

Green Agriculture in West Sumatra: Farmer's Perceptions about Organic Farming

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Abstract

West Sumatra Province is an agricultural region that has great potential in the development of organic farming. This study aims to identify farmers' perceptions of organic farming. The method in this study was conducted with a survey in the form of distributing questionnaires and research questionnaires to all organic farmers in West Sumatra. The sample in the study was taken based on the sample area (Purposive Area Sampling). The data analysis technique in this study is descriptive analysis. The results show that most farmers agree that organic farming can improve land fertility, easy to practice, and they will continue to pursue organic farming. While in terms of risk, farmers revealed that organic farming is difficult to market. However, when we look at the factors that motivate farmers in seeking organic farming are the concern for health, concern for the environment and government support. And the last is about barriers to cultivating organic farming are largely due to climate change.

Keywords: perception, organic farming, environment

Introduction

Markuszewska (2017) study in Poland found that the development of organic farming is very dependent on financial system support that encourages farmers to change production methods to be more environmentally friendly, or that has an impact on farmers' decisions not to seek organic farming using ecological methods. In addition, organic farming does not always develop in some places because it depends on the conditions of the natural environment.

Furthermore, Sajadian, Khoshbakht, Liaghati, & Veisi, in 2017 found that the management of plant pests and diseases, crop yields, soil nutrient management, water consumption, chemical fertilizer consumption and use of transgenic materials were important indicators in the development of organic agriculture. In the same study, indicators related to the consumption of chemical fertilizers and pesticides were still relatively high. Mile in Filho (2017) also suggests that organic farming requires regulation and support from the government for its development. Furthermore, he also stated that without a market segment, organic farming would be difficult to develop.

West Sumatra, one of the provinces in Indonesia is equipped with biodiversity. With the condition of the region surrounded by the sea and also the mountain, cause West Sumatra area is surrounded by tropical rainforests that support various types of tropical plants. This condition makes the agricultural sector become the important sector compared with nine other types of sectors in West Sumatera. This huge potential should be utilized as well as the demand for organic agricultural products is increasing both in the local market and in the international market. Therefore it is necessary to identify the potential of organic agriculture in West Sumatra.

BPS data shows that West Sumatra has great potential in developing organic agriculture. This can be seen from the increase in the area of organic farming production in the last 5 years as shown in Figure 1.

The Government of West Sumatra in 2016 developed organic paddy farming in all regencies and cities. The aim is to increase organic rice production with a total area of 180 ha in nine villages in West Sumatra province namely Tanah Datar District, Solok Selatan, Lima Puluh Kota, Pesisir Selatan, Padang Pariaman, Agam, Pasaman, Dharmasraya and Solok City.

Previously, West Sumatra had certified organic rice fields covering 96,991 ha with 17 organic farmer groups. The location of the paddy organic farm includes an area of 35,845 hectares in Padang Pariaman, 7.76 ha in Agam Regency, 9.8 ha in Tanah Datar, 29.49 ha in Lima Puluh Kota, 5.9 ha in Solok, and 8.20 ha in Padang.

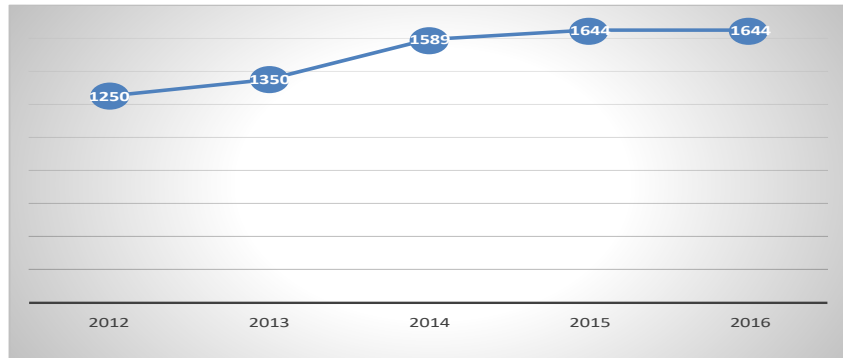


Figure 1 Area of Organic Farming Production in West Sumatra

A farming can be said as organic farming if it is has an organic certificate based on Indonesian National Standard (SNI) Number 6729 in 2016 which has now been changed to SNI 17065, about organic farming systems. For example, land which previously used for conventional agriculture, must be free of chemicals, with a transition period of two years for seasonal crops such as rice. While for plantation crops with a transition period of three years. Then we can said that it is organic farming.

Although West Sumatra has the potential in developing organic farming, in reality this it is still difficult to develop. This is because the costs required for organic farming production are very high, so the selling price is still relatively high. This high selling price makes organic agricultural production also unable to compete in the market. So, the support from the government is needed.

The development of organic farming is being directed by the local government of West Sumatra. The local governments are starting to consider environmental conservation in the direction of sustainable economic development. Therefore, perceptions of organic farmers must also be identified so that the sustainability of this program can be measured in achieving sustainable development.

Methods

To identify the perceptions of organic farmers in West Sumatra Province through surveys by distributing questionnaires to organic farmers. This questionnaire was compiled using a Likert scale. The populations in this study are all organic farmers spread across the city or district in West Sumatra Province. The sample in the study was taken based on the sample area (Purposive Area Sampling). The data analysis technique in this study is descriptive analysis. The Information that are going to be taken from the farmers are farmers' perceptions about organic farming, factors that motivate to do organic farming, form of government support, and barriers in organic farming.

Results

An Overview of Organic Farming in West Sumatra

The government of West Sumatra Province has started to develop organic farming since 2006. This can be seen through the Decree of the Head of the Department of Plant Agriculture and Horticulture Number 521/2647/KDS/ 2006. One form of the government's seriousness in developing organic farming in West Sumatra is the establishment of an Organic Certification Institute (LSO) under the responsibility of the Agriculture Institute of West Sumatra Province. This institution is the only institution engaged in organizing organic farming certificates on Sumatra Island. The mechanism for granting certificates by LSOs is based on the applicable rules or referring to SNI-17065.

To develop organic farming in West Sumatra, Local Government established the Organic Task Force (organic officer unit) in charge of providing socialization to the society, especially farmers related to organic farming. This activity began with an introduction to organic farming, mentoring, and assistance of organic farming. Through this activity, it is expected that it will increase the number of farmer engaged in organic farming. The Local Government itself is targeting 10 farmer groups per year who move from inorganic farming into organic farming.

After counseling and assistance, farmer groups that have moved to organic farming can propose their product certification to LSO. The certification process itself is not difficult. Farmer groups must fulfill 18 minimum requirements set by LSO based on SNI 17065. Furthermore, the LSO team will conduct an inspection to the field, if they meet the requirements, they will be given an organic certificate. After obtaining the certificate from the LSO, the LSO team will also monitor the field at least once a year. The certificate itself will be valid for 3 years. Before the validity period expires, the farmer group can propose to be recertified.

Based on data obtained from LSOs in 2018, around 23 farmer groups were certified organic, 11 of which were new applicants, and 12 of which were recertified. Meanwhile, there were 7 farmer groups whose validity period had expired and did not recertify. Of the total number of organic farmer group, there are 30 farmer groups that have done organic farming in West Sumatra and received certificates from LSOs.

a. Description of Organic Farming area in West Sumatra

Based on data obtained from West Sumatra LSO, the area of organic farming in West Sumatra until 2018 is 1,208.72 ha. While, the composition of the land area is used for the production of rice, vegetables and fruit. The following is presented the distribution of organic agriculture based on the type of plants produced

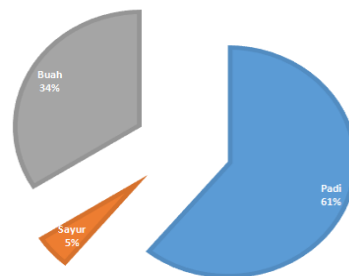


Figure 2 Area of Organic Farming in West Sumatra Based on Plant Type

Based on Figure 3, it can be seen that 61% (737.05 ha) of organic farming land is used for rice farming, 34% (410.92 ha) for fruit plants, and 5% (60.75 ha) for vegetables. This shows that organic rice farming is more dominant than other types of farming in West Sumatra. This is because vegetable farming is more susceptible to pest attacks when compared to rice and fruit plants. On the other hand, the government in West Sumatra is still more focused on developing organic rice farming. This can be seen from the policy of the provincial government which is trying to develop 9 villages of organic rice farming in regencies / cities in West Sumatra.

b. Description Area of organic rice farming land based on District / City in West Sumatra

Of the 19 districts / cities in West Sumatra, Padang Pariaman is the district that has the largest organic rice farming land in West Sumatra. This can be seen from Figure 3 below :

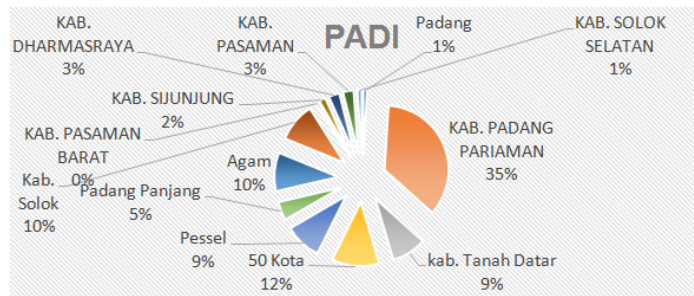


Figure 3 Organic Paddy farming area based on district / City in West Sumatra

Padang Pariaman Regency has 4 farmer groups that cultivate organic paddy farming, 2 of which have already recertified. It means, this farmer group still doing organic farming activities. While 2 farmer groups will certify to LSO institutions.. Based on data obtained from LSO, Padang Pariaman district contributed 35% of the total organic paddy farming in West Sumatra.

Perception of Farmers about Organic Paddy Farming in West Sumatra

a. The Benefit of organic farming

Statement	Average	TCR (%)
Organic farming will improve the fertility of land	4,44	88,74
Organic farming will increase the productivity	4,19	83,82
Organic farming will reduce the cost of production	4,12	82,35
Organic farming will facilitate the cultivation of land	4,35	87,06
Organic farming will increase the income	4,18	83,56
Organic farming has a greater chance of controlling the work in the fields	4,28	85,59
The selling price of organic farming will be better	4,36	87,21
The advantages of organic farming are able to cover the shortcomings	4,18	83,53
In general, organic farming will give benefit	4,32	86,32

Based on the results of a survey conducted on organic paddy farmers in the 50 Kota, Solok, Tanah Datar, Padang Pariaman and Agam, organic farming provides many benefits, especially in land processing and fertility. Generally, most farmers want to engaged organic farming because their land is already dense and shallow as a result of continuous use of inorganic fertilizers so that land productivity decrease. Then, to restore land fertility, farmers move to organic farming. In addition, organic paddy farming is able to reduce cost of production. This is because farmers do not need to buy inorganic fertilizers and pesticides which are relatively expensive. For fertilization and pest control activities, they use their own organic fertilizer which is relatively cheaper. Then, it will reduce production costs.

Another benefit of organic farming is that easiness of land processing. Because organic farming land is more loose than inorganic farming. Then, it can facilitate land processing. Based on interviews with LSOs and organic farmers, it takes 2 years to make organic land free of chemicals, After two years the land will return to fertile and easy to be processed. So to restore land fertility, farmers move to organic farming. Farmers also agree that organic farming activities will increase their income. Because the selling price of organic paddy farming is higher than inorganic. In case of production, organic farming has a higher production than inorganic. So that with a high selling price and more production will certainly increase farmers' income.

At the beginning of the implementation of organic farming will reduce the production, but after 2 years, the production itself would increase even higher than inorganic farming. In addition, organic paddy farming also has the advantage of being able to cover shortages. Among them are heavier paddy grains and a higher price compared with nonorganic rice. According to the farmer, the production obtained from organic paddy farming can be higher than non-organic paddy. And the other advantages of organic paddy tastes better. In conclusion, farmers also agree that organic farming provides many benefits to farmers, both in terms of production and profit

b. Ease of Organic Farming

Statement	Average	TCR (%)
Learning about organic farming cultivation is easy	4,11	82,21
To cultivate organic farming is clear and easy to understand	4,20	83,97
Organic farming cultivation is quite flexible	4,12	82,35
Easy to be skilled in organic farming practices	4,14	82,79
Organic farming is considered easy to practice	4,21	84,26
In general, organic farming is easy to practice	4,21	84,12

Furthermore, farmers' perceptions about the ease of organic farming, respondents agreed that organic farming is considered easier to practice. Based on information obtained from LSOs and farmers, before farmers moved to organic farming, they were first given socialization about organic farming. This socialization activity was provided by the Organic Task Force from the Local Government starting from the introduction to organic farming until the practice of organic land processing. Farmers feel that organic farming activities are easy to understand and flexible enough to be practiced. Counseling starts from socialization until mentoring is carried out continuously by the organic task force and is also accompanied by LSOs. So that farmers who have moved to organic farming continue to operate organic farming.

c. Risks of Organic Farming

Statement	Average	TCR (%)
Organic farming is likely to reduce income	4,50	90,00
I am worried about implementing organic farming	4,53	90,59
Organic agriculture is at risk of decreasing production	4,54	90,74
Marketing in Organic farming is difficult	4,47	89,41
Organic farming is more risky than conventional agriculture	4,40	87,94
Organic farming has greater potential to fail	4,57	91,32
Organic farming is not safe / doubtful because many people have not done it	4,69	93,82

In terms of risk, organic farming is relatively more risky than inorganic farming. Farmers agree that organic farming is not safe / doubtful because many people have not done it. Some think that organic farming is a "crazy" activity. Because, this activity is a bit different from inorganic farming activities. In terms of planting seeds, the seeds planted in each clump are one, while inorganic agriculture can be three to four. In the rice field, the flowers are planted with colorful flowers that

serve to divert pests. Because they do not use synthetic pesticides and fertilizers, farmers are worried about pest attacks which will of course reduce production or even production failure.

In terms of marketing aspect, farmers still find it difficult to market their products. Because the price of organic paddy is slightly more expensive than inorganic paddy, so people tend to prefer inorganic paddy. This is because the community still has a low awareness of health and concern for the environment.

d. Organic Farmers Intention to maintain organic farming

Statement	Average	TCR (%)
I will continue to practice organic farming in the future	4,45	89,06
I will continue to make organic farming as a top priority for increasing income	4,38	87,66
I will recommend organic farming to others	4,41	88,28

Based on a survey conducted on organic farmers, most farmer agrees to maintain organic farming and recommend organic farming to others. This is because farmers have felt tremendous benefits from organic farming. Production increases due to heavier rice weight, high selling value because of higher prices, and the most important of all, the organic farming concern for the environment. Through the implementation of organic farming, the organic farming not only able to restore land fertility, increase production, but also able to preserve the environment.

e. Motivating factors for cultivating Organic Farming

In contrast to the assumptions previously stated, organic farmers are not motivated by high selling values in developing organic farming. Instead they are motivated by concern for health and government support. This is obtained from respondents' answers from the survey about the motivation of farmers in cultivating organic farming, where they are asked to choose priority motivation. Around 63 % of respondents stated that health care and government support were their main motivations for organizing organic farming. Then, around 47,9 % was caused by concern for the environment.

This shows that the community is aware of health and cares about the environment. This is in line with the findings of Mile in Filho (2017) which states that as much as 58% of farmers' motivation in organic farming is due to concern for health and the environment. While government support is not the main motivation of farmers in trying organic farming. in West Sumatra, government support is the fourth priority that motivates farmer doing organic farming. Even so, the government's support is also needed for the development of organic agriculture. High selling value is also not a top priority for farmers in organic farming. This is contrary to the assumption that a high selling value can motivate farmers to seek organic farming.

Government Support toward Organic Farming

Government Support	Percentage
Counseling	94,1
Direct Fund from Government	42
Fertilizer Aid	40,3
Seed Aid	42
Others	9

The development of organic farming can't be separated from government support. Based on respondents' answers related to the form of government support they had received, as many as 94,1% of respondents stated that the government support they had received was counseling about organic

farming. Furthermore, 42 % stated that direct funding from government. This shows that the government is serious in developing organic farming in West Sumatra. The counseling activities were carried out through the organic task force formed by Local government of West Sumatra together with LSOs who were guided by the Provincial Government.

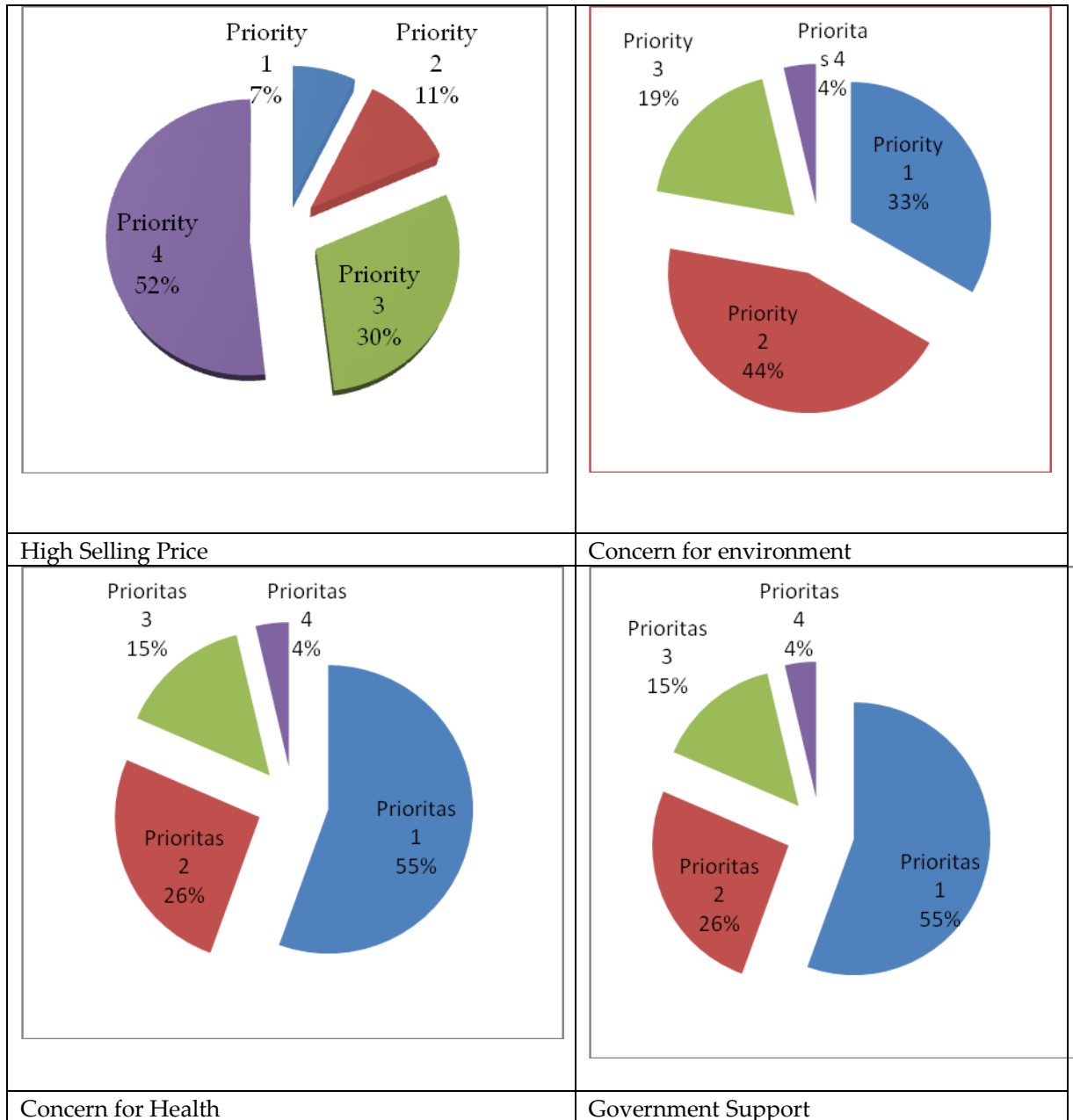


Figure 4 Motivating factors for cultivating Organic Farming

f. Barriers in carrying out organic paddy farming

Challenges to cultivating organic farming are largely due to climate change. Because, climate is very decisive in farming activities. The other challenges in organic farming activities are a small amount of production. This is because transition time from inorganic farming to organic farming needs time that will decrease production. But, it only for temporary until the land condition has returned to normal condition. And the last challenges, pest attacks are also unavoidable.

Challenges	Percentage
Difficulties in Funding	25.9
Increasing Production cost	33.3
Pest attack	51.9
Climate changes	81.5
Natural Disasater	-
Difficulties in Getting the Job	25.9
A few production	63.0
Difficultiies in Marketing	3.7

Monitoring System

For sustainability of organic farming, the government through the agricultural service provides assistance and field schools at least once a year. This aims to control the farmers to remain consistent in seeking organic farming. So that, the development of organic farming can be realized.

a. Assistance

Total Assistance (times)	Percentage
Never	40,7
One	59,3

b. Field School

Field School (times)	Percentage
Never	25,9
One	37,0
Seven	25,9
More than 10	11,1

In addition to mentoring activities, the government also carried out field school activities to increase farmers' knowledge about agriculture. Based on the survey results it was revealed that field school activities were carried out at least once a year. Through this activity is expected that farmers can implement an organic farming system in their agricultural business. Mentoring and field school activities are a form of support from the West Sumatra provincial government in developing organic agriculture.

a. Use of Organic Paddy Farming

Based on the production used, most of the respondents answered that their production was used for their own consumption. Only a small portion is used for sale or barter. This is because the taste is better so they feel a loss if they have to sell their products. In addition, because of the high public awareness of health, farmers prefer to consume organic products. The use of organic rice products for self-consumption is also due to limited production. So that it is only able to meet the needs of farmers' households. The limited availability of organic farms has also limited production. Generally the area of land used by farmers for organic farming is not too broad.

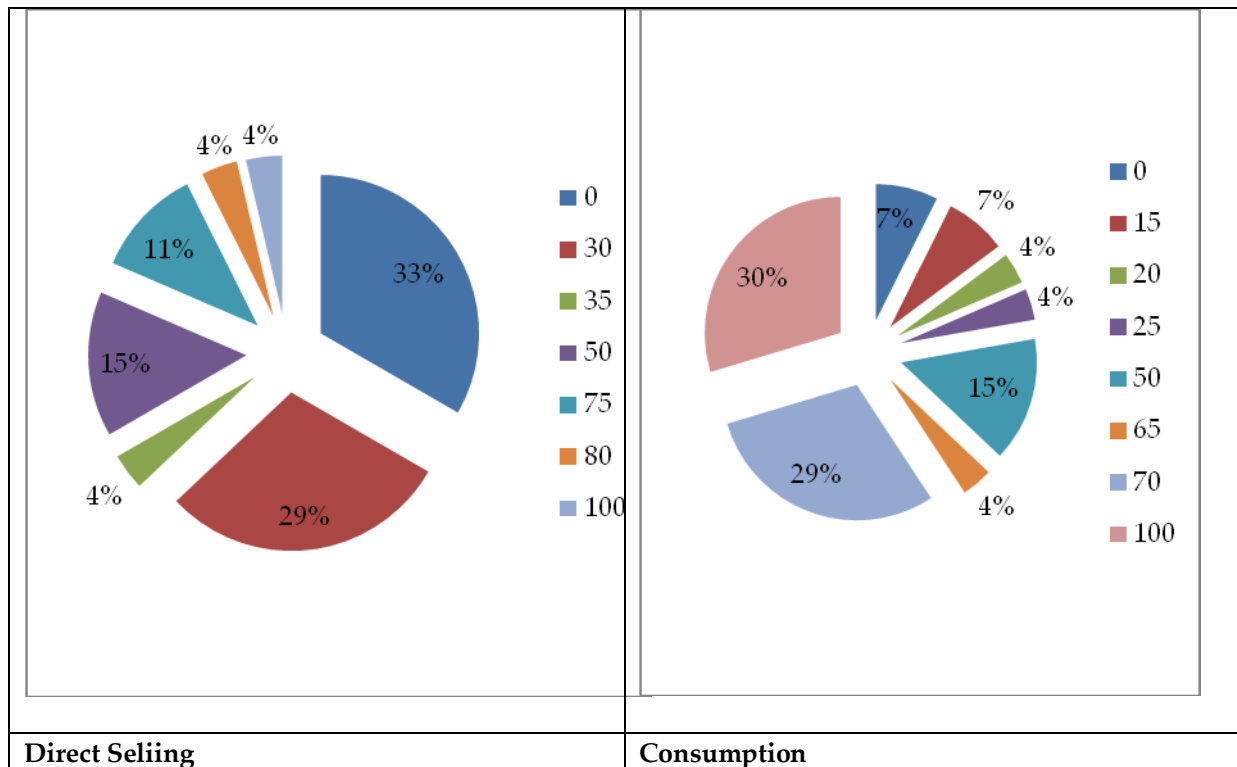


Figure 5 The portion of the use of organic production

Conclusions

The government of West Sumatra Province has started to develop organic farming since 2006. This can be seen through the Decree of the Head of the Department of Plant Agriculture and Horticulture Number 521/2647/KDS/ 2006. One form of the government's seriousness in developing organic farming in West Sumatra is the establishment of an Organic Certification Institute (LSO) under the responsibility of the Agriculture Institute of West Sumatra Province. This institution is the only institution engaged in organizing organic farming certificates on Sumatra Island. The mechanism for granting certificates by LSOs is based on the applicable rules or referring to SNI-17065. Government itself is targeting 10 farmer groups per year who move from inorganic farming into organic farming.

Based on the survey results, it was found that farmers' perceptions of the application of organic agriculture from the side of the benefits of organic agriculture, in general , Most farmers agree that organic farming can improve land fertility, easy to practice, and they will continue to pursue organic farming. While in terms of risk, farmers revealed that organic farming is difficult to market. However, when we look at the factors that motivate farmers in seeking organic farming are the concern for health, government support and concern for the environment. The form of government support is the existence of counseling about organic farming to farmers. And the last is about barriers to cultivating organic agriculture are largely due to climate change.

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