

# Barriers to myGAP Certification: A Study of Farmer Knowledge, Intention, and Challenges in Kelantan, Malaysia

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## **ABSTRACT**

myGAP stands as a beacon of excellence in agriculture, aquaculture, and livestock, symbolizing a commitment to environmental stewardship, economic viability, and social responsibility. This certification program guarantees that products meet the highest safety and quality standards. This study embarks on an exploratory journey to understand the depth of adaptation to Malaysian Good Agricultural Practices (myGAP) among the farming communities in Kelantan. The research employs a detailed quantitative methodology to achieve its objectives. The analytical framework includes descriptive analysis, Pearson correlation, and multiple regression. The findings offer significant insights: a considerable proportion of Kelantan farmers deeply understand myGAP, with more than half demonstrating a strong grasp of its principles. Coupled with this awareness is a marked interest in adapting myGAP, primarily motivated by enhancing product safety and quality. However, the path to adaptation is filled with obstacles. Among the various factors considered, such as knowledge, cost constraints, and the role of extension agents, the certification process emerges as the main barrier, underscored by its significant impact. Thus, the study highlights Kelantan farmers' high level of awareness and willingness to adapt to myGAP and points out the crucial adjustments needed to facilitate this process. To enhance accessibility and reduce the complexity for farmers, streamlining the myGAP certification process is recommended. Such simplification could involve reducing paperwork, offering more explicit guidelines, and employing digital platforms to ease the application and monitoring processes.

*Keywords:* challenges; farmers; intention; knowledge; myGAP

## **INTRODUCTION**

The global agricultural sector has increasingly embraced sustainable practices to ensure long-term viability. In Malaysia, the Malaysian Good Agricultural Practices (myGAP) initiative has gained significant traction as a framework to foster sustainability among agricultural stakeholders, including farmers (Chiputwa et al., 2015). myGAP provides guidelines and standards to enhance agricultural productivity, mitigate environmental impacts, and ensure consumer health and safety. Agriculture plays a crucial role in Malaysia's economy and food security. The Malaysian Government initiated myGAP in 2002, consolidating various schemes to promote good agricultural practices (Jena et al., 2012). Launched officially in 2013, myGAP covers the agricultural,

aquaculture, and livestock sectors, emphasizing natural, economic, and social sustainability. Aligned with strategic reform initiatives, myGAP is instrumental in advancing the agricultural sector. Farmers are central to the myGAP initiative, which implements sustainable agricultural practices. myGAP certification has become increasingly important for farmers, serving as a benchmark for high-quality production while meeting environmental and labour standards (Tankam & Djimeu, 2019). Certification, which can take up to two years, is vital for market access, with importers seeking myGAP-certified products (Oya et al., 2018). Moreover, myGAP certification boosts consumer confidence and expands market opportunities for farmers (Omar et al., 2023). Despite its considerable potential, myGAP encounters challenges in engaging farmers. Only a tiny fraction of Malaysia's farmers have achieved myGAP certification (Ali et al., 2021). This lack of participation seems to stem from a combination of factors, with farmers possibly being uninterested, facing challenges, or simply unaware of myGAP's existence and its benefits (Manap & Fauzi, 2020). Thus, this study aims to enhance farmers' understanding of myGAP. We will achieve this by detailing their level of knowledge about Malaysian Good Agricultural Practices, examining their intentions toward adopting these practices, and identifying the constraints they encounter in doing so, with Kelantan serving as a case study. This research aims to shed light on the gaps in awareness and adaption, providing insights that could help formulate strategies to increase the uptake of myGAP among farmers, thereby enhancing the sustainability of agriculture in Malaysia.

## LITERATURE REVIEW

Previous research combined the theory of planned behaviour (TPB) and transaction cost theory to understand why farmers use myGAP. TPB suggests that people's intention to do something is shaped by their attitude, what others think, and control over their behaviour. This approach helps examine the effects of farmers' knowledge, desires, and perceived obstacles on choosing myGAP (Semuroh & Sumin, 2021; Amrol et al., 2022). Meanwhile, transaction cost theory examines the economic costs and challenges of getting agricultural certifications like myGAP. It considers the expenses involved in dealings between people and organizations, offering insights into the economic hurdles and factors affecting farmers' decisions to pursue myGAP certification (Yau et al., 2021).

### Knowledge constraints

A wealth of research has explored how knowledge constraints impede embracing sustainable agricultural practices. Khan and Damalas (2015) underscored the critical role of knowledge in enabling farmers to adopt eco-friendly practices, with a focus on pest management in cotton cultivation. Terano et al. (2015) shed light on the pivotal influence of knowledge and awareness on Malaysian paddy farmers' intentions towards sustainable agriculture, revealing the intricate link between understanding and action. Furthermore, Khan et al. (2015) unveiled the driving forces behind farmers' inclination towards integrated pest management, pinpointing the crucial awareness of pesticides' harmful effects and the value placed on non-chemical alternatives. Asfaw et al. (2018) delved into the factors guiding smallholder farmers in Ethiopia as they adapt to climate change, highlighting knowledge as a key enhancer of their ability to adjust. Thinda et al. (2020) also emphasized that the lack of knowledge and information significantly limits smallholder farmers' adaptive strategies, underlining the importance of overcoming knowledge barriers to foster sustainable agricultural practices.

### Cost constraints

Cost constraints significantly impact farmers' adaptation to agricultural practices, including the myGAP. Research by Amrol et al. (2022) has shown a significant relationship between attitude and the adaption of MyGAP, indicating that cost constraints may impact farmers' attitudes towards sustainable practices. Khan & Damalas (2015) discussed barriers to adopting sustainable agricultural practices, emphasizing how cost constraints can hinder widespread adoption.

Furthermore, Quartey et al. (2021) explored the choice of certification schemes by smallholder pineapple farmers in Ghana, analyzing constraints and determinants of adoption, suggesting that cost considerations play a significant role in farmers' decisions regarding certification schemes. Furthermore, Annor et al. (2016) investigated compliance with GLOBALGAP standards among smallholder pineapple farmers in Akuapem-South, Ghana, indicating that cost constraints negatively influence compliance, particularly concerning age.

### Certification process

The journey towards obtaining sustainability certificates can often be a demotivating one for farmers. In their 2016 study, Mazé and colleagues shed light on the various hurdles that agriculturists face throughout this process. Despite encountering numerous obstacles, many farmers remain keen and motivated to persevere in securing these certifications. A notable factor that shapes farmers' views on the certification process is the pervasive bureaucracy (Kushwah et al., 2019). The complexity and the extensive time commitment required for daily record-keeping are seen by farmers as burdensome (Sam et al., 2012). The paperwork, perceived as more demanding than their farming duties, conflicts with their self-image. Farmers often view these administrative tasks as outside the scope of traditional farming, challenging their identity and role within the agricultural sector (Ritzel et al., 2020).

### Extension agent

In Malaysia, the Department of Agriculture Malaysia (DoAM) significantly boosts farmers' productivity through diverse extension services, including consultations, investment guidance, technical support, and training (Samsudin, 2010). Nonetheless, extension agents encounter obstacles like resource scarcity, insufficient knowledge of modern agricultural methods, farmers' literacy, and communication hurdles (Farooq, 2010; Norton & Alwang, 2020). These issues impede effective information sharing and the adoption of contemporary farming techniques. Instances like the Cameron Highlands farmers underscore the need for more robust support in organic farming, revealing knowledge gaps among extension staff (Tiraieyari, 2017). Khan (2019) underscores the pivotal role of extension agents in knowledge dissemination, pointing out that communication issues and system flaws contribute to the poor uptake of advanced agricultural practices.

## METHODOLOGY

### Conceptual framework

Figure 1 depicts the conceptual framework, primarily rooted in the theory of planned behaviour and transaction cost theory, which serve as its main theoretical foundation. This framework has undergone additional refinement and customization by integrating insights and adjustments from various studies extensively reviewed in the literature review section. These adaptations are integrated to customize the framework to our study's specific context and objectives, ensuring a more resilient and contextually appropriate approach.

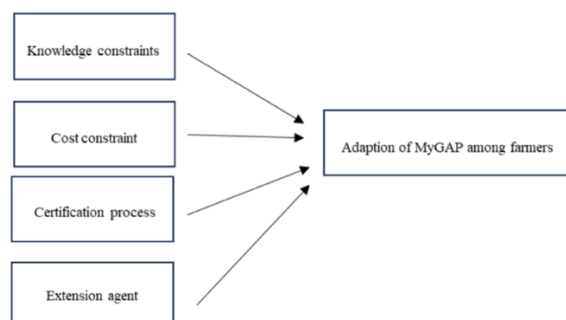


Figure 1. Study framework

## Data collection

The respondents were selected using a random sampling method from a population of 588 farmers in Kelantan registered under MyGAP (Department of Agriculture, 2023). According to the Sekaran table, a minimum sample size of 217 respondents was required, but only 142 farmers met the criteria and were willing to participate. These criteria included being registered under MyGAP for more than 2 years. Data collection primarily involved administering structured questionnaires through a survey. To ensure the validity of the questionnaires, they were validated by language specialists, questionnaire experts, and myGAP experts before being pilot-tested. Thirty-one (31) farmers received the validated questionnaires to assess their comprehension. The resulting Cronbach's alpha value of 0.933 indicated excellent reliability among the study variables.

## Data analysis

The data collected from the questionnaires were analyzed using IBM SPSS Version 23. Descriptive statistics were employed to depict the knowledge level and assess farmers' intention to adopt myGAP certification. Correlation analysis was conducted to ascertain the relationships between variables. Multiple regression analysis was also employed to investigate farmers' challenges when adapting myGAP.

## RESULTS AND DISCUSSION

Table 1 presents the demographic details of the farmers interviewed in Kelantan, where males constituted the majority at 65.3% (96 individuals). Most of these respondents, predominantly of Malay descent, were involved in agrifood sectors. Regarding age, the largest group, also accounting for 65.3%, were younger than 31 years. The Malay ethnicity was prevalent among the farmers. Those within the 31-to-40-year range represented 21.1%, with 11.6% falling between 41 and 50 years. Only a minor segment, 2.0%, was aged between 51 and 60, with no participants over 60. The majority of farmers had achieved an STPM/Diploma level of education. Experience levels with MyGAP varied significantly, with 85% having between 2 and 5 years of experience, 14.3% with 6 to 9 years, and just 0.7% with 10 to 13 years of experience. Income levels were distributed across four categories: 15.6% earning RM 1000, 57.8% earning between RM 2000 and RM 3000, 20.4% between RM 4000 and RM 5000, and 6.1% earning above RM 5000. The majority engaged in vegetable farming as their primary agrifood activity.

Table 1. Demographic of respondents

Variables	Description	Frequency (n)	Percentage (%)
Gender	Male	96	65.3
	Female	51	34.7
Race	Malay	128	90.14
	Chinese	10	7.04
	Indian	4	2.82
	Others	0	0
Age	< 31 years	96	65.3
	31-40 years	31	21.1
	41-50 years	17	11.6
	51-60 years	3	2.0
	>60 years	0	0
Education level	Primary level	6	4.1
	Secondary level	49	33.3
	STPM/Diploma	57	38.8
	Bachelor's Degree and higher	35	23.8
Experience in myGAP	2-5 years	125	85.0
	6-9 years	21	14.3
	10-13 years	1	0.7

Table 1. (continued)

Variables	Description	Frequency (n)	Percentage (%)
Monthly income	RM 1000	23	15.6
	RM 2000-RM 3000	85	57.8
	RM 4000-RM 5000	30	20.4
	>RM 5000	9	6.1
Agrofood activities	Paddy	23	16.19
	Vegetables	115	80.98
	Fruit	4	2.81

Table 2 reveals insights from 147 respondents, highlighting the farmers' understanding of myGAP. Among them, 66 individuals, representing 44.9%, acknowledged their familiarity with myGAP. A slightly higher percentage, 55.1%, confirmed their awareness of myGAP's primary goals. Furthermore, 40.8% of the participants recognized the advantages of participating in myGAP. These figures underscore a notable level of myGAP knowledge among the farmers.

Table 2. The level of knowledge of farmers about myGAP

Statement	Description	Frequency (n)	Percentage (%)
I know what myGAP is	Strongly Disagree	1	0.7
	Disagree	56	38.2
	Agree	66	44.9
	Strongly Agree	24	16.3
I know what the main objectives of myGAP are	Strongly Disagree	32	21.8
	Disagree	81	55.1
	Agree	34	23.1
	Strongly Agree		
I know what are the benefits of joining myGAP	Strongly Disagree	33	22.4
	Disagree	60	40.8
	Agree	54	36.7
	Strongly Agree		

Table 3 reveals the intentions of farmers adapting to MyGAP, highlighting their motivations and preferences. A significant portion, 75 agreeing and 62 strongly agreeing, joined myGAP to increase their income. Furthermore, a majority strongly believed in myGAP for its potential to facilitate overseas exports of their products, with 53.1% in favour. Ensuring product quality and safety strongly motivated 77 respondents, representing 52.4%. Selling products at a higher price garnered 45.6% agreement. Notably, ensuring product quality and safety received the highest mean score of 4.4558, underscoring its importance, followed closely by export potential, higher selling prices, and income generation motives. Moreover, according to Bashir (2023), consumers are increasingly concerned about food safety, showing a high tendency towards health-conscious purchasing decisions. Other than that, this pattern indicates a shift in priorities among Kelantan farmers compared to past research made by Amekawa (2017), which was conducted on farmers at Pahang, which leaned more towards export motivations, aligning closely with myGAP's core objectives of quality and safety. This shift suggests a deepened understanding among farmers of the importance of adhering to standards that enhance marketability and compliance with international norms (Arshad et al.,2023).

Table 3. Intention of farmers to adapt myGAP

Statement	Description	Frequency (n)	Percentage (%)	Mean
I joined myGAP to earn more income	Strongly Disagree	1	0.7	4.3469
	Disagree	9	6.1	
	Neutral	75	51.0	
	Agree	62	42.2	
	Strongly Agree			
I joined myGAP to enable my products to be exported overseas	Strongly Disagree	1	0.7	4.4422
	Disagree	11	7.5	
	Neutral	57	38.8	
	Agree	78	53.1	
	Strongly Agree			
I joined myGAP to ensure product quality and safety	Strongly Disagree	1	0.7	4.4558
	Disagree	8	5.4	
	Neutral	61	41.5	
	Agree	77	52.4	
	Strongly Agree			
I joined myGAP so that I could sell my products at a higher price	Strongly Disagree	2	1.4	4.3605
	Disagree	10	6.8	
	Neutral	68	46.3	
	Agree	57	45.6	
	Strongly Agree			

Based on Table 4 all the variables have a significant relationship with the dependent variable ( $p < 0.01$ ). The highest correlation with a strong positive relationship, ( $r = 0.510$ ) which is the certification process. Then, it was followed by cost constraint with a moderate positive relationship ( $r = 0.426$ ). Knowledge also had a moderate positive relationship ( $r = 0.420$ ); the lowest correlation is the agriculture consultants, with a moderate positive relationship ( $r = 0.376$ ).

Variables	r	p
Knowledge constraint	0.420**	0.000
Cost constraint	0.426**	0.000
Certification Process	0.510**	0.000
Extension agent	0.376**	0.000

\*\* . Correlation is significant at the 0.01 level (2-tailed).

The multiple regression analysis detailed in Table 5 reveals an  $R^2$  of 0.65, indicating that the model accounts for 65% of the variance in farmers' adoption of myGAP. This analysis points to a mixed relationship with myGAP adoption: knowledge and cost constraints are negatively related, whereas certification processes and extension agents positively influence it. Significantly, the certification process is crucial to myGAP adoption, as evidenced by a p-value of 0.017. Farmers express concerns over the lengthy and demanding certification process, which includes comprehensive assessments of farming practices, extensive documentation, and strict adherence to safety and quality standards. These challenges, particularly for small-scale or resource-limited farmers, underscore the daunting nature of the certification process, including both time and financial investments. Farmers believed that managing paper documents seemed outdated compared to digital options like online forms. Further analysis, as supported by Mohd Ali et al. (2021), reveals a substantial number of informants without myGAP certification who show little interest in obtaining it, citing the complex requirements and the extensive documentation needed. Contrastingly, factors such as knowledge constraints, cost, and extension services were found to be non-significant, possibly indicating a general awareness of myGAP and its perceived benefits among farmers. The importance of tailored extension efforts is underscored by the accessibility and effectiveness of extension services, especially in regions like Kelantan, where cultural and linguistic similarities facilitate communication. However, in Sekinchan, communication challenges between Chinese-speaking farmers and Malay-speaking extension agents highlight the need for more inclusive strategies (Mohd Ali et al., 201). The perceived long-term benefits of myGAP

certification, outweighing initial costs, may explain why cost constraints were not a significant deterrent. The lack of significance of cost constraints as a deterrent may be explained by the perceived long-term benefits of myGAP certification, which are considered to outweigh initial costs. This observation is particularly pertinent for vegetable farmers in the study, who, according to Dardak (2022), benefit from higher incomes resulting from shorter crop cycles and the ability to produce crops year-round. This observation aligns with Lastra-Bravo et al.'s (2015) findings that high-income farmers show more interest in myGAP certification than their low-income counterparts, suggesting that economic factors play a crucial role in the decision to pursue certification.

Table 5. Estimated coefficients of farmer's challenges in adapting myGAP

Parameters	B	Std. Error	Beta	t	Sig.
Constant	3.776	.128		29.579	.000
Knowledge constraint	-0.81	.066	-.176	-1.215	.226
Cost constraint	-0.25	.071	-.051	-.347	.729
Certification Process	.161	.066	.325	2.423	.017
Extension agent	.040	.064	.080	.626	.532
R2	-0.65				

## CONCLUSIONS

In conclusion, this study was pivotal in illuminating the awareness, intentions, and hurdles farmers in Kelantan face regarding adopting myGAP. The findings reveal a noteworthy high level of knowledge about myGAP among the agricultural community, with over half of the respondents demonstrating a solid understanding of myGAP's objectives and advantages. This widespread awareness is further underscored by the farmers' predominant motivation to join myGAP, which is aimed at enhancing the quality and safety of their products, reflecting a deep alignment with myGAP's core goals. However, the journey towards myGAP adoption is not without its challenges. The research highlights a complex relationship between implementing Good Agricultural Practices and various factors such as knowledge, cost, certification processes, and the role of extension agents. The certification process emerges as the primary obstacle, presenting a significant barrier to fully adopting myGAP standards. Addressing this, the recommendation to simplify the myGAP certification process is a pivotal strategy. By streamlining certification, reducing bureaucratic hurdles, and leveraging digital technology for more efficient application and monitoring, we can significantly lower the barriers to myGAP adoption. This simplification is not merely an administrative adjustment but a necessary evolution to accommodate the realities of modern agriculture, ensuring that myGAP's benefits are fully accessible to the farming community.

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## CONFLICT OF INTERESTS

The authors agree that this research was conducted in the absence of any self-benefits, commercial or financial conflicts and declare the absence of conflicting interests with the funders.

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