Chili farmers’ behavior in developing chili agribusiness in Central Java

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Abstract. Chili production decreases continuously in Central Java today. Similarly, chili’s selling price is fluctuating. Farmers as one of chili agribusiness development actors have a very large potency to develop, so that a study should be conducted on farmers’ behavior in developing chili agribusiness development as the foundation to conduct empowerment. This research aimed to describe a) chili farmers’ characteristics, and (b) empowerment program conducted, and (c) to analyze factors affecting farmers’ skill of developing chili agribusiness in Central Java. Techniques of collecting data used were interview and field observation. The data was analyzed descriptively and quantitatively with multiple regression. The result of research showed that the farmers are 49.7 years old on average, graduated from Senior High School, 46.6% of which have not attended yet non-formal education such as extension and training program related to chili agribusiness, and have less than 0.5 ha-wide area, 13.06 years’ experience with chili cultivation, 53.3% of which are less skillful in developing chili agribusiness. The conclusion indicated that non-formal education and year of experience with farming affected chili farmers’ behavior and skill positively and significantly, while age, formal education, and land width did not affect chili farmers’ skill significantly in chili agribusiness development.

1. Introduction

Indonesia as an agricultural country has considerable diverse natural rich, making farming one of most strategic sectors in supporting national economy. Farming (agricultural) sector is divided into some subsectors: food and horticultural plant, animal husbandry, forestry, fishery and maritime.

Horticultural subsector development is prioritized in farming development as it plays a big role in national food resilience, people income increase, and foreign exchange revenue from export. In addition, horticultural commodity consisting of fruits, vegetables, ornamental plant and medicinal plant are prospective commodities to develop in Indonesia, so that in this case, the role of agribusiness performers should be optimized. Horticultural subsector is the one getting substantial attention from the public.

The word “horticulture” in free translation can be defined as a science intensively studying plant cultivation and its product used by human beings as food material, medicinal material, and spice ingredient, refresher or flavoring material and as environment protector and comforter (ornamental plant). The horticultural subsector, based on type of crops cultivated, includes pomology, olericulture, floriculture, and landscape horticulture [1].
Chili is one of horticultural plants with high economic value. Chili plant can grow in both lowland and highland, as long as having high air temperature variation and humidity. The rainfall condition wanted is not too high, moreover during blossoming and young fruit that will result in drop-off.

Generally, horticulture has been cultivated intensively by farmers so far, including chili plant. Chili production in Central Java decreases continuously today, and chili selling price is fluctuating as well, sometimes low and some other times high. Data of Central Java’s Central Bureau of Statistics shows a decrease in chili production from 3,437,095 quintals in 2017 to 3,135,665 quintals in 2018 [2].

From farmers (the result of preliminary survey), the land having never been planted with chili will have good output, but having been planted repeatedly, the output will begin to decrease. The constraint encountered is curly leaves during rainy season that is difficult to treat. The diseases attacking are fruit flies, wilting, and drying; as a result, more flowers and fruits are dropped-off when they are still young. Another constraint encountered is unstable chili. Treatment has been given on chili plant, before it is affected by dew, but it has not given yet the significant result.

Flower and young fruit falls can reach 50% of flower number produced. The number of flowers yielded ranges between 180 and 200 flowers, but only 90-110 of them per plant can be the fruits. In this condition, chili production in Central Java is still low (even tending to decrease) until today due to low harvest and below the average production volume of 7.3 tons per hectare. Meanwhile, the highest production in the world is achieved in China, 24.3 tons/hectare [3].

Considering the background above, the following problems can be formulated as the factors making the chili horticultural agribusiness performers helpless: (1) less developing chili farmers due to limited access to productive resources such as land, capitalization, infrastructure, technology and access to public service and market; (2) chili farmers’ still limited human capital, (3) still limited governmental institution capacity at local level and social-economic institution to support the improvement of chili farmer’s resource in chili agribusiness development; (4) still limited physical capital availability in chili agribusiness development; (5) people’s negative perception on rural community empowerment program; (6) chili farmer’s still limited social capital level in chili agribusiness development; (7) and chili farmers’ limited access to financial capital and information source.

The condition is encountered by chili horticultural agribusiness performers. Chili farmers’ low powerfulness level in chili agribusiness management makes this business not developing, thereby resulting in low income, and low competitiveness in free market era. From the elaboration above, it can be seen that chili farmers in chili agribusiness development highly needs appropriate intervention. From the result of research, it can be seen the factors affecting chili farmers’ behavior in chili agribusiness development, as a rationale to formulate an empowerment strategy that can be applied to chili agribusiness development.

Chili farmers’ low powerfulness level in chili agribusiness management makes this business not developing, thereby resulting in low income, and low competitiveness in free market era. From the elaboration above, it can be seen that the farmers’ powerfulness in chili agribusiness development is desirable. This result of research is expected to benefit the stakeholders, either government or non-government, and business performers interested in the development of chili horticultural agribusiness. This research aimed to describe a) chili farmers’ characteristics, and (b) empowerment program conducted, and (c) to analyze factors affecting farmers’ skill of developing chili agribusiness in Central Java.

2. Materials and methods
This study was an explanatory descriptive research aiming to explain various variables raised by synthesizing some theories related to the variables studied, obtained from primary and secondary data. The research was conducted in Central Java, using purposive sampling technique. The sample was taken from the regencies existing in Central Java, i.e. two regencies: Boyolali with highest volume of chili production and Sukoharjo with the lowest one [4].
From Boyolali regency, two locations were selected: Musuk sub district with the highest volume of chili production and Banyudono sub district with the lowest one, while from Sukoharjo Regency, there were Nguter sub district with the highest volume of chili production and Sukoharjo with the lowest one. Fifteen (15) chili farmers were selected randomly from each of sub districts, so a total of 60 chili farmers were taken as the sample. Techniques of collecting data used were in-depth interview with farmers and field observation, confirmed with qualitative data deriving from informants as the form of triangulation in the last section. The instrument of research constituting questionnaire was designed both online and offline. Data analysis was carried out using statistic descriptive technique to explain the characteristics of chili farmers and the empowerment program held, and to analyze the factors affecting the farmers’ behavior in developing chili agribusiness, linear regression was used. Qualitative analysis was used to confirm the result of quantitative analysis.

3. Results and discussion

3.1. Characteristics of chili farmers in Central Java

Table 1. Distribution of chili farmer distribution in Central Java

| Variables                              | Categories               | Central Java Province |
|----------------------------------------|--------------------------|-----------------------|
| Age:                                   |                          | n         | %          |
| 15-64 years                            | Productive              | 56        | 93.30      |
| 65 years<                              | Non-Productive          | 4         | 6.60       |
| Total                                  |                          | 60        | 100.00     |
| Formal Education Level                 | Uneducated              | 1         | 1.67       |
|                                        | Graduated from Primary School | 13    | 21.67      |
|                                        | Graduated from Junior High School | 11  | 18.33      |
|                                        | Graduated from Senior High School | 32  | 53.33      |
|                                        | Graduated from Undergraduate Program | 1  | 1.67       |
|                                        | Graduated from Graduate Program | 2  | 3.33       |
| Total                                  |                          | 60        | 100.00     |
| Non-Formal Education                   | Extension               | 26        | 43.33      |
|                                        | Training                | 6         | 10.00      |
|                                        | Never attending any program | 28  | 46.60      |
| Total                                  |                          | 60        | 100.00     |
| Farmers’ experience with chili cultivation (years): | Less adequate          | 33        | 32.40      |
| 1 – 10                                 | Sufficiently adequate   | 14        | 57.40      |
| 11 – 20                                | Adequate                | 12        | 8.80       |
| 21 – 30                                | Very adequate           | 1         | 1.40       |
| Total                                  |                          | 60        | 100.00     |
| Land ownership (ha):                   | Very narrow             | 52        | 86.67      |
| <0.50                                  | Narrow                  | 5         | 8.33       |
| 0.50 – 1.00                            | Wide                    | 3         | 5.00       |
| 1.00 – 2.00                            | Very wide               | 0         | 0.00       |
| Total                                  |                          | 60        | 100.00     |
| Chili Farmers’ Skill                   | Less skillful           | 32        | 53.33      |
|                                        | Skillful                | 19        | 31.66      |
|                                        | Very skillful           | 9         | 15.00      |
| Total                                  |                          | 60        | 100.00     |

Chili farmer is the one cultivating chili plant. Chili farmer has distinctive uniqueness compared with other farmers; this uniqueness arises usually because they focus continuously on chili cultivation rather than on other plant cultivations. Regardless profit or loss, they keep cultivating chili plants. The
characteristics of chili farmers in this research include age, formal education level, non-formal education, land ownership width, land ownership status, and length of farming time.

The respondents of research were chili farmers existing in Central Java selected to be the sample. The sample consisted of 60 farmers coming from 5 selected sub districts: Musak, Banyudono, Nguter and Sukoharjo.

3.2. Age of chili farmers’
Age is the chili farmers’ length of living from their birth to the research period. Chili farmers’ age is determined by asking them in year calculation. The age grouping represents many farmers belonging to productive and non-productive age groups. From table 1, it can be seen the number of chili farmers in productive age group is more than that in non-productive group. There are 4 farmers in non-productive age group (over 65 years), but the actual condition in the field shows that those aged over 65 years still cultivate chili productively. The youngest farmer is 27 years old, and the oldest one is 68 years old. The average age of farmers in this research is 49.7 years, belonging to productive category.

A younger or productive-age individual usually has high spirit and curiosity on many things he/she has known yet. Productive-age farmers are more open-minded and can be supplied with skill and knowledge more easily. In relation to innovation in chili farming, the individuals in non-productive age group will accept innovation more difficultly than those in productive one. Older the age (over 50 years), the slower is the ability of adopting innovation, and the more conventional are the activities done [8]. Similarly, the chili farmers existing in the research location undertake chili cultivation more innovatively, for example, they use new variety bravely, and market the chili more innovatively by means of offering it online.

3.3. Formal education level
Formal education is the last education level gotten by chili farmers in formal education institution. Formal education attended by chili farmers affects their mindset, acceptance to some information, and assessment on problem occurring. A highly educated individual generally is more open-minded and can absorb information well.

From Table 1, it can be seen that the last formal education attended by chili farmers is, on average, Senior High School (SMA). It is actually a good prior condition, because usually the farmers are dominated with those with primary education. In other words, chili farmers have good human resource, as majority of them are graduated from Senior High School. The chili farmers have sufficiently good awareness of the importance of formal education, viewed from many chili farmers attending education up to high school level.

Formal education is considered as a means of improving knowledge on chili farming, and affecting the chili farmers’ decision in undertaking chili farming. Highly educated individual implements innovation adoption relatively more quickly [5]. In relation to the theory, it does not mean that the less educated farmers have poor knowledge, because there is still non-formal education beyond formal education the family can attend to increase their knowledge.

The actual condition shows the result in line with the theory existing, in which chili farming is conducted by chili farmers attending enough formal education, so that the farmers can absorb some information and new innovation, in relation to the improvement of chili farming. The result of research showed that chili farmers can consider and assess information acquired, whether or not it impacts on the improvement of farming implemented, so that they can make decision appropriate to their farming.

3.4. Non-formal education
Non formal education is any opportunity in which there is a directed communication out of school. An individual acquires information, knowledge, practice, and guidance, according to age level and life need. It is intended to improve their skill, attitude, and values enabling them to be efficient and effective participants in family, work, and society environments [6].
From Table 1, it can be seen that the type of non-formal education attended by chili farmers includes agricultural extension and training activities. About 46.6 percent of chili farmers do not attend non-formal education activity. The material usually delivered in extension activity related to chili farmers encompasses cultivation, pesticide, pest, and fertilizing. The material usually delivered during training activity involves biological pesticide and how to prepare organic fertilizer. The presenter of material in extension activity usually comes from Agricultural Extension Officer (PPL) and Agricultural Office.

The farmers' frequency of attending non-formal education, i.e., extension and training activities, can make the respondent farmers receiving more information useful to improving their knowledge and skill, particularly about chili farming. Extension and training are also important to do, because through attending these activities, farmers can assemble to exchange idea in solving problems they encounter, to exchange information, and to get guidance and recommendation useful to the cultivating activity they do. Through extension and education, much information required related to chili farming can be acquired easily.

Considering the actual condition, many farmers do not attend non-formal education activity because the extension officer rarely gives education and training to them related to chili farming, thereby farmers attend non-formal education activity passively. In addition, the farmers' awareness of attending the non-formal education activity is still low. Farmers cultivate chili independently based on their old experience with chili cultivation and by searching for information related to an attempt of improving their chili farming.

3.5. Land ownership width
Land ownership is entire land cultivated by chili farmers, whether it is their own property, rented, or sharecropped in hectare unit. Farmers are classified into four categories by land ownership: farmers with very wide land (more than 2 hectares), farmers with wide land (0.5-2 hectares), farmers with less wide land (0.5-1 hectare), and farmers with narrow land (less than 0.5 hectare) [7]. The land ownership width also affects chili farmers in making farming decision.

Table 1 shows that all chili farmers have land, despite narrowness, with land width of less than 0.5 hectare, on average. Land ownership width affects an individual in adopting an innovation. The wider the land ownership, the more quickly is the individual adopt innovation as he/she has better economic ability [8]. Otherwise, the ownership of narrow land retard an individual in adopting innovation because the resource he has, particularly land resource, is limited. An individual with wide land generally tends to try an innovation bravely on some of his land and he does not fear for the failure because he still has other land not used to for innovation experiment. Meanwhile, an individual with narrow land will not try innovation bravely because he fears for failure.

The actual condition shows discrepancy between the fact and the theory existing. Chili farmers undertaking chili cultivation are dominated by respondent farmers with narrow land ownership, less than 0.5 hectare. The land ownership width is one of factors attracting too much consideration from the chili farmers to run the chili cultivation. Farmers bravely make decision to run chili farming and do not afraid of failure because they have cultivated chili for a long time, thereby have been experienced with solving the problems encountered in this farming.

3.6. Chili farmers’ experience with chili cultivation
This (farmers’) experience can be seen from their length of time cultivating chili, and it is made their learning guideline to solve problem or to deal with the similar occurrence in the following days. This research sees the farmers’ length of time cultivating chili from the beginning of cultivation to the time when the research was conducted. From Table 1, it can be seen that the respondents’ length of time doing chili farming is, on average, 13.06 years, despite some of them have done it for 31-40 years. The length of farming time can be the respondent farmers’ guideline and learning in solving problems and dealing with the constraint with the cultivation further.
The length of farming time will affect an individual in processing his cultivation. Respondent farmers having done chili farming activity will, of course, understand better how to improve the chili farming. Usually those doing farming for a long time will have much more experience than the beginners, and thereby will affect the decision making in their farming. Experience play a very important role in farming activity; the longer the farmers do farm activity, the more knowledgeable are the farmers concerning the farming activity existing in environment cultivated, and the effect occurring.

The respondent farmers’ length of farming time implies that the respondents understand better how to improve chili production and productivity. The experience an individual has will affect decision making in accepting innovation to the endeavor taken. The farmers with much more experience tend to accept innovation more selectively.

3.7. Chili farmer’s skill in chili agribusiness development
In broad sense, human behavior includes overt and inner behavior. As known, behavior or activity existing in individual or organism is not given, but it a result of stimulus accepted by corresponding organism, either externally or internally. Nevertheless, most of organism behaviors are the response to external stimulus. The variables expected to affect chili farmers’ behavior in chili agribusiness development are chili farmers’ age, formal education level, non-formal education, experience with chili farming, land width, and skill. The result of analysis on the factors affecting chili farmers’ behavior in chili agribusiness development is presented in Table 2.

Table 2. Effects of the difference in planting time after rice harvest on soybean growth and yield

| Variables                             | Regression Coefficient | t     | Sig.  | Notes     |
|---------------------------------------|------------------------|-------|-------|-----------|
| Constant                              | 83.836                 | 15.642| 0.000 | Insignificant |
| Chili farmer’s age                    | -0.066                 | -0.686| 0.495 | Insignificant |
| Chili Farmer’s formal education level | 0.336                  | -1.312| 0.195 | Significant |
| Chili farmer’s non-formal education   | 3.187                  | 2.107 | 0.040 | Significant |
| Experience with chili farming         | 0.221                  | 2.309 | 0.025 | Significant |
| Land width                            | 0.000                  | 0.358 | 0.722 | Insignificant |
| Chili farmer’s skill                  | 0.212                  | 0.478 | 0.125 | Insignificant |
| Adjusted R Square                     | 0.234                  |       |       |            |
| F statistic                           | 3.291                  |       |       |            |

Notes: significant at α = 0.05;

3.8. The effect of chili farmers’ age on their behavior in chili agribusiness development
Age affects farmers’ physical condition and thinking ability. The younger the age of chili farmers, the stronger is the physique of them and the more dynamic and braver are the farmers in dealing with the risk of a new innovation applied. In this research, age is classified into productive and non-productive categories. The result of analysis shows that age does not affect the farmers’ behavior significantly in chili agribusiness development. It means that productive and non-productive ages of farmers do not affect the chili farmers’ behavior in chili agribusiness development. It can be explained because the farmers aged 65 years still do chili farming actively just like the one done by those in productive age group. The actual condition indicates that farmers, whether they belong to productive or non-productive group, can do chili farming, for example, they can prepare chili bed as planting media.

A younger or productive-age individual usually has high spirit and curiosity on many things he/she has known yet. Productive-age farmers are more open-minded and can be supplied with skill and knowledge more easily. In relation to innovation in chili farming, the individuals in non-productive age group will accept innovation more difficultly than those in productive one. Older the age (over 50 years), the slower is the ability of adopting innovation, and the more conventional are the activities done [8]. Similarly, the chili farmers existing in the research location undertake chili cultivation more
innovatively, for example, they use new variety bravely, and market the chili more innovatively by means of offering it online.

Age variable does not affect the farmers’ decision making in adopting an innovation [9]-[10]. Farmers’ varying age groups, either young or old, have equal opportunity of doing chili farming. In the research area, the proportion of farmers conducting chili farming is 93.33% in productive age group and 6.67% in non-productive one; thus, age does not affect the farmers’ decision making in implementing the chili farming.

3.9. The effect of formal education on chili agribusiness development behavior
Education can encourage mentally an individual to accept the advantageous innovation. In reality, majority chili farmers have had adequate education, graduated from Senior High School (SMA). The result of regression analysis shows that formal education level does not affect farmers’ behavior in chili agribusiness development significantly. It can be explained because chili farmers with high education have behavior as same as those with low education in chili agribusiness development.

Chili farming does not require high formal education level, because farmers can acquire much information and knowledge about it beyond formal education, i.e. by participating actively in farmer group activity and sharing information with fellow farmers. Education level does not affect significantly the farmers’ decision making in medicinal herb chili (cabe jamu) farming [10]. Education does not affect the adoption of farming innovation [12],[13].

3.10. The effect of non-formal education on farmer’s behavior in chili agribusiness development
Considering the result of analysis, it can be explained that non-formal education affects significantly the farmers’ behavior in chili agribusiness development. Non-formal education aims to help the farmers change their mindset, attitude, and action in developing chili farming. There is a significant effect between non-formal education and farmers’ behavior in chili agribusiness development, meaning that non-formal education attended by the respondent farmers can improve farmers’ knowledge and skill in developing chili farming.

Farmers’ behavior in chili farming belongs to good category, because 53.3 per cents of farmers have ever attended extension and training concerning chili farming. Meanwhile, farmers access the chili farming-related information through listening to radio/TV program providing information on chili cultivation and price. Some farmers initiate to search for information through online media such as YouTube, Google or group in social media account to acquire additional information in order to improve their farming. To cope with the constraint with their farming, the farmers often exchange idea with fellow chili farmers to obtain information, recommendation, and guidance from other farmers that can improve their knowledge cope with the constraints.

The actual condition in the field shows that the extension activity, a part of non-formal education activity attended by farmers, can increase their knowledge, change their attitude and skill in developing chili farming. It can be seen in the extension activity providing discussion session that can be utilized by respondents to exchange idea and to ask the extension officer or the fellow farmer for information about how to deal with some constraints and to apply the solution to their farming activity. Agricultural extension activity affects significantly the farmers’ behavior in adopting new technology [14]. Extension activity helps the farmers acquire latest information on farming activity and encourages them to implement innovation [15].

3.11. The effect of experience with chili cultivation on chili agribusiness development behavior
The result of research showed that majority farmers have fairly long experience with conducting chili farming. Considering the result of analysis, the chili farmers’ experience affects significantly the chili agribusiness development behavior. It means that the farmers conducting chili farming longer have better behavior viewed from production plan, planting pattern, marketing, and post-harvesting aspect. The field condition reveals that the farmers have good experience with chili farming; it is because the long experience with chili farming makes the farmers knowing better and understanding how to
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improve their farming business. The experience the farmers have can be knowledge and guideline to make the best decision for their farming.

In conducting chili cultivation, the farmers prepare chili bed for planting media; the chili bed is prepared aiming to prevent water from inundating the planting land that can make the chili root rotten due to too much water. The bed is made in 80-100 cm width and 30-40 cm height, with the length adjusted with the land width available. Majority respondent farmers cover the bed with mulge. The use of mulge by respondent farmers is intended to reduce the need for weeding, to save water for irrigation, to save fertilizer, and to maintain soil humidity. In addition to have advantages, the use of mulge also has a disadvantage as its quality is getting lower due to the thinner plastic used, so that it can be used twice only.

Majority respondent farmers do not have certain consideration in selecting the seed of chili to be planted, they just plant what they want to plant, and the treatment can be done easily. Many respondent farmers not knowing the chili variety buy the superior durable seed from the reliable factory and buy the type of chili plant to be planted; in addition, they sometimes prepare the chili seedling to be planted themselves. Most respondent farmers perceive that they should know the cost they spend for chili farming.

Good planting pattern is to plant chili once and to plant another type of plant to enable the soil to feel other root and to improve the quality of soil. In conducting chili farming, the farmers take into account the climate, as it is related to the irrigation needed. Most of lands the respondent farmers have are rainfed areas, so that they plant chili in rainy season or in the transition period from rainy to dry season, to make the plant still receiving rainwater because the plant needs much water in their beginning growth period.

Before planting chili, the farmers did not consider or predict the selling price later because the price of chili is highly fluctuating, thereby is unpredictable. The farmers did not consider the quality and quantity of chili preferred in the market. Many respondent farmers not knowing the chili variety buy the superior durable seed from the reliable factory and buy the type of chili plant to be planted; in addition, they sometimes prepare the chili seedling to be planted themselves. If the result of cultivation is poor (less good), it will remain to be sold out and accepted by the sellers, despite the below-standard prices.

The appropriate harvesting method will affect the chili production. The chili harvested by pulling it, the existing flowers will fall down, thereby not producing more chili, and it will take some more time to produce more chili. In addition, the plant will be broken and die, so that the production of chili will decrease. The product of harvest is usually packaged or put into sack to be sold to the market or to the broker. The selling price of chili having ever been experienced by the farmers is almost the same, ranging between IDR 2,000 (lowest) and IDR 50,000 (highest). The farmers usually sell their harvest product directly and process it into another product very rarely. Some farmers usually process chili into another product, e.g. dried chili or chili sauce. Then, they sell it online or in the market.

The farmers apply their experience to their farming later. Considering the actual condition, before planting chili some farmers usually search for information about the type of chili preferred in the market in order to make the harvest product acceptable to the market with better price. In planting chili, the farmers take the climate into account because most of their lands are rainfed areas, thereby relying on rainwater for its irrigation. Farmers also use superior seed to get optimum productivity and to make the plant more pest- and disease-resistant. Farmers apply balanced fertilizer to maintain soil quality and to make the plant growing better. Routine pesticide administration and intensive treatment are conducted by farmers around the harvesting time aiming to safeguard the plant from pest and disease attack, and thereby the optimum production can be achieved. Before selling the chili production output, farmers will search for information on chili selling price to find out the chili price in the market, so that the farmers can calculate the income to be gotten.

The farmers analyze the result of their application of knowledge and understanding to their farming to find out the compatibility of theory and practice in the field, and to look for the factors affecting the compatibility or incompatibility. Furthermore, farmers conduct evaluation on the farming
implemented. Evaluation is an individual’s ability of considering a situation, a value or an idea [16], or evaluation as justifying a decision or an action [17]. Considering the result of evaluation conducted by the farmers on their farming, a conclusion can be drawn concerning whether or not what they have done can improve their farming, and then they will consider and make decision to conduct the next chili farming.

The more the experience the farmers have with farming, the braver are the farmers in taking risk in conducting chili farming. The experience enables the farmers to see opportunities and threats the farmers will face in chili farming. Educated and experienced farmers have much more knowledge and information on climate change and measures to be taken to deal with it [18].

3.12. The effect of land width on chili agribusiness developing behavior
Land width in this research is the width of land owned and cultivated by farmers for chili cultivation. The wider the land cultivated by chili farmers, the bigger is the opportunity to get high income. Land width affects an individual’s availability to adopt many innovations. However, it cannot be seen that the land width does not affect significantly the farmers’ behavior in chili agribusiness development.

The result of research shows that the land owned by the farmers, on average, belong to narrow land category, less than 0.5 hectare. The farmers with narrow land width tend to have adoption level, because they fear for adopting new innovation and are not sure with the result. In addition, the farmers with narrow land width do not sure that they can develop chili agribusiness. Farmers with wide land do not utilize their entire land to plant chili commodity. Only some of lands are used for cultivating chili, most of lands are used to plant rice, corn, and horticulture considered as profitable by the farmers. The farmers have risk averse behavior tendency (avoiding risk) because the risk they face in the case of farming failure will affect the family’s unfulfilled need even on subsistence level.

3.13. The effect of farmers’ skill in chili cultivation on chili agribusiness development behavior
The result of analysis shows that the farmers’ chili cultivating skill does not affect the farmers’ behavior in chili agribusiness development. It can be explained that farmers have good knowledge, understanding, and assessment on chili farming, but still have inadequate skill in it. It is because they lack of facilitation from extension officers in conducting chili farming, because farmers do so independently. The farmers participate less actively in farmer group activity and the extension and training activities are provided inadequately related to chili farming, leading to the farmers’ poor skill in conducting chili farming.

It is indicated with many farmers never recording but only remembering the farming activity cost they spend, so that they cannot make budget plan for the cost of farming in the next season. Respondent farmers do not calculate the profit they get but they only assume that they will get profit if the selling price is high. Farmers do not pay attention to the quality of chili they produce because they perceive that the chili will remain to be sold out in the market, whether or not it is good. In packaging the product of chili production, they do not consider good packaging and they use sack only and then sell it to the sellers in the market or to the brokers. Most farmers have never developed their farming into something having added-value in the market by processing the chili produced; they usually sell their chili production to the sellers in the market or to the brokers.

4. Conclusion
Considering the result of research, analysis, and discussion, it can be concluded that chili farmers’ behavior in chili agribusiness is affected more by non-formal education and farmers’ experience factors, as indicated with the farmers’ length of time cultivating chili from production plan, planting pattern, marketing, and post-harvesting aspect. Meanwhile, farmers’ age, formal education, land width, and skill factors do not affect significantly the farmers’ behavior in developing chili agribusiness. In relation to the farmers’ non-formal education that can affect their behavior in developing chili farming, it is expected that there will be improvement in their knowledge and skill that can be acquired through extension, training, and access to information in some media, so that the
chili farmers’ behavior can develop their chili farming better. In addition, continuous facilitation should be given by stakeholders, including government, university or college, and others.

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