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Agritourism as a Sustainable Tourism Development Strategy in Píllaro Canton, Ecuador

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Abstract: This study analyzes agritourism as a sustainable tourism development strategy in Santiago de Píllaro, Tungurahua Province, Ecuador. Employing a mixed-methods approach that integrates 371 visitor surveys, key stakeholder interviews, direct observation, attraction inventories, and territorial analysis, this paper examines the relationship between agritourism and tourism development. The Pearson chi-square test yielded (,), indicating a statistically significant association between the analyzed variables. The findings also reveal favorable perceptions toward agritourism driven by its environmental, employment, and community benefits. The discussion emphasizes the need to integrate rural supply, infrastructure, governance, digital promotion, and sustainability to effectively transform agricultural resources into competitive tourism experiences.

Keywords: agritourism; tourism development; rural tourism; sustainability; Píllaro; Ecuador

1. Introduction

Santiago de Píllaro Canton combines an economy deeply rooted in agriculture and livestock with natural, cultural, and landscape resources capable of supporting rural tourism products. The thesis by Villavicencio Carrillo [1] documents these conditions through a socio-cultural, economic, environmental, and political-institutional characterization, an inventory of tourist attractions, supply and demand analyses, key stakeholder interviews, and farm technical data sheets. The study relies on 371 surveys administered to visitors, using a reference population of 11,076 tourists registered at the Llanganates National Park during 2024. This volume of data enables the transition from a descriptive overview of the destination to actionable decisions concerning product design, market segmentation, pricing, promotion, and management. Agritourism offers a viable pathway for economic diversification, which is particularly relevant for territories where agriculture and livestock farming remain the predominant economic activities. Its potential contribution extends beyond direct visitation revenue: it can stimulate direct sales, local gastronomy, handicrafts, transportation, guiding services, and lodging, while simultaneously revitalizing traditional productive knowledge and cultural landscapes. Nonetheless, realizing this potential depends on strategic planning that safeguards territorial authenticity, mitigates adverse impacts, and ensures that socioeconomic benefits are equitably distributed among local stakeholders.

2. Conceptual Foundations

Agritourism constitutes a subfield of rural tourism distinguished by the direct integration of agricultural and agro-industrial processes into the visitor experience. Blanco and Riveros [2], alongside Riveros and Blanco [5], emphasize that its differential value arises when actual productive activities—such as sowing, harvesting, milking, food processing, livestock care, tasting, and practical learning—are transformed into interpretive content. In this regard, a farm does not automatically become a tourist attraction merely by receiving visitors; it requires specific conditions regarding safety, narrative structure, service quality, accessibility, and management. Sustainable tourism development, on the other hand, harmonizes economic viability, socio-cultural inclusion, and environmental conservation. This threefold condition is particularly relevant in Píllaro, given that its territory integrates high-altitude grasslands (páramos), dairy production, agriculture, cultural festivities, and family-owned enterprises. A growth strategy that fails to account for ecological carrying capacity or local identity risks imposing undue pressure on natural resources without securing long-term benefits.

Table 1. Sustainability Dimensions of Agritourism

Dimension	Expected Contribution of Agritourism	Risk to Be Managed
Economic	Income diversification, employment generation, and direct product sales	Seasonal dependency, local inflation, or low profitability
Socio-cultural	Revaluation of traditions, gastronomy, and agricultural practices	Folklore exploitation or loss of authenticity
Environmental	Environmental education and valuation of the productive landscape	Waste accumulation, ecosystem pressure, and overcrowding
Institutional	Cooperation between Decentralized Autonomous Governments (GADs), farms, and the tourism sector	Fragmentation and lack of coordination

3. Methodology

This study adopts a mixed-methods approach. The quantitative component relies on a structured survey administered to 371 visitors, whereas the qualitative component employs semi-structured interviews with institutional and agricultural stakeholders, complemented by direct observation using technical evaluation sheets. Quantitative data were processed using SPSS software, performing frequency distributions, cross-tabulations, and Chi-Square (chi^2) tests of independence. The development of the tourism product framework followed the Agritourism Product Design and Operation methodology proposed by González et al [4], structured into two primary phases: evaluation of territorial potential and product design-operation. This methodological integration is appropriate because rural tourism cannot be comprehensively analyzed solely from the demand side (visitors) or exclusively from the supply side (providers); it necessitates combining visitor demand, local resources, productive capacity, and territorial governance. The sample size was determined using the formula for finite populations, assuming a 95% confidence level, a 5% margin of error, and maximum variance ($p=q=0.5$), resulting in a target sample of 371 respondents. Combining surveys with interviews and observational checklists enabled the triangulation of demand-side perceptions with the actual operational capacities of the farms and the strategic vision of institutional stakeholders. This triangulation strengthens the analytical interpretation, although it should be noted that using visitors to the Llanganates National Park as a sampling frame provides an approximation of tourist movement at the canton level rather than an exhaustive census of all visitors to Píllaro.

4. Results

The sample exhibits a balanced gender distribution and a marked predominance of domestic visitors. Individuals aged 18 to 39 account for a significant proportion of total demand, a demographic trait that is strategic for designing active experiences, digital content, and streamlined purchasing channels. This composition does not exclude other market segments; on the contrary, it requires agritourism products that are scalable in terms of physical effort, duration, and interpretive depth, as illustrated in Figure 1-

encuesta.

Figura 16

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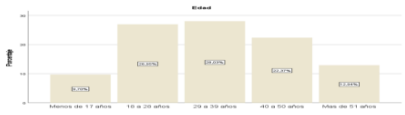

Análisis e interpretación: Según las 371 encuestas aplicadas se obtiene como resultado que el 9,70% corresponde a menores de 17 años, el 26,95% se encuentra entre los 18 y 28 años, el 28,03% pertenece al grupo de 29 a 39 años, el 22,37% que se ubica entre los 40 y 50 años, y finalmente un 12,94% corresponde a personas mayores de 51 años. Estos resultados muestran que la mayoría de encuestados son

Figure 1. Sample distribution by age group. Source: Villavicencio Carrillo (2026).

The results regarding activity preferences demonstrate strong interest in offerings tied to gastronomy, livestock management, crop cultivation, farm tours, and hands-on workshops. These findings confirm that the agritourism product must not be limited to passive landscape observation. Rather, agritourism is generated through active participation, experiential learning, and direct engagement with authentic productive practices.

5. Perceived Benefits and Willingness to Pay

finalmente un 17,52% señaló que le gustaría participar en talleres de cocina o artesanías. Lo que evidencia que las actividades más llamativas para el turista están relacionadas con la alimentación y cuidado de animales, mientras que otros tienen intereses por las actividades de cultivos y paseos en granjas.

Figura 31

Beneficio del agroturismo en el cantón Pillaro

Análisis e interpretación: Según las 371 encuestas aplicadas, el 45,01% considera que el principal beneficio del agroturismo en el cantón Píllaro es la conservación del medio ambiente, el 38,27% señala que el agroturismo contribuiría a la generación de empleo y finalmente, el 16,71% considera que el agroturismo fortalecería a la comunidad. Por lo que la mayoría de los encuestados considera que la conservación del medio ambiente es un factor importante para el agroturismo y solo una minoría apoya al empleo y al fortalecimiento de la comunidad.

Figura 32

Precio por actividad agroturística en el cantón Pillaro

The perceived benefits of agritourism reveal three core components. Environmental conservation is identified as the primary benefit by 45.01% of respondents, followed by employment generation (38.27%) and community strengthening (16.71%). This distribution suggests that sustainability does not function merely as an institutional narrative; rather, it constitutes an integral part of visitor expectations. Consequently, agritourism experiences must actively showcase sound environmental practices, waste management protocols, resource conservation, and education regarding food origin, as shown in Figure 2-

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Figure 2. Perceived benefits. Source: Villavicencio Carrillo (2026).

As shown in Figure 3, regarding pricing, the most representative group of respondents (48.79%) expresses a willingness to pay (WTP) between USD 11 and 15 for an agritourism experience. While this range serves as a useful benchmark for standalone activities, it should not be confusing with the pricing of comprehensive routes that encompass transportation, meals, admission fees, and guided tours. The underlying research formulates differentiated budget models for full packages, underscoring the necessity of distinguishing between single-activity pricing and all-inclusive package pricing.

Farm Technical Data Sheet	
Farm name: Shamui Garden by Los Geranios	**Parish:**Presidente Urbina
Farm owner name: Nelson López	**Community:** Chagrapamba
Location	**Photograph**
	

Figure 3. Willingness to pay for agritourism activities. Source: Villavicencio Carrillo (2026).

6. Association Between Agritourism and Tourism Development

To test the research hypothesis, responses to two primary variables were cross-tabulated: whether agritourism contributes to the tourism development of Píllaro and whether the canton is closely linked to tourism activities Table 2. The resulting cross-tabulation comprises 371 valid cases ($N = 371$) and demonstrates a strong concentration of favorable responses within the "agree" and "strongly agree" categories.

Table 2. Do you believe that the canton of Píllaro is closely linked to tourism? and Do you believe that agritourism contributes to tourism development in the canton of Píllaro?

Item	Agree	Disagree	Neither Agree nor Disagree	Strongly Agree	Total
Agree	53	4	35	60	152
Disagree	1	3	1	2	7
Neither Agree nor Disagree	16	3	17	22	58
Strongly Agree	30	4	18	102	154
Total	100	14	71	186	371

As presented in Table 3, Pearson's Chi-Square statistic was 59.543, with 9 degrees of freedom ($df = 9$) and a two-tailed asymptotic significance level of $p < 0.001$. Under the conventional alpha threshold (alpha = 0.05), this result rejects the null hypothesis of independence, supporting the existence of a statistically significant association between the measured variables. Nevertheless, it should be noted that five cells yielded expected counts of less than five; therefore, while the interpretation remains valid as empirical evidence of an association within this study, future research should complement these findings by collapsing sparse categories or employing robust statistical procedures.

Table 3. Chi-Square Test

	Value	gl	Asymptotic Significance (2-sided)
Pearson Chi-Square	59,543 α	9	<,001
Likelihood Ratio	40,582	9	<001
N of Valid Cases	371		

7. Territorial Supply and Local Capacity

The territorial diagnosis identified four farms with agritourism potential, alongside a complementary network of accommodations, restaurants, parks, and cultural and natural attractions. The rural supply is underpinned by dairy production, crop cultivation, agroecology, dried flower production, local gastronomy, and traditional artisanal knowledge. This diversity represents a strategic advantage for designing thematic routes and mitigating reliance on a single primary attraction.

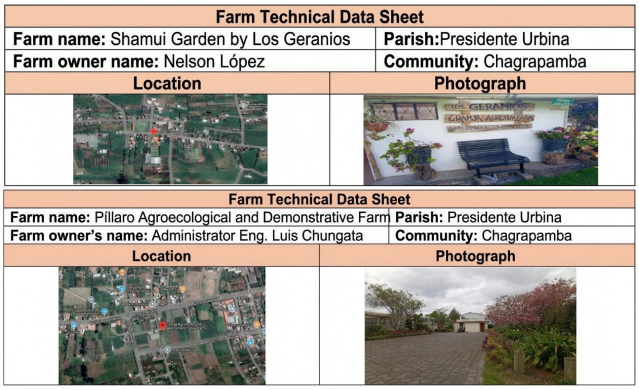

Figure 4. Excerpt of technical data sheets of analyzed farms in Píllaro. Source: Villavicencio Carrillo (2026) : (a) Shamui Garden by Los Geranios Farm;(b) Pillaro Agroecological and Demosntrative Farm.

Table 4. Integration of the Agritourism Offer

Asset	Product Function	Management Requirement
Farms	Core of the productive experience	Visitor protocols, safety, and carrying capacity
Cultural Attractions	Complementan identidad y relato	Touristic interpretation and schedule coordination
Natural Attractions	Provide scenery and outdoor recreation	Capacity control and environmental management
Tourism Services	Connect accommodation, food services, and mobility	Quality standards, bookings, and commercial articulation

8. Technology as a Cross-Cutting Enabler

The incorporation of technology should not be understood as a substitute for the rural experience, but rather as a supporting layer to make it visible, bookable, interpretable, and measurable. In emerging destinations, a digital architecture can integrate information regarding farm profiles, maps, schedules, carrying capacity, pricing, audiovisual content, QR codes, and visitor feedback. The smart tourism framework proposed by Gretzel et al. [9] and Buhalis and Amaranggana [9] is applicable at the local scale when prioritizing low-cost, interoperable solutions oriented toward specific challenges. In Píllaro, demand evidence justifies this approach: social media platforms concentrate the highest user preference as a primary medium for discovering agritourism activities, and audiovisual content ranks among the most attractive promotional formats. A practical application for Píllaro can be structured across three tiers. At the informational level, a responsive web catalog centralizes farm data sheets, photographs, schedules, and activities. At the transactional level, visitors query availability and request or confirm bookings. At the analytical level, farm owners and destination managers log visitor flow, point of origin, preferences, and satisfaction metrics. This architecture does not initially require artificial intelligence or costly infrastructure; it can be deployed using a progressive web application (PWA), a relational database, an administrative dashboard, and QR codes installed at each visitation point Table 5.

Table 5. Technology to Support Agritourism Development

Technological Layer	Function	Suggested Indicator
Web catalog	Centralized information on farms and routes	Page views, inquiries, clicks per experience
Geolocation	Visitor orientation and route navigation	Map opens, initiated routes
Booking system	Capacity and schedule management	Conversion rate, cancellations, occupancy rate
Interpretive QR	On-site content regarding crops and local heritage	Scans and reading time
Analytics	Support for promotional decision-making	Demand by segment and seasonality

9. Discussion

The findings confirm that Píllaro possesses a territorial base compatible with agritourism development and that demand perceives this modality as beneficial. The primary challenge lies not in demonstrating the existence of resources, but in converting dispersed assets into coordinated products. The two routes proposed in the thesis provide an initial solution to this fragmentation by linking farms with cultural, gastronomic, and landscape components. The statistical association between the variables reinforces the relevance of agritourism as a strategy; however, it does not in itself imply economic or social causality. Demonstrating impacts on employment, household income, business longevity, or environmental conservation would require longitudinal monitoring. Consequently, the strategy must incorporate before-and-after implementation indicators rather than relying solely on visitor arrival metrics. Digital transformation enhances management capacity by making it possible to trace the visitor journey from discovery to booking and post-trip evaluation. This aspect aligns with the social media preference identified in the survey and responds to the need for strengthened promotion highlighted by local stakeholders.

10. Conclusions and Recommendations

Conclusions

Agritourism presents favorable conditions for contributing to the tourism development of Píllaro. Empirical research reports a significant association between the studied variables (chi^2 = 59.543, $df = 9$, $p < 0.001$), while demand acknowledges environmental, employment, and community benefits. The territorial supply encompasses farms, agroecological production, culture, gastronomy, and nature—elements sufficient to structure differentiated experiences.

10.2 Recommendations It

is recommended to consolidate a local product governance structure, define minimum quality standards for participating farms, establish sustainability indicators, and operate a digital platform that centralizes promotional activities, mapping, reservations, and analytics. Technology must complement, rather than replace, human interaction and rural authenticity. Furthermore, future studies should measure economic impact, visitor satisfaction, return intention, and environmental effects using longitudinal or comparative research designs.

References

1. T. de los A. Villavicencio Carrillo, "Study of agritourism as a tourism development strategy for the Píllaro canton, Tungurahua province," Bachelor's thesis, Dept. Econ., Admin. and Trade Sci., University of the Armed Forces ESPE, Sangolquí, Ecuador, 2026.
2. C. A. Bernal, Research Methodology: Management, Economics, Humanities, and Social Sciences, 3rd ed. Bogotá, Colombia: Pearson Educación, 2010.
3. F. G. Arias, The Research Project: Introduction to Scientific Methodology, 5th ed. Caracas, Venezuela: Editorial Episteme, 2006.
4. M. González, M. Blanco, and H. Riveros, Design and Operation of Agritourism Products. San José, Costa Rica: Inter-American Institute for Cooperation on Agriculture (IICA), 2019.
5. H. Riveros and M. Blanco, Agritourism as a Diversification Strategy for Agricultural and Agro-Industrial Activity. San José, Costa Rica: Inter-American Institute for Cooperation on Agriculture (IICA), 2011.
6. M. Blanco and H. Riveros, "Agritourism as a diversification strategy for agricultural and agro-industrial activity," Agrarian Stud., vol. 16, no. 44, pp. 117–125, 2010.
7. J. Garaicoa et al., "Management and models of sustainable agritourism activities in rural territories of Ecuador," Multidisciplinary Sci. J., 2023.
8. M. Pereyra et al., Sustainable Tourism Development: Fundamentals, Planning, and Territorial Management. 2021.
9. A. Rodrigues et al., "Economic, sociocultural, and environmental impacts of tourism development," 2015.
10. National Institute of Statistics and Censuses (INEC), "2022 Population and Housing Census: Territorial results for Santiago de Píllaro canton," Quito, Ecuador, Tech. Rep., 2022.
11. Autonomous Decentralized Municipal Government of Santiago de Píllaro, "Development and Land Use Plan for the Píllaro Canton," Píllaro, Ecuador, Tech. Rep., 2024.
12. World Tourism Organization (UNWTO), Indicators of Sustainable Development for Tourism Destinations: A Guidebook. Madrid, Spain: UNWTO, 2005.
13. U. Gretzel, M. Sigala, Z. Xiang, and C. Koo, "Smart tourism: Foundations and developments," Electron. Mark., vol. 25, no. 3, pp. 179–188, 2015.
14. D. Buhalis and A. Amaranggana, "Smart tourism destinations enhancing tourism experience through personalisation of services," in Information and Communication Technologies in Tourism 2015, I. Tussyadiah and A. Inversini, Eds. Lugano, Switzerland: Springer, 2015, pp. 377–390.
15. J. Fernández-Cavia, C. Rovira, P. Díaz-Luque, and V. Cavaller, "Web Quality Index (WQI) for official tourist destination websites," Tour. Manage. Perspect., vol. 9, pp. 5–13, Jan. 2014.
16. I. C. Maldonado Román and A. N. Segura Quiñonez, "Use of social networks in the promotion of tourist destinations in Muisne, Esmeraldas," Hallazgos21, vol. 3, no. 1, pp. 57–68, 2018.
17. D. Avila-Pesantez, J. Toro Apolo, A. Hurtado Averos, and D. Avila-Veloz, "Boosting local tourism through digital transformation: Development and usability of a web platform," Res., Technol. Innovation, vol. 17, no. 24, 2025.
18. M. F. Sotomayor Granda, "Tourism promotion proposal through web tools and digital marketing strategies: The case of Loja canton," Siembra, vol. 6, no. 1, pp. 68–84, 2019.