market demand may be driving their productivity efforts.

Technology Adoption

The respondents obtained the total mean of 4.53, indicating that the level of productivity in terms of technology adoption among the respondents is very high. A comprehensive study by Lowenberg-DeBoer and Erickson (2019) examined the global trends in adoption of precision agriculture technologies. They found that technology adoption in agriculture has been increasing rapidly, driven by the potential for improved efficiency and productivity. The authors noted, "Precision agriculture technologies have the potential to help farmers produce more with less, reduce environmental impacts, and improve profitability". A study by Khanal et al. (2018) examined the impact of precision agriculture technology adoption on farm productivity and profitability. They found significant positive effects, particularly for larger farms. It was concluded that adoption of precision agriculture technologies was associated with higher total productivity and operating profit margin.

Environmental Sustainability

The respondents obtained the total mean of 4.73 indicating that the level of productivity in terms of technology adoption among the respondents is very high. A comprehensive review by Pretty and Bharucha (2019) examined the role of sustainable intensification in global food security. They found that sustainable agricultural practices can significantly improve productivity while reducing environmental impacts. Sustainable intensification comprises agricultural processes or systems where production is maintained or increased while progressing towards substantial enhancement of environmental outcomes. Farmers are recognizing the importance of balancing productivity with environmental stewardship. A study by Borrello et al. (2020) examined farmers' attitudes towards circular economy strategies, including waste management and recycling in agriculture. They found increasing awareness and adoption of these practices among farmers. Farmers are increasingly recognizing the potential of circular economy strategies to improve farm efficiency and reduce environmental impacts.

Table 3. Relationship between Demographic Profile and Level of Productivity of Aida Aurora Nature's Farm

Farm's Profile	Performance Level	r value	p value	Analysis
Type of Farm	Gross Farm Income	0.13	0.20	Not Significant
	Crop Diversity	0.11	0.23	Not Significant
	Market Demand	0.10	0.55	Not Significant
	Technology Adoption	-0.03	0.48	Not Significant
	Environmental Sustainability	0.11	0.12	Not Significant
Monthly Yield	Gross Farm Income	0.00	1.00	Not Significant
	Crop Diversity	0.00	1.00	Not Significant
	Market Demand	0.00	1.00	Not Significant
	Technology Adoption	0.00	1.00	Not Significant
	Environmental Sustainability	0.00	1.00	Not Significant
Number of Workers	Gross Farm Income	-0.13	0.73	Not Significant
	Crop Diversity	0.13	0.72	Not Significant
	Market Demand	0.00	1.00	Not Significant
	Technology Adoption	-0.27	0.45	Not Significant
	Environmental Sustainability	0.20	0.07	Not Significant
Farm Size	Gross Farm Income	0.17	0.17	Not Significant
	Crop Diversity	0.20	0.59	Not Significant
	Market Demand	0.00	1.00	Not Significant
	Technology Adoption	-0.21	0.24	Not Significant
	Environmental Sustainability	0.20	0.58	Not Significant
Farm Facilities	Gross Farm Income	0.16	0.10	Not Significant
	Crop Diversity	0.22	0.55	Not Significant

Market Demand	0.00	1.00	Not Significant
Technology Adoption	-0.22	0.10	Not Significant
Environmental Sustainability	0.19	0.33	Not Significant

Significant at 0.05

The demographic profile was observed to have an insignificant relationship with level of productivity among respondents. Furthermore, the p-values obtained was greater than the significance alpha 0.05. From the findings above, we can infer that at 0.05 level of significance, the null hypothesis "There is no significant relationship between profile of Aida Aurora Nature's Farm and level of productivity." is failed to be rejected. Research by Sheng et al. (2019) focused on the relationship between farm characteristics and productivity in Australian broad acre agriculture. They found that while some farm characteristics were significant, others were not. Farm size and capital intensity were significantly related to productivity, while farmer age and education had minimal impact. Demographic factors may not always be the most crucial determinants of farm productivity.

Conclusion

Based on the findings presented in Chapter 4 of the study, the researchers have concluded the following:

- Aida Aurora Nature's Farm operates as a polyculture crop farm, engaging in subsistence and small-scale production using both organic and conventional farming methods.

- The farm experiences seasonal fluctuations in yield, with the highest production occurring from October to December and the lowest from April to June. The farm employs 1 to 5 full-time workers and 6 to 10 seasonal or part-time workers to manage its operations.

- The total farm size is approximately 1 hectare, with more than 75% of the land utilized for farming activities. The farm is equipped with greenhouses, a surface irrigation system, storage warehouses, processing facilities, and tractors as main machinery and equipment.

- The overall mean of 3.60 for gross farm income, 4.13 for crop diversity, 4.33 for market demand, 4.53 for technology adoption, and 4.73 for environmental sustainability reflects high agricultural productivity.

- The study revealed no significant relationship between the farm's demographic profile and its different levels of productivity. This finding indicates that for Aida Aurora Nature's Farm, the farm's demographic profile is not the primary driver of productivity. Instead, it implies that other factors related to management practices, technological implementation, or marketing strategies might play a more important role in determining the farm's productivity levels across different

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