MOTIVATION AND BARRIERS OF ORGANIC AGRICULTURAL PRODUCTION SYSTEM ADOPTION IN YOGYAKARTA-INDONESIA

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PURPOSE
THE organic production in Indonesia clearly show the gap between the growing demand for organic products and shortage of area of production. This study aims to identify the motives of producers in adopting organic farming systems and barriers faced by them in adopting the organic farming systems.

Design/Methodology/Approach: *This research is descriptive and quantitative analysis has been done using primary data. Sources of data in the study are organic producers/farmers located in Yogyakarta-Indonesia. Data collection techniques are surveys using questionnaires. Data analysis has been done in this study using descriptive statistics.*

Finding: *The results show that producers have a motive in adopting organic farming systems based on quality, income, health, opportunities, lifestyles, and government support. Producers tend to have moderate and high perceptions of these factors. Producers perceive that marketing network, infrastructure, productivity, certification, knowledge, cost, and control of production/quality is a barrier associated with the adoption of the organic farming systems.*

Research Limitations/Implications: *This study was limited to one district i.e., Kulon Progo, special region of Yogyakarta-Indonesia.*

Practical Implications: *Practically recommended for the government to increase the adoption of organic farming system, the government can assist producers in overcoming barriers faced by them by launching marketing programs, building infrastructures like ready-to-plant land, providing production process assistance, certification assistance, and training of organic farming systems to improve production knowledge and control.*

Originality/Value: *There has not been a similar study conducted in the study area.*

Key Words: Motives, Barriers, Agriculture, Organic.

Introduction

In 1992, Indonesia formally adopted a resolution to participate in the environmental conservation program by signing Agenda 21 in the Earth Summit in Rio de Janeiro, Brazil. Unfortunately, Indonesia has not grabbed the opportunity coming from national as well as international demand, considerably.

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The agenda requires each country to adjust its agricultural development policy to the principle of Sustainable Agriculture and to promote the concept of sustainable agriculture. The concept of sustainable agriculture in some places is translated by the implementation of various agricultural systems such as organic farming, ecological farming, biological farming, alternative farming, and nature farming. Organic farming is an agricultural production system that avoids or severely limits the use of chemical fertilizers (factories), pesticides, herbicides, growth regulators, and feed additives (Razanur, 2013). Today every production practice that uses existing land in an environmental friendly way is relevant to the society (Djokoto, Owusu, & Vitor, 2016). Organic farming techniques are considered to be promising sustainable agricultural system for producing food while minimizing environmental impacts (Casagrande et al., 2016)

Organic food is not long known by the people of Indonesia when compared with other countries (Wijaya, 2017). Indonesia could not fulfill the growing demand from international consumers towards Indonesian rice that made the consumers seek other suppliers from different countries (Aminah, Hubeis, Wijayanto, & Widiatmaka, 2017). The purchase of organic food in Indonesia is still relatively low, this is supported by the survey results of YLKI research (2012) in several regions of Indonesia. Research conducted by Junaedi (2007) and Sihombing (2007) indicated the low purchase rate of organic products in Indonesia. In contrast to data in several other countries in Britain, media writes that in Asia organic product sales are increasing 20% annually. Beijing's reported sales of organic vegetables at local supermarkets rose sharply to 88% within 12 months since November 2006. Various health literature mostly advise the readers to consume fresh and natural food. Good food is all fresh food that meets the nutritional needs of the body, i.e. foods containing charcoal, carbohydrates, vitamins, minerals, water, and other essential substances such as fiber, enzymes, and antioxidants (Gunawan, 1999). Food contaminated by pesticides will leave dangerous residues that continue to accumulate in the human body. The trend of eating organic food is going to increase the awareness about importance of food for health.

The issue of food security has increased public awareness about environmental crisis that requires everyone to have a healthy and thrifty lifestyle (Junaedi, 2007) and live naturally (Chan, 2001). Understanding the factors that play a role to explain green behavior is expected to reduce environmental degradation through aspects of production and consumption of environmental friendly food products. From the producer side, understanding the buying behavior towards organic food is important as part of communication and marketing strategies for potential segments (Kalafatis, Pollard, East, & Tsogas, 1999). Several studies have examined the motives of the consumer's perspective (Aguirre, 2007; Ham, Pap, & Bilandzic, 2016).

Several studies have attempted to examine the factors of purchasing organic food from the perspective of organic food producers. Koutsoukos & Iakovidou (2013) suggested the factors that motivated the organic producers namely, belief in quality, hope for better income, awareness about the environment, and knowledge about appropriate places of production. Lapple & Rensburg (2011) highlighted that there are significant differences in the characteristics between the adopter groups, particularly with regard to farming intensity, age, information gathering as well as attitudes of the farmer.

Several studies also examine the barriers faced by producers in adoption of techniques of organic farming.

Objectives of the Study

The research attempts to examine the factors that become the motive of organic producers and the factors that become barriers for producers in the adoption of organic farming system. This research is focused on several organic production centers in Kulon Progo, special region of Yogyakarta, such as organic coffee, sugar, and rice. Specifically the research aims to:

1. Identify the producer's motive in adopting organic farming system.
2. Identify the barriers faced by producers in adopting organic farming systems.

Literature Review

Several factors that become the motives and barriers for organic food producers are explained by several research studies.

Motive of Organic Agricultural System Adoption

Environmental issues are a common problem and can only be overcome if every individual is active either individually or collectively and participates in maintaining the consumption pattern. Recent developments have made the people to realize that a healthy and sustainable environment not only provides a healthy life but also, ensures efficiency at the company's micro level and sustainable development at country's macro level.

Aoki (2014) finds the motivation of organic producers related to financial profits, health, and environmental reasons such as quality, conservation, and ergonomics. According to the research of Soltani, Azadi, Mahmoudi, & Witlox (2013), factors that encourage producers to adopt organic production systems are experience, education and knowledge, income and opportunity of a production area, producer cooperation, and government support.

Azam & Shaheen (2018) have examined the factors that influence farmers' choice of adopting organic farming based on their demographic classification such as, education level, farm size, farming experiences, and land ownership of the organic farmers. Cranfield, Henson, & Holiday (2010) suggested the several reasons that induced the producers towards organic farming include new market opportunities, greater profits, health, safety, product quality, ideology, dissatisfaction with conventional systems, and changes in lifestyle which are further grouped into factors namely, health/safety, environment, social needs, profit/profitability, and economic challenges. Issa & Hamm (2017) discussed the factors that influence farmers' attitudes and intentions to adopt organic production. Genius, Pantzios, & Tzouvelekas (2006) stated that, the farmers continuously expend effort to gather additional information about agricultural activities to improve their respective expertise, and, therefore, their agricultural income.

Barriers of Organic Agricultural System Adoption

The researchers also highlighted several barriers related to the development of organic farming business namely, certification, market knowledge and information, and high cost. In fact, the lack of availability of data and information relating to the environment and products that are claimed to be environmentally friendly causes consumers not to be fully aware of the truth of the claims of green products. Consumers rely heavily on advertising, labeling, lightweight rubrics on popular media, and word-of-mouth. The market does not provide enough information for consumers to determine whether a product is organic or not.

Organic food, as an environmental friendly product, is an element of an individual belief system (Dembkowski & Lloyd, 1994). Traditionally, the beliefs of food and nutritional benefits are cultural part of the Chinese, Japanese, Korean, and several other Asian countries (Saris, Verschuren, & Harris, 2002; Westrate, Poppel, & Verschuren, 2002). Farmer's attitudes have significant influence on the determination of the barriers of sustainable agriculture (Kheiri, 2015). Koutsoukos & Iakovidou (2013) highlighted the factors leading to the rejection of the organic production system, namely, marketing network, competition from an imported product, infrastructure problem, and unfamiliarity with organic system of production. Cost, productivity, profitability, compatibility, and efficiency are factors affecting adoption of organic farming that have a significant effect on the farmer productivity (Ullah, Shah, Ali, Naz, Mahar, & Kalhoro, 2015). Kallas, Serra, & Roig (2010) found that farmers who are not risk averse are more likely to adopt organic farming. Cranfield et al. (2010) explained some of the factors that become barriers in adopting the organic production techniques like government regulations, lack of marketing, negative pressure, unavailability of capital and finance, production control and quality, productivity problems such as long harvest time, and so on.

Research Methods

The present paper presents descriptive analysis of the data collected through questionnaires. The variables in this study are interdependent, that is, the motive and barrier to buying organic food. The operational definition relating to the meaning of all the variables used in this fieldwork is described as follows:

The producer's motive to adopt organic farming systems is a stimulant factor that encourages organic producers to implement organic-based farming (Koutsoukos & Iakovidou, 2013). It includes, confidence in quality, expectations for better income/finances, environmental awareness, health reasons, business opportunities, lifestyle changes, and government support.

Barriers faced by producers in the development of organic products are the impediments faced by the adoption of organic production systems by producers (Koutsoukos & Iakovidou, 2013). It includes, marketing networks, competition from imported products, infrastructure issues, certification, market needs, knowledge of production systems / not familiar with organic systems, high cost, production control or quality, and slow productivity or long harvest time.

The instruments in this study were adapted from previous studies. The research population comprise of producers of organic products. The sampling technique used was non-probability, purposive sampling. The criteria for selection of producers was their involvement in production of organic products for at least 3 years in the past at Kulon Progo location. Data were analyzed using descriptive statistics.

Data Analysis and Results

Characteristics of respondents in this study described gender, age, duration for using organic farming systems, and types of organic products produced. Characteristic of respondents in terms of gender obtained in this study has been presented in table no. 1.

Table No. 1: Respondent by Gender

No.	Gender	Frequency	Percentage
1.	Male	50	64%
2.	Female	28	36%
	Total	78	100%

From table no. 1, it can be seen that the number of male respondents are more than women. Male respondents were 50 (64%), while female respondents were 28 (36%) out of total 78 respondents.

Characteristic of respondents in terms of age obtained in this study, is presented in table no. 2.

Table No. 2: Respondent by Age

No.	Age	Frequency	Percentage
1.	< 30 year	2	3%
2.	30-40 year	16	21%
3.	41-50 year	46	58%
4.	> 50 year	14	18%
	Total	78	100%

Characteristic of respondents by age is classified into four age groups. The majority of respondents

(58%) were from the age group of 41-50 years. The least number of respondents (3%) were below 30 years of age. The respondents from age group of above 50 years were 18% whereas, 21% respondents were from the age group of 30-40 years.

Characteristic of respondents based on duration of using organic farming system obtained in this study are presented in table no. 3.

Table No. 3: Respondent by Duration of Usage

No.	Long Time	Frequency	Percentage
1.	3-5 year	58	74%
2.	> 5 year	20	36%
	Total	78	100%

Characteristic of respondents based on the duration of usage of organic farming systems are grouped into two categories. Respondents who have used organic farming techniques for more than five years comprise of 20 respondents (36%), while 58 respondents (74%) have used the organic farming techniques for a period of 3 to 5 years. Characteristic of respondents based on the type of organic agricultural product produced are presented in table no. 4.

Table No. 4: Type of Organic Agricultural Products

No.	Product type	Frequency	Percentage
1.	Rice farming	28	36%
2.	Organic coffee	22	28%
3.	Organic sugar	28	36%
	Total	78	100%

Characteristic of respondents based upon the type of organic farming products produced are classified into three categories namely, organic rice farming, organic coffee, and organic sugar. Respondents from organic coffee were 22 (28%), 28 (36%) from organic rice, and 28 (36%) from organic sugar.

Categorization of Motives

Descriptive analysis is used in analyzing motive of the producers in adopting the organic farming system and barriers faced by them in adopting the organic farming system. Table no. 5 depicts the various motives in adopting the organic farming systems by the producers.

Table No. 5: Categorization of Motives in adopting Organic Farming System

No.	Motive	Percentage	Categorization
1.	Quality	60.7%	High
2.	Income	60.7%	High
3.	Environmental awareness	7.1%	Low
4.	Health	71.4%	High
5.	Opportunity	75%	High
6.	Life style	67.9%	High
7.	Government support	39%	Moderate

Producers perceive that, products from organic farming systems have better quality than non-organic products. Respondents believe that quality of output carry high importance (60.7%) as being the motive of adopting organic farming system. Producers are also encouraged to adopt the organic farming system because they perceive that organic farming system will provide better income than non-organic systems. Motives based on income carry high importance (60.7%) as being the motive of adopting organic farming system. Motives based on environmental awareness carry least importance of only 7.1%. Producers perceive that products from the organic farming systems are healthier than non-organic products. This motive is enough to be one of the major motives (71.4%) for the producer to adopt the organic farming system. Producers see organic farming as a new business opportunity. Motives based on the perspective of opportunity is high, that is 75% for the producers. Based on lifestyle motives, producers consider that an organic or natural lifestyle is part of the opportunity so, producers pay attention to consumer lifestyles with a response of 67.9%. The views of producers about organic farming as a government-backed enterprise carries moderate importance of 39%.

Categorization of Barriers

Based on descriptive analysis, the barriers faced by producers while adopting organic farming system are depicted in table no. 6:

Table No. 6: Categorization of Barriers in Adopting Organic Farming System

No.	Barrier	Percentage	Categorization
1.	Marketing network	60.7%	High
2.	Competition	0%	Low
3.	Infrastructure	71.4%	High
4.	Productivity	78.6%	High
5.	Certification	67.9%	High
6.	Knowledge	46.7%	Moderate
7.	Cost	75%	High
8.	Production/quality control	62.9%	High

Producers perceive that marketing network is a barrier associated with the adoption of the organic farming systems. Producers perceive the factor of marketing network carries high importance (60.7%) as a barrier in adopting organic farming system. The competition factor is not part of the barriers perceived by the producer. Producers perceive the competition factor does not carry any importance (0%) as a barrier in adopting organic farming system as there are not many competitors using organic farming system. With regard to infrastructure, producers consider infrastructure, such as land, to be part of the barriers in organic farming which carries importance of 71.4%. Producers perceive productivity as a the major barrier (78.6%) in adoption of organic farming processes as it requires longer production periods than conventional ones. The importance attached by the producers to certification, knowledge, cost, and production/quality control as barriers in adoption of organic farming system is 67.9%, 46.7%, 75%, and 62.9% respectively.

Based on the findings, producers have a motive in adopting organic farming systems based on quality, income, health, opportunities, and government support. Producers consider the quality of organic farm production better than non-organic products. Products from organic farming are considered healthier than non-organic. Producers perceive that organic farming systems will provide better income than non-organic or considered organic production to be more profitable than conventional. Producers are more optimistic with organic farming systems because they are supported by the government. Producers

continue to expect full support from the government as it is part of the agricultural department's program. These findings are supported by research results suggested by Koutsoukos & Iakovidou (2013).

Producers perceive that marketing network, infrastructure, productivity, certification, knowledge, cost, and control of production are barriers associated with the adoption of organic farming systems. Producers consider infrastructure, such as land, to be part of the barriers perceived by producers. Producers believe that organic farming techniques entails longer production period than conventional system, leading to lower production quantity, besides there is requirement of special knowledge in applying organic farming system. Organic farming also requires a high cost associated with the process of seeds obtained and require organic fertilization. The organic farming system requires production/ quality control in the handling of pests. These findings are consistent with the results of Koutsoukos & Iakovidou (2013).

Conclusions and Recommendations

Based on the above discussion, it can be concluded that Producers have a motive in adopting organic farming systems based on quality, income, health, opportunities, and government support. Producers perceive that marketing network, infrastructure, productivity, certification, knowledge, cost, and control of production is a barrier associated with the adoption of organic farming systems.

Based on the findings and conclusions, we can give some recommendations for the government to increase the adoption of organic farming system, the government can assist producers in overcoming barriers faced by them such as, launching marketing programs, building infrastructures like ready-to-plant land, providing production process assistance, certification assistance, and training of organic farming systems to improve production knowledge and control.

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