
Community enterprise quality management of durian exports in Ban Khao Hin Thaen, Wang Chan District, Rayong Province, Thailand

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Abstract Results showed that most farmers interviewed in this study (40.40%) were aged 51–60, and 43.90% had 1–10 years of durian cultivation experience. Around 82.50% of farmers possessed Good Agricultural Practices (GAP) standard certificates, indicating high compliance. The study of knowledge in durian quality management aligned with the standards of GAP. Considering the average of all eight factors, the highest accuracy rates were revealed in production process management (88.89%) and data recording (84.80%). Other factors receiving correct answer scores ranged from 60.23 to 75.44%. The levels of operation in managing durian markets across the 8Ps framework for product, personnel, process, physical characteristics, efficiency, and quality were relatively high, with an average score ranging from 3.57 to 4.39. On the other hand, the factors relating to price, distribution, and marketing promotion were relatively low, with an average score ranging from 2.87 to 3.39. The average scores for each factor relating to durian quality management for export were as follows: planning (94.04%), production operation (94.74%), and resource management (90.35%). In conclusion, the quality management, marketing, and key influencing factors of durian were carefully considered by the members of the community enterprise under study. These findings can be used to guide strategies to improve durian cultivation and marketing, ensuring high-quality products that meet export standards. To enhance durian exports, policymakers and practitioners should consider support and training in the areas where farmers face challenges.

Keywords: GAP, Durian, Quality management, Knowledge

Introduction

Durian, often referred to as the 'King of Fruits', plays a pivotal role in Thailand's export sector. According to the Bureau of Trade in Goods and the Department of Trade Negotiations (2022), Thailand is a dominant player in the global durian market, contributing 95.05% to the total import volume. However, recent reports from the Agricultural Section of the Royal Thai Consulate-General in Shanghai (Ministry of Agriculture and Cooperatives, 2023) signal a

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concerning trend: a 9% decline in fresh durian imports from Thailand from the preceding year. Concurrently, emerging competitors, notably Vietnam, began exporting durian to China in September 2022, capturing almost 5% of the market (Sukantapong, 2023). Coupled with China's increasing domestic durian cultivation and persistent demand for imported fresh durian, this scenario underscores the necessity for Thai durian farmers to make a strategic shift towards high-quality durian management to sustain their edge in the ever-evolving Chinese market.

Penetrating the intricate Chinese market requires exporters to navigate many stringent conditions. Not only must the durian be free of plant pests, but it must also follow GAP (Good Agricultural Practices) in certified orchards, be free of soil, leaves, or branches, and be meticulously packaged in containers showing traceable labels (Department of Agriculture, 2007). In addition to these prerequisites, commercial durian varieties must adhere to specific criteria, such as size, defect-free appearance, weight specification, and harvesting ripeness (Llones *et al.*, 2022; Thinphabat, 2020). Ensuring these rigorous standards necessitates Thailand's commitment to directing its durian orchards towards excellence and bolstering its processing facilities to uphold health and safety regulations. Recognising the salience of durian exports, the Fruit Board organised inter-agency collaborations to roll out fruit management initiatives for the Eastern region in 2023. These endeavours seek to avert the prevalence of subpar or unripe durian and augment the quantity and quality of Thai fresh durian exports to cater to China's demanding market.

Global agricultural landscapes echo a unanimous sentiment: product quality is paramount to securing a substantial export market share (Vujičić *et al.*, 2022). Achieving consistency in quality not only anchors market stability but also fuels success. All stakeholders in the agricultural supply chain, from growers to distributors, must be attuned to their specific roles and align their actions to realise overarching marketing objectives. It is, therefore, imperative that upstream farmers understand the processes of crafting high-quality agricultural products, spanning from the market dynamics to product quality management. The complex relationship between durian quality and price cannot be overstated. Durians exhibiting minor defects are instantly demoted, becoming unsuitable for export and lowering prices. Hence, a thorough exploration into farmers' awareness and perceived ability in agricultural product management emerges as a critical step in developing Thailand's capacity for durian exportation.

The field study and discussion with community leaders in Ban Khao Hin Thaen, Wang Chan District, Rayong Province, during 2023 revealed the challenges faced by the community. In the past, the community predominantly emphasised foreign markets, mainly exporting fresh Mon Thong durians,

accounting for up to 80% through dedicated packaging facilities. However, in 2023, the group of companies experienced a significant setback, with exports to China decreasing to only 70%. This decline could be attributed to various factors, including a lack of knowledge in durian quality management, marketing management, or other factors related to durian quality management.

The research aimed to identify the critical factors influencing durian quality management, encompassing the assessment of knowledge in durian quality management, marketing strategies, and determining factors to better understand the situation in Ban Khao Hin Thaen, Wang Chan District of Rayong Province, Thailand.

Materials and methods

Study area and sample

The research was undertaken in Ban Khao Hin Thaen, located within the Wang Chan District of Rayong Province, Thailand (Figure 1). This region is notable for its agricultural viability, particularly concerning durian cultivation. The soil in this area is rich in essential nutrients and has good water retention properties, making it highly conducive for cultivating premium quality durian. Additionally, the local climate, characterised by well-distributed rainfall and moderate temperatures, further supports the growth of these fruit trees. Such favourable soil and climatic conditions significantly lower the barriers to entry for prospective durian farmers, thereby increasing the feasibility of the low-investment, high-yield model.

Rayong Province has multiple districts well-suited for durian farming, including Klaeng, Khao Chamao, and Wang Chan. Ban Khao Hin Thaen offers a compelling case study of durian production for the export market. A notable 63.74% of the durian yield from this area was sent to packhouses to prepare the fruit for export to China (Department of Agriculture, 2019). The population constituting the focus of this study is an organised group of farmers involved in community enterprises, particularly those with large durian orchards. These community enterprises play a vital role in streamlining the cultivation, quality management, and distribution of durian, facilitating a more organised and efficient export operation. Their collective efforts contribute to ensuring the quality standards demanded by international markets, particularly China.

The export-oriented nature of durian production in Ban Khao Hin Thaen, quality management has become a pressing concern for local farmers. Community enterprises often set quality benchmarks and provide the farmers with resources and training to meet these standards. The emphasis on quality is not just a community endeavour but a requirement for sustaining and potentially

expanding their share in the international market. By studying this region and its community enterprise structure, this research aims to shed light on the quality management mechanisms involved in durian production and how they can be optimised to provide significant economic benefit to the community and stakeholders involved.

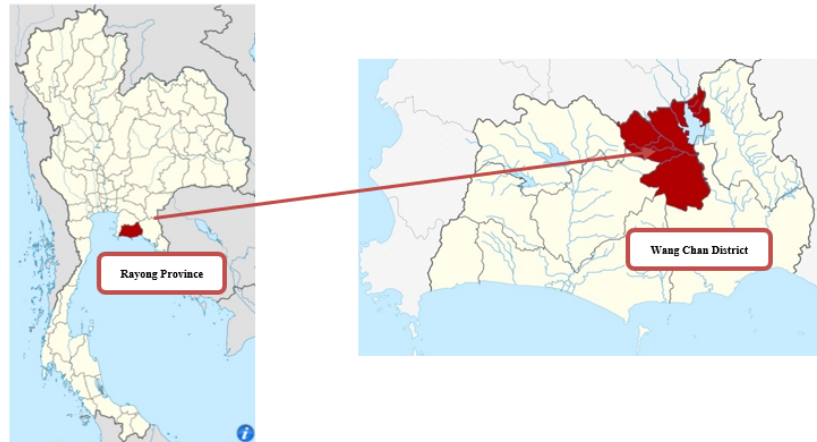


Figure 1. Map showing the Wang Chan District, Rayong Province, Thailand

Data collection

The structured questionnaire was used as the primary method for gathering insights into the practices and perspectives of the community enterprises in Ban Khao Hin Thaen, Wang Chan District, Rayong Province (Figure 2). A group of 57 active members of the community enterprise were chosen to participate in this survey. These individuals represented a cross-section of the durian farming community in Ban Khao Hin Thaen. The data collection occurred during one of the community's regular monthly meetings, ensuring a conducive environment for open discussion and feedback.

The questionnaire was structured to capture a holistic view of durian farming, quality management, and export practices within the community. The tool was segmented into four distinct parts:

Demographic Information: This section delved into the backgrounds of the participating farmers. Parameters were collected as age, years of experience in durian farming, educational qualifications, and farm size. These parameters provided a contextual background, enabling a better understanding of the variability and commonalities among participants.

Knowledge of Durian Quality Management with GAP Standards: The focus

was to gauge farmers' awareness and understanding of the standards for GAP standards in durian farming and export. Questions ranged from basic to advance and assessed the participants' familiarity with different facets of the GAP protocol.

Durian Market Management Practices: This segment explored how farmers navigated the broader durian market. Topics included pricing strategies, choice of intermediaries, preferred export destinations, and mechanisms for handling unsold produce.

Factors Influencing Durian Quality Management for Export: The final part concerned on the intricacies of quality management. Respondents were quizzed on the faced challenges, resources employed, training received, and the perceived impact of quality management on export success.

The comprehensive nature of the questionnaire was combined with the collaborative atmosphere of the community meeting which designed to foster an environment where participants encouraged to share their genuine experiences and insights, thereby enriched the data pool for this research.



Figure 2. Photo taken during the farming community's monthly meetings

Data analysis

Knowledge of Durian Quality Management in Alignment with GAP Standards: The evaluation of farmers' knowledge regarding the durian quality management system was benchmarked against the standards of GAP as detailed by the Department of Agriculture (2007). The assessment comprised eight crucial facets, namely, water resources, planting area, hazardous management, storage and product transport, data recording, non-pest product, product management, and harvesting and post-harvesting.

The corrected data was answered the questions which contributed one point to the participant's score, while incorrect answers yielded zero. Knowledge

proficiency was categorised on the percentage of the total score (Sitthikan, 2020): Low Knowledge Proficiency: Less than 60%, Moderate Knowledge Proficiency: 60% to 80% and High Knowledge Proficiency: Above 80%. Durian Market Management Practices by Farmers: The assessment was designed to discern the efficacy of operational practices in the realm of durian market management. The framework was built around the 8Ps marketing mix factors including product, price, place, promotion, personnel, process, physical evidence, productivity and quality (Lovelock, 2004).

Responses were captured using a 6-point Likert scale, where each average score correlated to a level of operational practice as categorised by Chomya (2023): 1.49: Very Low Operational Practice, 2.49: Low Operational Practice, 2.50–3.49: Relatively Low Operational Practice, 3.50–4.49: Relatively High Operational Practice, 5.49: High Operational Practice and 5.50–6.00: Very High Operational Practice.

Factors Influencing Durian Quality Management for Export: The research finding explored the nuances of quality management practices, taking cues from the production management concept (Thephatsadin Na Ayutthaya, 2016). Farmers were evaluated on their application of quality management across various dimensions. The assessment used a binary scoring system: High practice/management level: 1-point, Low practice/management level: 0 points.

Performance proficiency was divided into three tiers (Sitthikan, 2020): Low-Performance Proficiency: Less than 60%, Moderate Performance Proficiency: 60% to 80% and High-Performance Proficiency: Above 80%.

Results

Sociodemographic summary of durian farmers

An overview of the demographic characteristics of durian farmers revealed that most farming communities comprised females (61.40%) as seen in Table 1. The farmers' educational background, they had predominated a primary level of education, with 36.80% of farmers completing primary school. Another noteworthy observation was the representation of those with junior high school education at 14%. In contrast, a small proportion, 3.50% had achieved postgraduate qualifications.

The age demographics revealed the largest proportion fell within the 51 to 60 years bracket, capturing 40.40% of the farmers. Their range of experience in durian farming was diverse with 43.90% between 1- and 10-years' experiences. These were more extended farming histories, specifically in the range of 21 to 30 years with comprised 22.80% of the total.

The land ownership was significantly showed the majority of 63.20%, owned land areas between 1 and 10 rai. However, one of the most striking insights was committed to quality standards. A remarkable 82.50% of farmers aligned themselves with the GAP durian cultivation standards, the reflecting community was deeply invested to maintain the quality and best practices in their farming endeavours.

Table 1. Sociodemographic summary of the sampled durian farmers

Items	Frequency	Percentage
Gender		
<i>Male</i>	22	38.60
<i>Female</i>	35	61.40
Education Level		
<i>Lower primary school</i>	2	3.50
<i>Primary school</i>	21	36.80
<i>Junior high school</i>	8	14.00
<i>Senior high school or vocational</i>	14	24.60
<i>Diploma or high vocational</i>	2	3.50
<i>Bachelor's Degree</i>	8	14.00
<i>Postgraduate</i>	2	3.50
Age (yr)		
< 40	3	5.30
41 - 50	18	31.60
51 - 60	23	40.40
> 60	13	22.80
Farming experience (yr)		
1 - 10	25	43.90
11 - 20	12	21.10
21 - 30	13	22.80
31 - 40	6	10.50
41 - 50	1	1.80
Area		
1 - 10	36	63.20
11 - 20	10	17.50
21 - 30	10	17.50
> 30	1	1.80
Standard of certification		
<i>No standard</i>	7	12.30
<i>GAP standard certified</i>	47	82.50
<i>Thai agricultural standard certification</i>	2	3.50
<i>Other</i>	1	1.80

Perceived knowledge of durian farmers towards quality management following the standards of GAP for export

The results in table 2 showed that the importance farmers faced on the quality of water resources. An overwhelming 96.50% of farmers knew that water sources should not be located near industrial facilities, livestock pens, or chemical storage areas, reflecting a high level of practice. On the other hand, there was a notable difference in their knowledge of treating wastewater. Only 40.40% knew that water had undergone wastewater treatment, despite evidence of proper treatment, it could not be used in production. Nevertheless, a high percentage (86%) recognised the risks associated with using newly dug water sources that had previously been in proximity to hospitals, industrial facilities, or animal pens.

In the area of planting, only 24.60% were aware of the protocols surrounding land with a history of being an industrial site or animal pen. While there was a moderate level of understanding, at 66.70%, on the absence of organochlorine (OC) and organophosphorus (OP) pesticide residues in the soil, a commendable 91.20% knew the inadmissibility of soil-applied fertilisers containing hazardous heavy metals. At the same time, there was a consistent level of awareness towards managing hazardous substances. While 71.90% knew that only chemicals are authorised by the People's Republic of China could be used, a high percentage (93%) needed to separate chemical storage from residential and water areas. The proper disposal of containers holding chemicals was understood moderately by participants at 61.40%.

Moreover, the data revealed a significant gap in understanding proper storage practices. Only 45.60% knew that the produce should be stored in a sealed, non-ventilated room to prevent contamination. However, an overwhelming 93% recognised the importance of ground cover material to prevent direct contact of the produce with soil. Farmers exhibited a high level of knowledge concerning the importance of recording data related to production practices and soil analysis tests at 98.20%. However, only 59.60% believed that maintaining documentation regarding trade agreements was crucial. A high percentage (96.50%) understood the importance of plot-specific data recording.

On the other hand, farmers showed a minimal understanding (1.80%) of the protocols when pests like leafhoppers damaged young leaves. However, they had a better grasp (91.20%) of managing aphids in flower clusters. Their knowledge of root and collar rot conditions stood at 87.70%. The farmers showcased a high level of knowledge (98.20%) on the necessity for soil analysis in orchards near industrial areas. However, the understanding of quality control process implementation was moderate (73.70%). However, 94.70% still knew the importance of segregating durian produce based on quality standards.

In the final stages of production, 93% of farmers understood the importance of harvesting durians at the optimal ripeness stage. However, post-harvest practices like sorting unripe durians were moderately understood at 78.90%. The least understood aspect, at 19.30%, was the identification and management of durians with skin discolouration. In summary, while durian farmers exhibited strong knowledge in several critical areas of GAP and standards for exportation, there were specific segments where more awareness and education might be beneficial. A thorough understanding of GAP is crucial for ensuring the production of quality durians that meet international standards.

Table 2. Perceived knowledge of durian farmers regarding quality management following the standards of GAP for exportation

Factor	Number of correct answers		Level of practice
	Freq	%	
<i>1. Water resource</i>			
1.1. Water sources should not be located near or flow through industrial facilities, livestock pens, or areas where chemicals are stored.	55	96.50	High
1.2. Even if there is evidence of treatment, water that has undergone wastewater treatment still cannot be used in the production process.	23	40.40	Low
1.3. A newly dug water source should not have been previously used as a hospital, industrial facility, or animal pen.	49	86.00	High
<i>2. Planting area</i>			
2.1. An area with a history of being a hospital, industrial facility, or animal pen that has been properly managed and prepared can be used for durian cultivation.	14	24.60	Low
2.2. The cultivation area must not have detectable levels of organochlorine (OC) and organophosphorus (OP) pesticide residues in the soil before planting.	38	66.70	Moderate
2.3. Soil-applied fertilisers must not contain heavy metals such as cadmium, lead, and mercury as contaminants.	52	91.20	High
<i>3. Hazardous management</i>			
3.1. The People's Republic of China must authorise the list of chemicals used. It must not include chemicals that are not registered as hazardous substances under the Hazardous Substances Act of 1992.	41	71.90	Moderate

3.2. There should be separate locations for chemical storage, keeping them away from residential areas, water sources, and areas with flowing water to prevent chemical contamination of water sources.	53	93.00	High
3.3. Containers containing chemicals should not be destroyed by burying them in the ground since animals can dig them up. Instead, they should be destroyed by incineration.	35	61.40	Moderate
<i>4. Storage and product transport</i>			
4.1. The storage area should be in a sealed room and without air circulation to prevent contamination.	26	45.60	Low
4.2. Ground cover material should be prepared in the product resting area to prevent contamination from the soil.	53	93.00	High
4.3. Containers for packaging and transporting the produce can be used in the same way those used to transport chemicals or fertilisers.	27	47.40	Low
<i>5. Data recording</i>			
5.1. Practices, such as the use of production factors and soil analysis test results, should be documented.	56	98.20	High
5.2. It is not necessary to record documentation relating to purchase agreements with trading partners.	34	59.60	Low
5.3. If there is more than one production plot, data should be recorded for each plot.	55	96.50	High
<i>6. Non-pest product</i>			
6.1. When leafhoppers damage more than 10% of the young leaves, chemicals can be used to control plant pests.	1	1.80	Low
6.2. Chemicals can be used to control plant pests when at least five aphids are found on a flower cluster.	52	91.20	High
6.3. When at least 10% of the stem and root surface area is found to have root and collar rot, chemicals can be used to control plant pests.	50	87.70	High
<i>7. Product management</i>			
7.1. In the case that a durian orchard is located near an industrial area or in an area with potential risks, soil analysis should be conducted to assess soil quality and check for contamination at least once at the	56	98.20	High

beginning of the Durian Quality Management System: GAP.

7.2. When implementing quality control processes and chemical safety in production, it is not necessary to practice crop hygiene.	42	73.70	Moderate
7.3. There should be a process for separating durian produce that meets the specified quality standards.	54	94.70	High
<i>8. Harvesting and post harvesting</i>			
8.1. Durian produce should be harvested at the optimal ripeness stage according to the standards for each variety.	53	93.00	High
8.2. Once the unripe durians have been sorted, they should be separated for further disposal.	45	78.90	Moderate
8.3. When the skin of durians in certain areas is observed to have a more prominent yellow colour compared to the surrounding areas, it is advisable to randomly select three to five durians. These should be placed in the sun to accelerate the emergence of worms from the durian seeds.	11	19.30	Low

The durian market management by farmers

The durian farmers exhibited varying levels of market management practices when assessed using the 8Ps framework (Table 3). Farmers demonstrated a robust commitment to product management, as evidenced by a relatively high overall practice level with an average score of 3.79. The emphasis on product certification stood out in this category, particularly under the standards of GAP, which scored an impressive of 4.21. In terms of price management, there remained to be improvement, with the overall practice in this leaning area towards the low side, with an average score of 3.26. However, farmers showed a relatively higher commitment to establish agreements on pricing with fruit packing houses before selling which reflected in a score of 3.46.

Distribution management showing an average score of 3.39 was another area indicating a relatively low level of practice. Despite this, there was a strong emphasis on the selection and grading of quality durians in line with export standards, which scored a commendable of 3.67. At the same time, marketing promotion management practices were required enhancement to the overall score was a modest of 2.87. However, the quality assurance collaborations with fruit packing houses stood out in this category, securing a score of 3.26. Farmers performed reasonably in personnel management, boasting a relatively high practice level with an average of 3.57. Effective and clear communication with customers was highlighted in this section, as evidenced by a top score of 3.74.

Moreover, process management had encouraged the average score of 3.97. Planning the use of production factors was considered to be a top priority according to its leading score of 4.05. The physical aspects of durian received considerable attention, with the overall high practice level averaging of 4.02. Durians are adhered to specific varieties which were particularly valuable, as indicated by the segment's top score of 4.25. Farmers excelled in the efficiency and quality management domain, securing a high practice level with an average score of 4.35. Quality assurance, especially in collaboration with fruit packing houses, was the crowning jewel in this section, with a standout score of 4.39. Overall, while there were found in the areas of strength, specific sectors within the 8Ps framework that could benefit from further attention and enhancement to optimise the market management practices among durian farmers.

Table 3. Perceived level of market management among durian farmers

Factor	Number of correct answers		Level of practice
	Mean	SD	
<i>1. Product</i>	3.79	1.24	<i>relatively high level</i>
1.1. Durian production is certified under GAP standards.	4.21	0.89	relatively high level
1.2. Quality inspection with dry weight percentage before selling.	3.84	1.28	relatively high level
1.3. Durian quality meets the Agricultural Product Standards (TAS 3–2013).	3.53	1.52	relatively high level
1.4. The Durian variety 'Morn Thon' has a minimum weight of 1.5 kilograms per fruit.	3.72	1.17	relatively high level
1.5. The type and quantity of residue in mango products meet the specified requirements.	3.65	1.36	relatively high level
<i>2. Price</i>	3.26	1.57	<i>relatively low level</i>
2.1. Pricing is determined based on production costs.	2.95	1.62	relatively low level
2.2. The quality of durian sets prices.	3.37	1.48	relatively low level
2.3. Before selling, there is an agreement on pricing with the processing facility (packhouse).	3.46	1.62	relatively low level
<i>3. Place</i>	3.39	1.57	<i>relatively low level</i>
3.1. Durians are sold at more than one processing facility (packhouses).	3.51	1.53	relatively high level
3.2. The quantity of high-quality durian production is sufficient for the needs of packaging and processing facilities (packhouses).	2.98	1.63	relatively low level

3.3. Durians are selected and graded according to export standards.	3.67	1.54	relatively high level
<i>4. Promotion</i>	<i>2.87</i>	<i>1.76</i>	<i>relatively low level</i>
4.1. There is a quality assurance agreement with the processing facility (packhouse).	3.26	1.73	relatively low level
4.2. There is a product return policy if it does not meet the specified standards.	2.58	1.75	relatively low level
4.3. Before selling, the quality of durians from the orchard is promoted to the packaging and processing facility (packhouses).	2.77	1.80	relatively low level
<i>5. Personal</i>	<i>3.57</i>	<i>1.43</i>	<i>relatively high level</i>
5.1. There is training on quality durian production at least once a year.	3.63	1.40	relatively high level
5.2. There is training in marketing more than once a year.	3.42	1.59	relatively low level
5.3. There is support for descendants to participate in quality durian production.	3.47	1.44	relatively low level
5.4. Effective and clear communication with customers is possible.	3.74	1.30	relatively high level
<i>6. Process</i>	<i>3.97</i>	<i>0.98</i>	<i>relatively high level</i>
6.1. There is a production factor utilisation plan.	4.05	0.94	relatively high level
6.2. Quality durian can be produced according to the production plan.	3.95	0.91	relatively high level
6.3. Durians can be delivered accurately and in accordance with customer requirements.	3.91	1.08	relatively high level
<i>7. Physical Evidence</i>	<i>4.02</i>	<i>1.19</i>	<i>relatively high level</i>
7.1. The durian has both a stem and fruit.	4.14	1.12	relatively high level
7.2. There are no signs of damage due to pests.	3.91	1.27	relatively high level
7.3. The skin is complete, clean, and free from cracks.	4.14	1.07	relatively high level
7.4. The durian is true to its variety.	4.25	0.98	relatively high level

Factors relating to durian quality management for export

The durian farmers had strongly emphasised planning to ensure the quality of their produce aligns with the rigorous export standards. This commitment was particularly evident in the detailed attention given to specifying durian quality grades, with a striking of 98.20% of farmers aligning with the standards, signifying the importance of this factor. Furthermore, knowing how to produce export-standard durians and developing a coherent plan for such high-quality production were also revealed to be prevalent practices, with 93.00% and 91.20% adherence, respectively. Notably, many farmers (91.20%) are certified under the

standards of GAP showcased their dedication to international quality benchmarks.

On the other hand, the production operations section reflected an impressive adherence to export quality criteria (Table 4). Two crucial practices emerged for ensuring durian production meets the quality grading standards for export and guaranteeing the ripening process of each durian variety, both with an exceptional compliance rate of 98.20%. Commendably, the most farmers (93.00%) also adhered to the weight standards of the Mon Thong variety and maintained a stringent quality tolerance threshold for durians. Monitoring and controlling the type and quantity of residual pesticides were 94.70% adherence, further underscored the farmers' commitment to delivering safe and superior quality products for global consumers.

The resource management of the farmers demonstrated a comprehensive approach. A significant of 94.70% of them that emphasised the appropriate and abundant use of production factors, ensuring the resource optimisation needed for high-quality durian production. The farmers attached equal importance to record all the expenses which incurred during a production cycle of 93% compliance, reflecting a transparent and accountable financial management strategy. While practices like the implementation of a traceability system and managing labour effectively were adhered to by 91.20% of farmers, there was a slight lag in incorporating technology into management and administration of 84.20% adherence. It suggested a potential area where advancements can further streamline operations and boost quality management.

Table 4. Factors determining the perceived level of quality management among durian farmers

Factor	Number of correct answers		Level of practice
	Freq	%	
<i>1. Planning</i>			
1.1. Have knowledge of producing high-quality durian according to export standards.	53	93.00	High
1.2. Have a plan for producing high-quality durian in accordance with export standards.	52	91.20	High
1.3. Plan resource usage quantities that align with production factors.	55	96.50	High
1.4. Specify durian quality grades according to export standards.	56	98.20	High
1.5. Have been certified under the standards for Good Agricultural Practices (GAP).	52	91.20	High

<i>2. Production operations</i>			
2.1. Durian production meets the quality grading standards for export.	56	98.20	High
2.2. Each durian variety must ripen properly, both externally and internally, with the dry weight calculated.	56	98.20	High
2.3. Durian production is selectively graded according to the quality standards specified in the Agricultural Products Standards (TAS 3–2013).	51	89.50	High
2.4. Durians of the Mon Thong variety weigh no less than 1.5 kilograms and no more than 6 kilograms.	53	93.00	High
2.5. Quality tolerance for durians does not exceed 10%.	53	93.00	High
2.6. Control of the type and quantity of residual pesticides adheres to specified requirements.	54	94.70	High
2.7. Durian packaging containers are high-quality, odourless, and free from foreign substances.	55	96.50	High
<i>3. Resource management</i>			
3.1. Record all expenses incurred during one production cycle.	53	93.00	High
3.2. Create reports for durian sales through all available channels.	50	87.70	High
3.3. Use production factors appropriately and adequately.	54	94.70	High
3.4. Proper and sufficient management of labour.	52	91.20	High
3.5. Implement a traceability system.	52	91.20	High
3.6. Incorporate technology into management and administration.	48	84.20	High

Discussion

The progression of the agricultural sector is often determined by its responsiveness to modern quality standards. In the context of durian farming, the significance of standards for GAP cannot be stressed enough, particularly when the fruit is earmarked for export. This study provides a comprehensive insight into the dynamics of producing durian for export. Firstly, the farmers' knowledge level, which stands at a promising of 82.50%, underscores their cognisance and alignment with the global demand for quality durians. The association of this statistic with findings from prominent researchers like Promtep (2015) and Phromsilat (2019) who further accentuated a broader trend; the global agricultural landscape is slowly event but surely moving towards standardised quality benchmarks. However, under this trend lies more complicated dynamics in meeting market requirements. Despite being aware of the standards for GAP,

a segment of farmers are possess only a moderate understanding of the processes required to meet such standards. The findings of Chuaysuk *et al.* (2022) reported that while the majority is on the right path, a subset needs careful attention to promote inclusivity among durian farmers.

Although current farming methods and technological developments have been adopted in the durian industry, and extensive research remains the key to high-quality production. The necessity to deep understanding is critical, as Sriboonruang *et al.* (2022) stated. The farmer's current level of knowledge and the goal should ensure that all of them fully comprehend and are able to implement the GAP standard. This can be done using the customised training programmes, workshops, and knowledge exchange platforms (Llonas *et al.*, 2021; Suwanmaneepong *et al.*, 2023). The operational practices related to durian marketing, when viewed through the 8Ps framework, further elucidated this multi-faceted narrative. While several areas are concerned to product quality, personnel training, efficient processes, and physical evidence showcase robust practices with impressive scores, the domains of price and promotion depict a contrasting story. These scores ranged between 2.87 and 3.39 which indicated those areas requiring immediate attention.

The farming community's demography provided another critical factor. With 40.40% of durian farmers being between the ages of 51 and 60, there was a time constraint for tacit knowledge transfer and retention. The agricultural industry's lifespan is significantly associated with its capacity for self-innovation, which cannot be accomplished without actively incorporating the next generation. Insights from Sathirakosolwong and Treewannakul (2019) are especially pertinent reported. The future of durian farming is not only involved for maintaining the status quo but also innovating and changing, and this can only be accomplished by bringing in new ideas and dynamism. The information and perspectives in the study revealed several vital points.

First and foremost, the dedication to excellence and adherence to international standards like GAP is found to be evident and admirable. However, information gaps and differences in operational procedures highlighted the necessity for subtle, focused, and strategic interventions. The demographic data were focused on the age which emphasised the predominance of older farmers, highlighting the need for general knowledge transfer, while recognised the younger generation's capacity for innovation. Recognising the moderate knowledge levels in a subset of farmers is shown to be urgently needed to develop and roll out comprehensive training programmes. These should focus on theoretical knowledge and provide hands-on experience, practical insights, and peer-to-peer learning opportunities. Given the identified vulnerabilities in price setting and promotional activities, workshops tailored to modern marketing

strategies should be organised. These workshops can help the farmers with cutting-edge marketing knowledge by leveraging technological tools, data analytics, and understanding global market trends. In addition, the agricultural sector's future would concern on the effective integration of the younger generation. To achieve, youth-centric programmes should be conceptualised and implemented. These might range from scholarship programmes and technology-driven farming hackathons to mentorship initiatives where seasoned farmers guide and nurture the next generation. Lastly, government interventions emphasising GAP certifications should continue, and the standards should be regularly updated to keep pace with global benchmarks. Farmers who consistently meet and exceeded these standards should be recognised and rewarded.

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