Smallholder Farmers' Perception on Coffee Production under Geographical Indication Scheme

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Abstract. Geographical Indication (GI) coffee production is an alternative that smallholder farmers can adopt to improve the quality of their coffee and provide an opportunity for farmers to increase their income. In terms of production standards, ease of implementation, and economic benefits, and intention to adopt, this article examines farmers' perceptions of coffee production based on the GI's scheme. To answer the research question, we interviewed 178 farmers who were purposefully chosen to represent two coffee geographical indication areas: Sindoro-Sumbing Java Arabica coffee and Temanggung Robusta coffee. The perceptions of farmers toward geographical indication schemes were evaluated using quantitative analysis and correlation test. The results of this study show that farmers believe that (a) the geographical indication scheme as it relates to coffee production standards is well perceived by farmers; (b) the GI scheme is perceived not very favourably by the farmers based on the ease of implementation, which indicates that the farmers are not too sure about implementing coffee production standards based on the GI scheme; (c) farmers generally have a favourable perception of the GI's standards; and (d) farmers are enthusiastic or have a strong intention to implement GI-standards. As a result, more campaign and socialization are required to raise farmers' enthusiasm for implementing the GI scheme.

1 Introduction

Temanggung Robusta coffee (IDG registration number 000000053 in 2016) and Java Sindoro Sumbing Arabica coffee (IDG registration number 000000030 in 2014) are the two coffee commodities from Temanggung Regency that have been granted geographical indications certification. Superior clones of Temanggung Robusta coffee plants, such as the Tugusari BP 534, BP 42, BP 358, BP 409, and SA 234 varieties, are grown at elevations between 400 and 700 m asl. Temanggung Robusta coffee trees are typically interplanted with woody plants such as silk tree (Albizia chinensis), mahogany (Swietenia macrophylla), gliricidia (*Gliricidia sepium*), Leadtree (*Leucaena leucocephala*) and stink bean (Parkia speciosa). Some of them are also grown together with fruit crops like jackfruit, avocado, and banana. Industrial plants such as vanilla and cubeb are also widely cultivated with

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Robusta coffee plants. Meanwhile, Java Sindoro Sumbing Arabica Coffee is grown on the slopes of the Sindoro and Sumbing mountains at an altitude of 900 m to 2,100 m above sea level. Varieties like Line S 795, Kartika 1, and Kartika 2 are commonly grown. Arabica coffee cultivation in Temanggung Regency is generally intercropped with tobacco and vegetable crops. In contrast to Temanggung Robusta coffee, which is generally the main commodity of farmers, Arabica coffee farming in Temanggung Regency is generally a secondary commodity after tobacco and vegetables.

Geographical indication certified coffee production standards are regulated in the geographical indication requirements book and mostly follow the national standard requirement. The applicant organization for all registered coffee GIs is the MPIG (*Masyarakat Perlindungan Indikasi Geografis*, or Community of GI Protection), a community-based organization made up of coffee growers, processors, traders, and roasters. Implementing GI-based coffee production standards is the responsibility of MPIG. Coffee production standards include cultivation standards, harvesting standards, and postharvest and processing standards. Every farmer who will produce GI coffee is required to adopt and apply coffee production standards that are already contained in the geographical indication requirements book. Neilson et al. emphasized the importance for farmers to understand the code of practice of Geographical indications for the benefit of implementing a quality control system. Previous empirical studies showed that a number of factors, including farmers' perceptions of GI attributes, such as perceived usefulness, perceived ease of use, and attitude toward GI coffee production standards, influenced their intent to implement a code of practice for coffee production based on geographical indications [1]. Adoption of coffee bean cultivation, postharvest, and processing technology at the farm level remains low [2] and varies by location, therefore data and research are needed to identify the level of farmer adoption of coffee processing technology. The purpose of this research is to determine farmers' perceptions of coffee production standards based on geographic indications in Temanggung Regency, as well as its relationship to their behavioral intention to adopt GI-based coffee production standards.

2 Method

Table 1. Distribution of respondents across study areas

GI Area	**Sub-district**	**∑ Respondent**
Java Arabica Sindoro-Sumbing Coffee	Kledung	40
	Ngadirejo	40
Temanggung Robusta Coffee	Gemawang	40
	Kandangan	40
	Bejen	8
	Candiroto	10
Total		**178**

Geographically, research respondents are scattered over coffee producing regions in Temanggung Regency that are included in the geographical indication areas of Temanggung Robusta Coffee and Sindoro Sumbing Java Arabica Coffee. A face-to-face questionnaire survey was conducted with farmers in six Temanggung sub-districts representing the primary production regions of Robusta and Arabica coffee, namely Gemawang, Kandangan, Candiroto, Bejen, Ngadirejo, and Kledung (Table 1). The survey took place between January and March of 2021. Respondents were chosen based on various criteria, including: 1) those who process coffee into green beans; and 2) those who have undergone socialization and/or are familiar with coffee production standards based on regional indication requirements. A total of 178 respondents were chosen for this study utilizing accidental convenience sampling approaches, with respondents being

proportionally selected for each sub-district depending on their fit to the topic of this study. The convenience sampling approach was adopted due to a lack of information on respondents who fit the study's criteria, and which allowed researchers to collect respondents who could and were judged to be able to be interviewed by surveyors.

Data were analyzed descriptively by using frequency, percentage and mean. The Mann-Whitney test was employed to assess disparities in coffee prices received by farmers, taking into account the various respondent groups included in the study. The questionnaire was prepared using several scaled-response question statements in the form of a 5-level Likert Scale. The statements in the questionnaire are grouped based on the determinants of behavior based on the theory of planned behavior [3] and the theory of technology acceptance model [4]. Respondents' responses to statements of attitudes, perceptions, and intentions were measured by responding to a scale of strongly agree, agree, neutral, disagree, and strongly disagree. The variables were: 1) farmers' attitudes towards behavior (ATB); 2) perceived behavioral control (PBC); 3) Perceived Useful (PU); and 4) farmers' intention to adopt coffee production standards based on geographic indications (ITA). Each indicator of the observed variable was then analyzed using descriptive statistics namely the average value of each statement item answered by the respondents and compared between the respondent groups of robusta coffee farmers and arabica coffee farmers. In order to assess the degree of correlation between research variables, a Spearman correlation coefficient test was conducted. We Perceptions of each statement item are grouped into 3 categories: good, moderate, and poor. The range between criteria is determined by the following formula [5]:

$$CR = (m\text{-}n)/K \quad (1)$$

CR is for criteria range, *m* is the highest answer scale, *n* is lowest answer scale and *K* is for the number of criteria. Based on the formula above, the range of criteria between classes is 1.33. The category range based on the formula above is as presented in Table 2.

Table 2. The average rating scale for each variable statement item.

Range of Mean	Level
1 – 2.33	Poor
2.34 – 3.66	Moderate
3.67 – 5	Good

3 Result and Discussion

3.1 Socioeconomic-demographic characteristics of farmers

Table 3 shows the characteristics of respondents in this study. Farmers' socioeconomic backgrounds are quite significant and have an impact on how they behave. The socio-demographic characteristics of the respondents in this study were the farmer's age, education, experience, contribution to on-farm work, farm location, and crop age. This study shows that 37.08% of the farmers who responded to the survey were between the ages of 41 and 50. The age of farmers has an impact on perception, according to research by Ahmad et al. [6]. Older farmers are more likely to steer clear of risks on their farms. Education is a factor that affects how information is received, processed, and how a phenomena is perceived by a person. The majority of respondent farmers in this survey had completed senior high school, or 34.83% of respondents. According to the findings, farmers with only an elementary school education (34.27%) outperform those with a junior high

school education. Several research finding revealed that formal education has a favourable impact on farmers' attitudes of smart agricultural technologies [7], [8].

Table 3. Distribution of respondents across study areas.

Variables	Frequency	Percentage
Age (years)		
<30	19	10.67
30 - 40	43	24.16
41- 50	66	37.08
51- 60	35	19.66
> 60	15	8.43
Education		
No Formal education	0	0.00
Elementary school	61	34.27
Junior High School	42	23.60
Senior High School	62	34.83
Higher Education	13	7.30
Experience (years)		
< 10	86	48.31
10-20	57	32.02
21-30	26	14.61
> 30	9	5.06
Number of Family Labor		
< 2	37	20.79
2-4	131	73.60
> 3	10	5.62
Farm – house distance (Km)		
< 1	65	36.52
1-2	94	52.81
> 2	21	11.80
Plant Age (years)		
<10	23	12.92
10-20	96	53.93
21-30	32	17.98
> 30	27	15.17

Additionally, it is known that 48.31% of respondents to this study had experience with coffee cultivation of less than 10 years, which is based on the length of experience of farmers in the industry. Ressig et al. [9], who found that there is a relationship between farmer experience and farmer perceptions, argue that experience plays a significant impact in farmer behavior. The majority of respondents (73.60%) are supported by the number of family workers, which ranges from 2-4 people per household, according to the information available on the number of family workers. Picson and He [10] assert that family workers have an impact on farmers' views of new technology as well as their capacity to adapt to them.

Furthermore, it is known that the majority of respondents (52.81%) have a coffee plantation that is located between 1-2 km from their place of residence, with the remaining respondents having plantations that are located between 1 and 2 km away (11.80%) and more than 2 km away (36.52%). The findings of Asrat et al. [11] that the distance between plantation locations and farmers' houses had a detrimental impact on farmers' views and degrees of adaptability were confirmed by Moges et al. [12] investigation. Finally, it is known that the majority (53.93%) of the coffee plants grown by farmers are between 10 and 20 years old based on the age of the plants. According to The et al. [13], farmers' perception might be impacted by the age of the plantation crops they grow.

Table 4. The difference price of green bean between GI and non-GI members

Group	Average price of green beans (IDR/Kg)		Mann Whitney Test		
	GI	non-GI	min	Max	Prob>|z|
Arabica	79,296.3	79,062.5	47,000	150,000	0.848
Robusta	23,765.4	24,852.2	20,000	60,000	0.164

Mann Whitney Test not significant, p-value > 0.05

Table 4 presents the difference in the selling price of green bean coffee between MPG and non-MPIG member farmers. From the results of the Mann-Whitney test, information was obtained that there was no significant difference in the average price of green bean coffee between MPIG and non-MPIG member farmers. This condition applies to groups of farmers who cultivate Arabica and Robusta coffee. From the average price of green beans, it can be seen that the price received by GIs is slightly higher in the Arabica group than non-GIs. On the other hand, for the Robusta group, the average price for non-MPIG farmers is even higher. The unreal price difference for green Arabica beans may be due to traders not being too concerned about GI status. This is consistent with the findings of Astuti et al. [14] which state that farmers only enjoy a small advantage from GI certification which is derived from the higher price per kg. From the total economic rent obtained, the roaster gets the most benefit portion, namely 95.46% (Robusta) and 83.66% (Arabica). Associated with higher non-GI prices, this phenomenon likely follows the law of supply and demand. For the Robusta group, the non-GI prices were higher because the locations of the Robusta-producing villages (GI and non-GI) were different, the buyers and the time of purchase were different, which made it possible for non-GI prices to be even higher than GI.

Table 5. The difference of selling price of green bean between GI and non-GI members

Group	Average price of green beans (IDR/Kg)		Mann Whitney Test		
	Processor	Non-Processor	min	Max	Prob>|z|
Arabica	86,785.71	74,212.29	47,000	150,000	0.003
Robusta	27,282.22	23,343.12	20,000	60,000	0.000
	Non-GI Processor	GI Processor			
Arabica	87,857.14	85,000	60,000	150,000	0.822
Robusta	26,906.25	27,489.66	21,000	60,000	0.914

Mann Whitney test, not significant, p-value > 0.05

Table 5 displays information about the difference in the selling price of green bean coffee between processors and non-processors. It is clear that there is a difference in the average price between those obtained by processors and non-processors. The average price of green beans on processors is higher and significantly different (alpha <0.05) for both the Arabica and Robusta groups. This shows that the status as a processor is able to increase the added value of coffee. Meanwhile, for fellow processors for both the Arabica and Robusta groups, there was no significant difference between non-GI and GI processors. This reiterates that GI status does not guarantee that you will receive a significantly higher price. Table 5 also shows that the price received by non-GI processors is higher for the Arabica group, while for Robusta the price received by GI processors is higher. This finding is somewhat different from Ardana [15] which states that GI certificate status provides positive benefits as indicated by increased coffee prices at both the farmer, processing unit, and trader levels.

3.2 Farmers' perceptions and attitude toward geographical Indication production scheme

Table 6 shows farmers' perceptions of coffee production standards based on geographical indication. Overall, the result shows that farmers' attitude toward GI-based coffee

production standards are at good level in both the robusta and arabica farmer groups. Nonetheless, some indicators of farmers' attitudes of GI-based coffee production standards were moderate in both groups. Several indicators in the respondent group of Robusta farmers were moderate, including indicators of the standards that must be fulfilled to become members of the MPIG (AT1), farming records (AT2), fertilizing (AT4), pests controlling (AT5), and wet sortation (AT8). While just one indicator—the plant spacing indicator was part of the moderate category in Arabica group (AT3).

Table 6. Farmers' attitude toward GI production standards

Code	Statement	Robusta	Arabica
		Mean Score	
AT1	To become MPIG members, farmers are required to meet certain requirements according to GI production standards	3.58	3.92
AT2	GI coffee production standards require farmers to have documentation of coffee farming records.	3.65	3.67
AT3	GI coffee production standards require farmers to follow the recommendations for spacing and the application of shade plants.	3.82	3.65
AT4	GI coffee production standards require that farmers only apply organic (arabica) fertilization; balanced fertilization + cage/compost (Robusta).	3.53	3.77
AT5	GI coffee production standards require using a mechanical approach and trapping compounds for the control of Plant Pest Organisms	3.64	3.72
AT6	The GI coffee production standard requires farmers to routinely trim shape, production, and rejuvenation pruning.	4.10	3.93
AT7	GI coffee production standards require that coffee be harvested selectively (at least 95% red fruit).	3.97	4.10
AT8	GI coffee production standards require that the coffee cherries are floated in the water to separate the bad/damaged coffee from the good ones.	3.51	4.21
AT9	GI coffee production standards require the processing of coffee cherries into coffee green beans according to a predetermined processing method (full wash for arabica; dry process, natural and honey for robusta).	3.85	4.14
Mean		3.74	3.90

AlNote: Category: 1-2.33 (poor); 2.34-3.66 (moderate); 3.67-5 (good)

Table 7. Farmers' perception of MPIG performance

Production Standard	Robusta		Arabica	
	Mean	Level	Mean	Level
Institutional Embedding				
MPIG has collected data on prospective MPIG members	3.72	Good	3.74	Good
MPIG has properly explained the GI concept to farmers.	3.57	Moderate	3.72	Good
MPIG is widely recognized by members and local farmers.	3.49	Moderate	3.50	Moderate
MPIG has held regular meetings with members.	3.40	Moderate	3.57	Moderate

Note: Category: 1-2.33 (poor); 2.34-3.66 (moderate); 3.67-5 (good)

According to this research finding, arabica coffee farmers evaluate GI-based coffee production standards more favorably than robusta coffee growers. These outcomes are consistent with the study's findings, which demonstrate that the robusta farmer group's opinion of MPIG's socialization and promotion of the GI concept is better to that of the Arabica farmer group (Table 7). It can be argued that MPIG is more proactive in encouraging the GI concept to farmers in the arabica coffee area and is adequately successful in providing farmers understand the GI concept.

Table 8 shows indicators assessing farmers' perceptions of the benefits of following GI-based coffee production standards. The study's findings show that farmers generally have a favorable perception of the standards of coffee production based on geographical indications, as evidenced by the average scores of 3.98 and 4.10, respectively, for the respondent groups for Arabica and Robusta coffee, and by the fact that all indicator variables (PU1 to PU12) fall into the good category. According to the survey's findings, the majority of farmers (> 50%) in both groups believe that applying GI-based coffee production standards will improve the quality of the coffee beans they produce (Figure 1). This result conforms with the findings from Neilson et al. [16], who revealed that the use of GI-based coffee production standards led to benefits for Bajawa Flores Arabica coffee farmers in the form of higher coffee selling prices. These results indicate the recognition of farmers that GI-based coffee production standards will be able to produce quality coffee beans. Meanwhile, based on farmers' attitudes towards the benefits of implementing GI-based coffee production standards for the price of coffee beans received, it is known that the majority of farmers (> 50%) in both groups of respondents agreed that the implementation of GI production standards would have an impact on the high selling price of coffee beans received by farmers compared to coffee beans produced that do not follow GI standards (Figure 2).

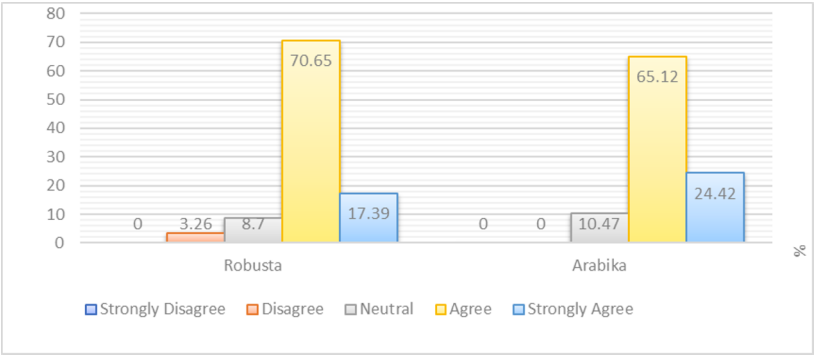

Fig 1. Farmers' perception of the benefit of GI' standards in improving coffee bean quality

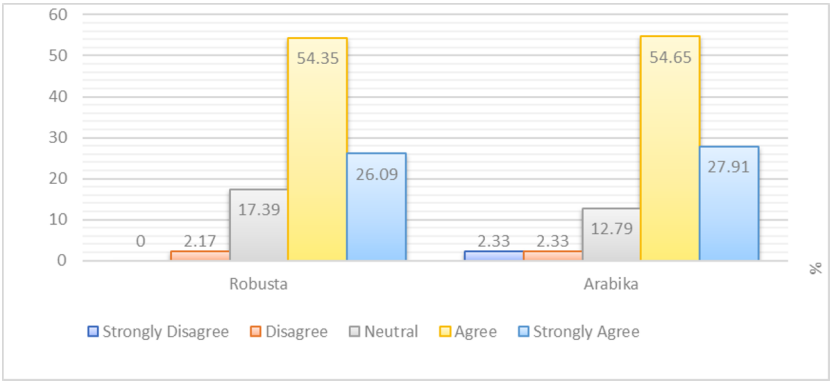

Fig 2. Farmers' perceptions of the benefits of implementing GI standards in increasing the selling price of coffee beans

Table 8. Farmers' perception of perceived usefulness toward GI production standards

Code	Statement	Robusta	Arabica
		Mean Score	
PU1	I will benefit if I apply the GI-based coffee production Standards	3.95	4.00
PU2	I will benefit from becoming a member of MPIG.	3.71	3.79
PU3	I can produce quality coffee beans if I follow GI standards.	4.02	4.14
PU4	If I produce coffee according to GI standards, then I will get a higher coffee selling price compared to those that do not follow GI standards	4.04	4.03
PU5	The income from selling my coffee increases when I produce coffee green beans by applying GI standards	3.97	3.98
PU6	Coffee plants will grow well if the recommended spacing and use of shade plants are implemented according to IG standards.	4.15	4.06
PU7	I will get quality coffee beans if I apply fertilization recommendations according to GI standards (2 times / year)	3.99	4.00
PU8	Pest and diseases control by following GI recommendations (mechanically and using biological agents) will have an impact on environmental sustainability.	3.98	3.88
PU9	Pruning coffee trees according to IG standard recommendations will increase my yield.	4.21	4.31
PU10	Harvesting coffee cheery selectively (95%) red fruit will improve the quality of the green beans produced.	4.30	4.48
PU11	Floating and sorting after harvest to separate coffee beans that are not suitable for processing (floating, rotten, green) are carried out to produce quality green coffee beans according to GI standards.	3.54	4.29
PU12	Processing coffee cherries into green beans according to standards (full wash for arabica; dry process, natural and honey for robusta) will produce quality green bean coffee.	3.87	4.20
Mean		**3.98**	**4.10**

AlNote: Category: 1-2.33 (poor); 2.34-3.66 (moderate); 3.67-5 (good)

Table 9 provides information on how farmers feel about the ease of implementing GI-based coffee production standards. Overall, the survey's findings showed that both robusta and arabica farmer respondents were uneasy about implementing standards for coffee production based on geographical indications. The responses from farmers demonstrate that there are still difficulties that prevent farmers from implementing GI standards. According to Ajzen [17] in the Theory of Planned Behavior (TPB), Perceived behavior control (PBC) is defined as an individual's perception of the degree of ease or difficulty in performing or implementing a particular behavior that is determined by individual beliefs about the availability of resources such as equipment, compatibility, competencies and opportunities. This definition also refers to an individual's perception of conditions that may enhance or hinder the actualization of a particular behavior [18].

Table 9. Farmers perceived behavioral control toward GI production standards.

Code	Statement	Robusta	Arabica
		Mean Score	
PBC1	I am sure that I can meet the requirements to become an MPIG member if there is assistance from MPIG	3.40	3.59
PBC2	I'm sure I can keep records of farming regularly if needed as part of GI standards.	3.12	3.38
PBC3	I am confident that I can apply spacing and meet the minimum	3.20	3.36

	number of shade plants according to GI standards.		
PBC4	I'm sure I can apply balanced fertilization for Robusta (chemical and cage/organic fertilization); and organic fertilization (manure/compost) for arabica, if the need for chemical fertilizer is available (both subsidized and non-subsidized) and the need for organic fertilizer is also available (both self-produced and marketed).	3.99	3.78
PBC5	I am confident that I can apply a mechanical approach or use biological agents in controlling pests and diseases, while pest and disease attacks are still within reasonable limits.	3.01	3.44
PBC6	I am confident of being able to do coffee pruning (both shape pruning, production, and rejuvenation).	3.48	3.57
PBC7	I am confident that I can selectively pick red coffee cherries (at least 95%).	3.41	3.86
PBC8	I'm sure I can do coffee sorting by floating it in water to separate bad and rotten coffee cherries.	3.26	3.92
PBC9	I am sure that being able to process coffee cherries into coffee beans (green beans) according to GI standards (full wash for arabica; dry process, natural and honey for robusta)	3.70	3.90
	Mean	**3.40**	**3.64**

Note: Category: 1-2.33 (poor); 2.34-3.66 (moderate); 3.67-5 (good)

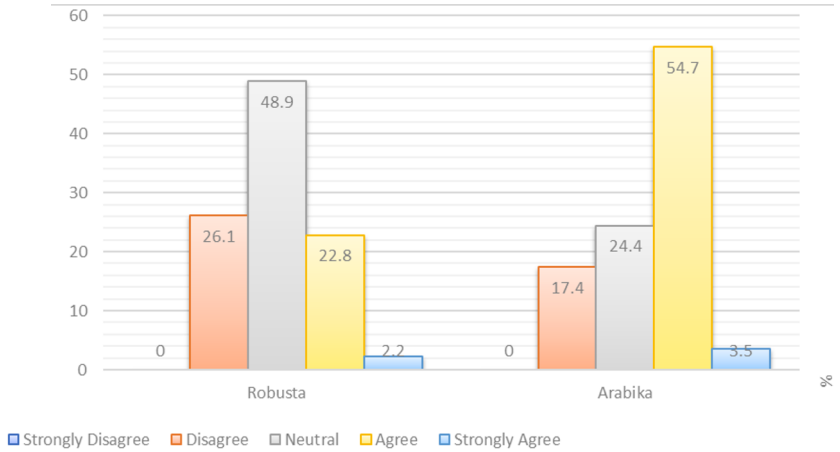

Fig 3. Farmers' perceptions apply standard control of plant pests without pesticides.

On the average of all PBC indicators, it is known that farmers' perceptions of the ease of implementing GI-based coffee production standards, both in the robusta and arabica groups, fall into the moderate category, which is 3.40 and 3.64. As an illustration, Figure 3 shows that most of the respondents are still hesitant to apply standards for controlling plant pests without using pesticides. As is well known, farmers generally still use herbicides to control weeds, especially in the Robusta farmer group, which has a larger coffee plantation area. Whereas in the Arabica group, they generally use insecticides to deal with pest and disease attacks on tobacco plants and vegetables planted between coffee trees, and generally farmers spray coffee plants at the same time as spraying tobacco plants and vegetables.

Table 10. Farmers' intention to adopt GI production standards.

Code	Statement	Robusta	Arabica
		Mean Score	
ITA1	I will record coffee farming activities for GI verification.	3.65	3.83
ITA2	I will apply the plant spacing following to the GI	3.75	3.84

	standard.		
ITA3	I'll follow IG's suggestions and use an appropriate coffee shade plant.	3.85	3.65
ITA4	I'll apply certified coffee varieties as required with the GIs' recommendations.	3.64	4.06
ITA5	I will apply fertilization according to GI requirements, Arabica (organic); robusta (balanced fertilization).	3.98	3.95
ITA6	I will control pests and plant diseases without using chemical pesticides.	3.71	3.76
ITA7	I will do coffee tree pruning following GI's requirements.	4.11	3.97
ITA8	I will harvest coffee cherries according to GI requirements.	3.57	4.26
ITA9	I will be sorting the coffee cherries in a water bath to separate out the cherries that are unfit for processing.	3.65	4.14
ITA10	I will carry out the processing of coffee beans according to GI requirements. Arabica: fully washed; and Robusta: full washed, dry process, honey process.	3.73	3.93
Mean		**3.76**	**3.94**

Note: Category: 1-2.33 (poor); 2.34-3.66 (moderate); 3.67-5 (good)

Table 10 shows survey findings demonstrating farmers' willingness to adopt production standards for coffee depending on geographical indication. The survey findings demonstrate that for both groups of respondents, the average indicator used to measure the ITA variable falls into the good category. These findings indicate that farmers are enthusiastic or have a strong intention to implement GI-based coffee production standards. The intention to adopt GI standards is expected to motivate farmers and MPIG to be more proactive in promoting and educating farmers so they are able to apply GI-based production standards. Nonetheless, we believe that factual behaviour or farmer adoption of coffee production standards based on geographical indications is also influenced by many factors, one of which is experience and social factors such as (1) social comparison, namely a situation where a person compares himself with others who are better from himself and vice versa; and (2) social norms, namely group references that affect a person in assessing, feeling and behaving [19].

3.3 Correlation between perception, attitude, and intention to adopt GI's standards.

From the analysis (Table 11), it is known that the ATB, PBC, and PU variables have a strong and positive relationship with the ITA. The ATB variable is the one of the three that has the greatest correlation with the ITA variable (rho = 0.544, p-value 0.001). Meanwhile, from the overall correlation between variables, it is known that the correlation between ATB and PBC variables shows a perfect relationship (rho = 1, p-value 0.001). The positive and significant relationship between attitude and perception factors towards the farmer's intention to adopt shows the magnitude of the influence of these two factors on the intention factor. The findings of our study align with those of Mahyuda et al. [20] who conducted research on farmers' perceptions of good agricultural practices in coffee cultivation. Their study identified several variables that influenced farmers' adoption levels, including perceptions of relative superiority, suitability, complexity, ease of use, and ease of observation.

Table 11. Correlation of ATB, PBC, PU on intention (ITA)

Variable	ATB		PBC		ITA		PU	
	rho	p-value	rho	p-value	rho	p-value	rho	p-value
ATB	1		1	<0.001	0.544	<0.001	0.574	<0.001
PBC	1	<0.001	1		0.543	<0.001	0.574	<0.001
ITA	0.544	<0.001	0.543	<0.001	1		0.533	<0.001
PU	0.574	<0.001	0.574	<0.001	0.533	<0.001	1	

Sig (2-tailed) p-value <0.05.

4 Conclusions

Farmers' perception of geographical indication standards in Temanggung regency regarding farmers' attitude and intention to adopt can be classified into a good category. Meanwhile, regarding farmers' perceived ease of the implementing GI's standards, the level of farmers' perception categorized at moderate level. Attitude toward behavior, perceived behavioral control and perceived useful had a strong correlation toward intention to adopt. The strongest relationship between the variables was shown by the correlation between attitude toward behavior and perceived behavioral control.

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