

Conference Paper

Farmers Perception on Application of Technology and Economics Innovation of Spice Coffee

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Abstract

The role of agroindustry in rural areas in increasing the added value of agricultural commodities especially in the creation of value added, employment absorption, and linkage with other sectors. Most of the coffee is cultivated by smallholder plantations. The quality of coffee is low because most farmers pick it in the same way and process it dry. People traditionally know the spices coffee give priority to certain flavor and aroma. The objective of the research is a) to analyze the application level of technological innovation of spice coffee farmers and b) to analyze the application level of economic innovation of coffee farmers. The analysis used is description about perception of applying innovation of the spice coffee industry. The results showed that the main perception of coffee farmers to implement technological innovation is the spice coffee technology does not cause damage to the local environment, even using local raw materials, such as ginger, *kencur*, *keningar*, cardamom and cumin. Another perception is packaging technology and processing of spice coffee that is easy to apply. The main perception of coffee farmers to implement economical innovation is to increase profits and selling points. In addition, it is easy to market, close input market location and taste of spice coffee aromatic.

Keywords: Coffee, economy, perception, spices, technology

INTRODUCTION

The development of diversified coffee products such as roasted coffee, instant coffee, coffee beers, and ice coffee has important meaning, because it can be a superior commodity that has high competitiveness. In addition, the development of these products has the potential for the products development of specialty coffee with special flavors such as; Lintong Coffee, Coffee Lamp, Coffee Coffee, Kintamani Coffee, Toradja Coffee.

Traditionally, people know coffee that gives priority to certain flavor and aroma efficacious, including spices coffee. Industrial development can be seen from the perception of farmers on technology and economic innovation of spice coffee. Research on farmers' perceptions of technology, among others Olwande et al. (2009) and Listyati et al., (2011) stated that farmers' perceptions on the application of technology are influenced by age, education level of farmers, number of family dependents, credit, market access, farming area and farm income, Wahyudi and Hasibuan (2011) indicated that farmers' perceptions on technology are highly determined by farmers' ability level that indicated from farmers' income level, farmers' knowledge (education, training and extension activities) and farmers' experience farming.

Farmers' perceptions on technological and economic innovations are an understanding or interpretation of

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the stimulus received by farmers, before farmers decide to accept or reject technological and economic innovations. Perception is the next stage after the farmers have obtained information and knowledge about this coffee technology. Based on the information and knowledge, farmers then perceive and start to assess the innovation based on the nature of the innovation.

The Oxford dictionary defines perception as 'to take in or apprehend with the mind or senses'. 'Apprehend with the mind' means 'to become aware or conscious of, to observe, understand'. This explanation of perception shows the cognitive as well as the affective part of perception. So, besides ratio, emotions also play a role when the world around us is perceived. Each consumer perceives the environment in his or her own way (Sijtsema et al., 2002). People differ in their perception of reality depending on their own experiences, life histories, and personal situations (Antonides and Van Raaij, 1996). Consumers perceive the product while they buy, prepare, and consume it. Perception is based on sensorical observations of individual (perceptor) and product characteristics (stimuli). So, product characteristics like package, appearance, taste, and smell are part of what has influence on perception by the consumer. Besides these characteristics, other aspects influence the perception, such as experiences, atmosphere while perceiving the product and indirect product characteristics like environment-friendly breeding and production methods. Perception is a complex process of the senses and the brain that is influenced by many variables that are hard to disentangle.

Most of the coffee grown in the district Tukur is cultivated by smallholder agriculture. Coffee quality is low because farmers typically pick the fruit is arbitrary and process them dry. Decreasing the competitiveness of coffee is necessary the creation of a new superior product recall live-cycle product shorter and consumer appetite for product quick change. Empowerment through technological and economical innovation of the traditional drinks industry is required by spices coffee agro-industry in the districts of Tukur. Empowerment of spices coffee agro industries aim to increase the value-added products so that farmers obtain higher selling prices of coffee. The activities include the supply of raw materials, processing, supply of final products, and marketing. The objective of the research is a) to analyze the application level of technological innovation of spice coffee farmers and b) to analyze the application level of economic innovation of coffee farmers (Weir and Knight, 2000).

METHODS

This research raised the theme of technological and economic innovation of spices coffee to improve the welfare of peasant coffee farmers. The study will be focused on smallholder powder coffee farmers in the Tukur Sub district of Pasuruan District. The reason for choosing Tukur Subdistrict is a central area of people coffee production and including the area of coffee commodity development in East Java province is quite potential.

The target population is determined in Tukur villages. The population is coffee farmers who cultivate coffee and conduct processing up to the coffee powder. Samples were taken based on purposive sampling and set to take 30 farmers. Farmers' perceptions on technological and economic innovation were done by using Likert scale and tabulated in matrix form, analyzed descriptively, and presented in table form, as follows:

- Score 1: Strongly disagree
- Score 2: Disagree
- Score 3: Moderate
- Score 4: Agree
- Score 5: Strongly Agree

RESULT AND DISCUSSION

Farmers Characteristics

Characteristics of farmers have a close relationship with the perception level of farmers to technological and economy innovations of spice coffee. Characteristics of farmers is including the age, education level, coffee farming experience, and land area, as shown in Table 1. Table 1 shows that most farmers (60%) are under the

age of 35 years. It suggests that most of productive aged farmers are closely related to the adoption rate of technological innovation. Productive age are generally more open to technological innovation. Most of the coffee farmers are middle-educated, only 33.33% of coffee farmers have primary school education. The level of education also plays an important role towards the adoption of technological and economic innovations, farmers have higher education will more quickly accept technological innovation. The experience of farmers plays an important role in the adoption of technological and economic innovations of spice coffee. Most coffee farmers have about 10 to 20 years of farming experience.

As other commodities in Indonesia, coffee farming also has a relatively narrow land area. In line with technological and economic innovations, narrow land area tends to be reluctant to adopt innovations of spice coffee. Table 1 shows that the land area of coffee farmers below 0.50 ha reaches 46.67%. Moreover, the area of land used for coffee farming under 1 ha reaches 86.67%. It shows that coffee commodities are still cultivated on a relatively small scale. Nevertheless, coffee farming has been used as a superior commodity even at the sub-district level.

Table 1. Farmers Characteristics

No.	Characteristics	Percentages
1.	Age	
	a. Less than 25 years	16.67
	b. 25-35 years	43.33
	c. 36-50 years	23.33
	d. More than 50 years	16.67
2.	Education Level	
	a. Primary school	33.33
	b. Junior high school	40.00
	c. Senior high school	16.67
	d. Higher education	10.00
3.	Farm Experience	
	a. Less than 5 years	13.33
	b. 5-10 years	36.67
	c. 11-20 years	26.67
	d. More than 20 years	23.33
4.	Land area	
	a. Less than 0.5 ha	46.67
	b. 0.5-1.00 ha	40.00
	c. More than 1.00 ha	13.33

The perception level of farmers to technological innovations of spice coffee, as shown in Table 2.

Table 2. Farmers Perceptions on Technological Innovation of Spice Coffee

No	Farmers Perceptions on Technological Innovation	Scale					Average
		5	4	3	2	1	
1.	Compatibility Technology with the main raw material (coffee)		1				
		2	3	15	0	0	3.57
2.	Compatibility Technology with auxiliary raw materials	1	4	22	2	1	3.07
3.	Raw materials are widely available	0	4	16	10	0	2.80
4.	Technology equipment are nearby available	1	3	3	11	12	2.00

5.	Spice coffee production process is easy to implement	1							
		3	0	16	0	1			3.47
6.	Confidence of the spice coffee recipe is easy to test	1							
		8	3	8	1	0			3.93
7.	Spice coffee production results are easy to see	1							
		4	3	12	1	0			3.67
8.	The composition of raw materials of spice coffee recipe is appropriate	2							
		3	0	4	3	0			3.77
9.	The technology of spice coffee products does not damage the local environment								
		16	9	3	2	0			4.30
10.	Spice coffee packaging technology is available	1							
		8	4	7	1	0			3.97
Total Average									3.45

Table 2 showed that farmers' perceptions of spice coffee technological innovation include 10 aspects of consideration. Most farmers have the same perception of the technology of spice coffee products does not damage the local environment, with a score of 4.30. It is due to the technology used is very environmentally friendly, even spice coffee recipe using local raw materials, such as ginger, *kencur*, *keningar*, cardamom and cumin. Furthermore, the second perception of farmers is spice coffee packaging technology is available, with a score of 3.97. This is due to optimistic farmers spice coffee can be sold in the market with packaging model that is easy to apply (Abdoulaye, 2002). The perception level of farmers to economy innovations of spice coffee, as shown in Table 3.

Table 3. Perceptions of Farmers on Economical Innovation of Spice Coffee

No	Farmers Perceptions on Economical Innovation	Scale					Average
		5	4	3	2	1	
1.	May reduce labor	5	6	19	0	0	3.53
2.	Can increase the selling price	17	12	0	0	1	4.47
3.	Taste of processed spice coffee is aromatically	7	17	6	0	0	4.03
4.	Easier to market	12	14	3	0	1	4.20
5.	Can increase profits	22	4	3	0	1	4.53
6.	Compatibility with social values and community needs	3	18	8	1	0	3.77
7.	Price input confidence is not expensive	8	13	9	0	0	3.97
8.	The input market location is not far away	7	20	3	0	0	4.13
9.	The output market location is not far away	3	18	9	0	0	3.80
10.	The scale of business is relatively small	9	13	8	0	0	4.03
							4.05

Table 3 Showed that farmers' perceptions of spice coffee economical innovation include 10 aspects of consideration. Most farmers have the same perception is that the spices coffee can increase their profits, with a score of 4.53. Farmers feel confident that spice coffee can increase the added value of their powder coffee. Furthermore, the second perception of farmers is that the spices coffee can increase the selling price, with a score of 4.47. It is more convincing farmers to want to apply spice coffee as their product. The other perceptions of coffee farmers to implement economical innovation is it is easy to market, close input market location and taste of spice coffee aromatic.

CONCLUSION

Most of the coffee farmers are middle-educated, only 33.33% of coffee farmers have primary school education. Most of coffee farmers have about 10 to 20 years of farming experience. The land area of coffee farmers below 0.50 ha reaches 46.67%. Most farmers have the same perception of the technology of spice coffee products does not damage the local environment, with a score of 4.30 and the second perception of farmers is spice coffee packaging technology is available, with a score of 3.97. Most farmers have the same perception is that the spices coffee can increase their profits, with a score of 4.53 and the second perception of farmers is that the spices coffee can increase the selling price, with a score of 4.47. It is more convincing farmers to want to apply spice coffee as their product. This is supported also an easily accessible market, close input market location and taste of spice coffee aromatic.

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