Analysis of snake fruit farmer satisfaction levels on agribusiness agency services (case: snake fruit agribusiness in Kutambaru Village, Tiganderket Subdistrict, Karo Regency)

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Abstract. The objective of this study is to analyse the performance of all institutions related to or play a role in the snake fruit agribusiness from Kutambaru Village and analyse the level of satisfaction of snake fruit farmers to the performance of these agribusiness institutions. The sample size in the impact assessment was determined using the Slovin method in order to obtain a sample of 60 farmers. Sampling is done by the Simple Random Sampling method. To study the performance of institutional agribusiness, the Importance Performance Analysis (IPA) method is used, while to see the farmers' satisfaction with the institutional performance, the Consumer Satisfaction Index (CSI) method is used. The results of the study showed that 1) the performance of snake fruit agribusiness services in three agribusiness functions, namely the institutional procurement of production facilities, financial institutions, and marketing institutions, are in accordance with their importance; 2) the level of farmer satisfaction with the service of the snake fruit agribusiness institutional function in Kutambaru Village is in the quite satisfied category.

1. Introduction
Statistical data shows a drastic decline in snake fruit production in Karo District in 2011 (as a result of the eruption in 2010), but in 2012 the number of snake fruit production increased due to Mt. Sinabung which had started to return to normal, then declined again in 2013 due to there was a big eruption that year [1, 2]. In 2014 and 2015, the production of snake fruit increased again because the snake fruit farming was relatively normal. With the eruption of Mount Sinabung on February 19, 2018, the snake fruit farming was disrupted again and the production of snake fruit has decreased. The magnitude of the impact of the eruption of Mount Sinabung in February on the snake fruit farming, has been studied in a study entitled The Impact of Mount Sinabung Eruption on Snake Fruit Farming Enterprises and Its Management Strategies (Case: Kutambaru Village, Tiganderket Subdistrict, Karo Regency) conducted in 2018. One of the results from the research is that the Sinabung Eruption has an impact on reducing the productivity and income of snake fruit farming and impact management efforts need to be done through the strategy of developing snake fruit agribusiness business partnerships with the facilitation and support of Government institutions [3].

Business partnerships in the development of snake fruit agribusiness, it is necessary to identify the performance of existing agribusiness institutions related to snake fruit agribusiness from Kutambaru Village and how the level of satisfaction of snake fruit farmers to the performance of the existing
agribusiness institutions. For this reason, the study entitled Analysis of Snake fruit Farmer Satisfaction Level Against Agribusiness Institution Services (Case: Snake fruit Agribusiness Business in Kutambaru Village, Tiganderket District, Karo Regency). According to the background, the objectives of this study are: 1) To analyse the performance of the existing snake fruit agribusiness institutions from Kutambaru Village, 2) To analyse the level of satisfaction of snake fruit farmers to the performance of existing institutions related to snake fruit agribusiness from Kutambaru Village.

2. Data and methods
The study was conducted in Kutambaru Village, Tiganderket Subdistrict, Karo Regency (see map in Appendix) which is the main centre of snake fruit in Karo District. In addition, the selection of the village into a research area was carried out with consideration that the village was one of the snake fruit production centre villages affected by the eruption of Mount Sinabung and the community had resumed their snake fruit farming activities or the activities of snake fruit agribusiness that were supported by the role of agribusiness institutions.

The population in this study were farmers who worked on or cultivated and were involved in snake fruit agribusiness in Kutambaru Village, Tiganderket Subdistrict, Karo Regency. The population of farmers who seek snake fruit farming is 150 farmers by determining the number of samples using the Slovin method [4] as many as 60 samples of farmers.

Determination of the sample of farmers is done by using the method of Simple Random Sampling or randomly selected among the population of snake fruit farmers in Kutambaru Village, Tiganderket Subdistrict, Karo Regency.

The data used in this study consisted of primary data and secondary data. Primary data obtained through interviews using a list of questions / questionnaires to respondents and direct observation. Whereas secondary data was obtained from relevant agencies, such as the Central Statistics Agency (BPS) of Karo Regency and other agencies as well as literature relating to this study.

To analyse the response of farmers to the service of agribusiness institutional functions, the Importance Performance Analysis (IPA) model is used and illustrated in the Cartesian diagram [5, 6]; and the Consumer Satisfaction Index (CSI) model which aims to determine the level of farmer satisfaction with the overall performance of agribusiness institutions by looking at the level of importance of each element [4, 7-9]. There are 5 institutional categories related to agribusiness will be studied here, i.e. Institution of Procurement of Production Facilities, Financing Institutions, Marketing Institutions, Farmer Group Institutions, and Extension, Information and Technology Institutions. Attributes that become farmers' assessment of the 5 functions of snake fruit agribusiness institutional services consist of 23 attributes.

3. Results and discussion
3.1. Agribusiness institutional importance and performance
The level of importance is the level of snake fruit farmers' expectations of the services provided by agribusiness institutions. The higher the level of expectation of farmers towards agribusiness institutional services, the more important is the service of the institutional function to be implemented through its performance. The result shows that 100 percent or all of the attributes of agribusiness institutional services are very important, meaning that respondents really hope that the agribusiness institutions are very important to be implemented.

The result also shows that 7 attributes, or about 30.4% of the attributes of agribusiness institutional services, were assessed by snake fruit farmers to have very good performance, 5 attributes or 21.7% were assessed as good, 3 attributes or 13% were considered quite good, 5 attributes or 21.7% were considered good enough and 3 attributes or 13% were rated not good.

When viewed from the level of appropriateness of performance against interests, it can be seen that there are 3 service functions that have a high level of conformity, or in other words, their performance meets expectations, namely the institutional procurement of production facilities, financial institutions,
and marketing institutions. Meanwhile farmer group institutions have only one attribute, namely the attribute of the place or land of production which has a high suitability, but other attributes have a low level of conformity or in other words the performance has not or does not meet expectations. For the institutional functions of information and technology all of the attributes have a low level of conformity or in the sense of not yet meeting expectations.

If seeing to the level of appropriateness of the performance and the importance, it can be summarized that all the attributes of the three functions of agribusiness services, namely the procurement of production facilities, funding institutions, and marketing institutions, must be maintained or even improved. Meanwhile, the attributes (except the attributes of the place or land of production) in the other two functions of agribusiness services, namely the functions of the farmer group institutions and the institutions of information and technology, must be improved or maintained.

The attribute that has the highest suitability level or the most in line with farmers' expectations is the attribute of payment method (in the institutional function of procurement of production facilities) that is 94.54%. This is logical because the payment of agricultural inputs is carried out in cash without any other alternative, namely the credit or instalment method which, in other words, the cash method for snake fruit farmers is deemed not to burden farmers using saprodi. The attribute that has the lowest suitability level or at least matches the expectation of the farmer is the attribute of the training place (in the institutional function of information and technology) that is equal to 2%. This is logical because the training ground for members of farmer groups is not yet available.

The purpose of using the Cartesian diagram is to see in more detail the attributes that need to be improved. The steps before mapping the data into this Cartesian diagram, is to first determine the average value of each attribute, X and Y. From the calculations performed previously, X = 4.944 and Y = 3.284 have been obtained. Based on the average value, the grouping of attributes in each quadrant is then carried out with details of the main priority attributes entered in quadrant A, priority attributes are maintained entered in quadrant B, low priority attributes enter quadrant C and attributes with categories excessive quadrant entry D. The results of grouping attributes using a Cartesian diagram are presented in the following:

**Table 1. Classification of attributes by quadrant**

| No. | Attributes That Must Be Repaired (Quadrant A) | No. | Maintained Priority Attribute (Quadrant B) |
|-----|---------------------------------------------|-----|-------------------------------------------|
| 14  | Coordination of Farmer Group programs        | 1   | Completeness of production input          |
| 19  | A place to study for members of Farmer Groups| 2   | Production quality                        |
| 20  | Information dissemination on information dissemination institutions | 4   | Availability of Input production          |
| 21  | Receive aspirations and seek technological solutions | 5   | Price of production input                 |
| 22  | Facilitating information and technology collaboration | 6   | The existence of Cooperative Financing    |
| 23  | A place for training in innovation and technology applications | 11  | Product selling price                     |
|     |                                             | 12  | Method of payment of Output / Product     |
|     |                                             | 13  | Ability to buy of Marketing Institutions  |
|     |                                             | 16  | Production place                          |
| No. | Low Priority Attribute (Quadrant C) | No. | Excessive Attributes (Quadrant D) |
|-----|-----------------------------------|-----|----------------------------------|
| 15  | The discussion place for Farmer Group members | 3   | Method of payment input |
| 17  | Production input provider | 7   | The existence of a bank |
| 18  | Farmers Group Cooperative | 8   | Credit Requirements |
|     |                                   | 9   | Interest Rates |
|     |                                   | 10  | Terms of purchase of Marketing Board |

**Quadrant A**
The attributes included in the Quadrant A Cartesian Diagram are referred to as the attributes that must be fixed or the Top Priority Attributes to be corrected. These attributes are the service attributes of the agribusiness institutional function that are considered important by farmers with an above-average interest score (> 4.944) but their performance is still lacking, with a score below the average (<3.284) so that the service attributes these are attributes that must be the first priority for improvement. The attributes that should be priorities for improvement are the attributes of the coordination of farmer group programs, the place of study of farmer group members, information dissemination of extension/information institutions, receiving aspirations and seeking technological solutions, facilitation of information and technology collaboration, and training venues for innovation and technology applications. These service attributes must be the priority of snake fruit agribusiness institutions in Kutambaru Village.

**Quadrant B**
The attributes included in Quadrant B are referred to as Maintain Performance attributes. These attributes are the service attributes of the agribusiness institutional function that are considered important by farmers with an interest score above average (> 4.944), but the performance is already good, with a score above the average (> 3.284) so that the attributes this service becomes the attributes that must be maintained. Attributes included as Maintain Achievement or must be maintained include the completeness of inputs, quality of inputs, availability of inputs, prices of inputs, existence of financing cooperatives, selling prices of products, methods of payment of output/products, ability to buy marketing institutions, and production sites.

**Quadrant C**
The attributes included in Quadrant C are referred to as Low Priority attributes. These attributes are the service attributes of the agribusiness institutional function which are considered less important by farmers with below average interest scores (<4.944) and their performance is also not good i.e with scores below average (<3.284) so that the attributes service attributes are not a priority in the development of snake fruit agribusiness. The attributes that are included as attributes that are not a priority are the attributes where discussion of farmer group members, supply of inputs, and farmer group cooperatives. These three attributes do not mean that they are not needed in the development of snake fruit agribusiness, but all three are considered to have proceeded as they are and not too hindered the development of snake fruit agribusiness.

**Quadrant D**
The attributes included in this Quadrant D are the service attributes of the agribusiness institutional function which, although considered less important by farmers, is with an interest score below average (<4.944), but its performance is good, with a score above the average (> 3.284) so that the service attributes are referred to as Excessive attributes. The service attributes are the method of payment of inputs, the existence of banks, credit terms, interest rates, and terms of purchase by marketing
institutions which so far have actually focused more on farmers but are still running well or even very well.

The attributes that must be maintained as contained in Table 1 are divided into two quadrants in Table 2, namely Quadrant B and Quadrant D. Attributes that are included in quadrant B or Priority Maintained Attributes are attributes of input completeness, input quality, input production, input price, input price, existence of cooperative financing, product selling price, method of payment of output / product, ability to buy marketing institutions, and production sites. Attributes included in quadrant D or Excessive Attributes are attributes of payment method input, bank availability, credit terms, interest rates, and terms of purchase of marketing institutions.

3.2. Farmer satisfaction level for snake fruit agribusiness institution services

The level of overall farmer satisfaction measured by using the Customer Satisfaction Index (CSI) analysis tool. This level of satisfaction is calculated based on the average total value of the level of importance and the level of performance or the total weight score divided by the maximum scale used.

Based on the calculation results, obtained CSI results for the performance attributes of snake fruit agribusiness institutions in snake fruit farming by 65 percent or 0.65. This value if based on the Customer Satisfaction Index that is commonly used by PT Sucofindo is in the range of 0.51-0.65 is included in the criteria of being quite satisfied. This figure identifies that in general, snake fruit farmers have felt quite satisfied with the performance of snake fruit agribusiness institutions in the village of Kutambaru because most of the functions of the agribusiness institutions have been able to meet the expectations of snake fruit farmers.

4. Conclusion and suggestion

4.1. Conclusion

The performance of snake fruit agribusiness services in three agribusiness functions, namely the institutional procurement of production facilities, financial institutions, and marketing institutions, are in accordance with their importance. But, the performance of snake fruit agribusiness services in two agribusiness functions, namely Farmers Group Institutions and Information and Technology Institutions, are not in accordance with their importance. The level of farmer satisfaction with the service of the snake fruit agribusiness institutional function in Kutambaru Village is in the quite satisfied category.

4.2. Suggestion

The performance of snake fruit agribusiness services in two functions, namely farmers group Institutions and Information and Technology Institutions, must be repaired or improved in their performance. The attributes that should be the main priority for improvement are the coordination attributes of the farmer group program, the place of study of farmer group members, information dissemination of information institutions, receiving aspirations and seeking technological solutions, facilitating information and technology collaboration, and training venues for innovation and technology applications.

The performance of snake fruit agribusiness services in three functions, namely The Institutional Procurement of Production Facilities, Financial Institutions, and Marketing Institutions, must be maintained in their performance. The attributes of good performance that must be maintained include the attributes of completeness of inputs, quality of inputs, availability of inputs, price of inputs, existence of financing cooperatives, selling prices of products, methods of payment of output / products, ability to buy marketing institutions, and production sites.

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