The attitude of farmers to the snake fruit-based creative economic development plan in Kutambaru Village, Tiganderket Subdistrict, Karo Regency

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Abstract. Agribusiness institutions in Kutambaru Village that is accompanied by the USU Team has planned the development of the creative economy in the form of product processing and agrotourism activities based on snake fruit. For this reason, a study entitled Farmers' Attitudes toward the Snake Fruit-Based Creative Economy Development Plan in Kutambaru Village was conducted with the aim to 1) analyse the attitudes of snake fruit farmers toward snake fruit-based creative economy development plans (processed products and agrotourism), and 2) analyse the socio-economic factors related to the attitude of these snake fruit farmers. The Likert Summated Rating Method was used to study the farmer's attitude and to analyse the relationship between the factors related to the attitude, the Spearman’s Rank Method was used. The results showed that the attitude of farmers is included in the category of support or agree. Factors related to farmers' attitudes are farmers' insights about the science of processing snake fruit products and farmers' access to the media. Meanwhile, factors related to farmers' attitudes are the duration of farmers' experiences in farming snake fruit, farmers' access to the media, and farmers' insights about snake fruit agrotourism.

1. Introduction
Karo Regency as the main horticultural product centre in North Sumatera Province, also has great potential for the development of snake fruit farming. Based on information from the Karo Regency Agriculture Office, the existing planting area of snake fruit in Karo Regency is around 250 hectares. Snake fruit plantations are found in the Tiganderket Subdistrict area, which consists of 150 hectares in Kutambaru Village and 100 hectares in Mardingding Village. Farmers in the Karo Regency are increasingly interested in cultivating snake fruit. The cultivation of snake fruit eventually developed as one of the main businesses of rural communities in Kutambaru Village and proved to be able to significantly increase farmers' income [1]. Although the production of snake fruit is still relatively small compared to other fruit commodities in the aggregate and it was affected by the eruption of Mount Sinabung, it is the only kind of fruit that survive, recover quickly and the production is relatively continuous.

According to statistical data, as an impact of the 2010 eruption, there was a significant decrease in snake fruit production in Karo Regency in 2011. In 2012 the production of snake fruit had increased because the condition of Mount Sinabung had started to gradually normalize. In 2013 production
declined again due to the big eruption that year. In 2014 and 2015 the production of snake fruit snake fruit increased again because the snake fruit business was relatively normal [2,3].

Based on the research results in 2018 and 2019, the USU Community Service Team facilitated partnerships between institutions in order to restore livelihoods, especially the income of farmers who were victims of the eruption. One form of this facilitation is the agreement on a plan for the development of a snake fruit-based creative economy. One form of implementation of the plan is the initiation of snake fruit-based processing activities for one farmer group. Meanwhile, another creative plan that was agreed upon in a meeting of the farmer groups and village officials and will be started soon in 2020 is the development of snake fruit based-agrotourism [4].

Given that snake fruit farmers are the main target as well as the main subject, as well as to avoid obstacles in the future and in order to estimate the amount of participation in its implementation; it is necessary to know the response or attitude of the snake fruit farmers to the creative economy development plan (processed products and agrotourism). For this reason, it is necessary to conduct a study on the response or attitude of snake fruit farmers to the snake fruit-based creative economy development plan. According to the background, the objectives of this study are to: 1) analyse the attitudes of snake fruit farmers in Kutambaru Village toward the plan to develop the creative economy (processed products and agrotourism) based on snake fruit; 2) analyse the socio-economic factors related to the attitude of the snake fruit farmers in Kutambaru Village toward the creative economy development plan (processed products and agrotourism) based on snake fruit.

1.1. Attitudes
Attitude is a psychological construct. Like all psychological forms, attitudes are hypotheses. Constructing is a way of conceptualizing elements that are not easily understood in the area that is investigated by a particular science. Social scientists investigate people's beliefs and behaviour in an attempt to draw conclusions about mental states and mental processes. Attitudes cannot be directly observed or measured. Its existence must be inferred from its results [5]. Attitudes can be defined as feelings, thoughts and tendencies of a person that are more or less permanent about certain aspects of their environment [6].

1.2. Creative economy

1.2.1. Role and limitation of creative industry. The term creative economy has become more and more frequently discussed by the public since the President established the Ministry of Tourism and Creative Economy in 2009. It seems that the idea of forming this is not something sudden but has been prepared for a long time. In 2008, the Ministry of Trade published a book entitled Creative Economy Development Plan 2025 (Ministry of Trade, 2008). The book reports that the role of the creative industry in the economies of developed countries is increasingly significant. Its contribution to Gross Domestic Product ranges from 2.8% (Singapore) to 7.9% (UK). The growth in the value of creative economic activities is also very high, for example in Australia it reaches 5.7% per year and in the UK it reaches 16.0% per year. The creative industry is able to absorb a workforce of up to 3.4% of the total workforce in Singapore and 5.9% in the United States. In Indonesia, the number of companies engaged in the creative industry reaches 2.2 million units, equivalent to 5.17% of the total number of companies in existence. The export value reached Rp. 81.5 trillion, equivalent to 9.13% of Indonesia's total export value. The creative industry creates job opportunities for 5.4 million workers or around 5.8% of the total workforce in Indonesia. On average, the productivity of workers in this sector is Rp. 19.5 million per year, which is higher than the national average productivity of Rp. 18 million per year [7].

The book cites the definition of creative industries proposed by the Department of Culture, Media, and Sport (UK), namely "those industries which have their origin in individual creativity skill and talent and which have a potential for wealth and job creation through the generation and exploitation of intellectual property”. With various bases of analysis results, the book suggests the classification of
creative industries consisting of fourteen groups, namely (1) advertising, (2) architecture, (3) art and antique markets, (4) crafts, (5) design, (6) fashion, (7) video, film and photography, (8) interactive games, (9) music, (10) performing arts, (11) publishing and printing, (12) computer and software services, (13) television and radio, and (14) research and development. There are not many Indonesian context literature that examines the creative industry. One of the few, namely Setiawan, pioneered the study of creative industries, particularly agribusiness, in the Indonesian context [8].

1.2.2. Agriculture as a creative economy activity. Setiawan [8] details examples of creative economy activities related to agribusiness at both the international and domestic levels. At the international level, the book describes examples of creative agribusiness works such as crop circles (in Ireland, England, Japan, Canada and the United States), hydrogels (in Japan), melons and watermelons (in Japan), tiny orchids in bottles (in China and Japan), agricultural museums (in many developed and developing countries), green cities (San Francisco, Tianjin), hydroponics (among others in Japan, South Korea and China), bonsai plants (especially in China and Japan), agro music (mostly still in experimental stage), agro marketing, agro input, and so on. In essence, there are many examples of agriculture-based activities that can be classified into industrial or creative economy. More specifically, examples of creative economic activities at the domestic level can be described, such as ornamental plants, rattan handicrafts, swamp grass crafts, bamboo crafts, pandanus crafts, vetiver crafts, water hyacinth crafts, culinary, coconut crafts, wood crafts, handicrafts, and so on. Also, various agricultural activities related to tourism. The creative cultural practices of various ethnic groups in Indonesia, which the tourism world sees as exotic or attractive, are generally related to agriculture [9,10].

1.3. Snake fruit farming
In Indonesia, the snake fruit plant is cultivated by the community in several places, including in the Yogyakarta Special Region, Central Java, East Java, North Sumatera and Bali Provinces. Of the total production centres, the snake fruit production of the Yogyakarta Special Region Province reached 60.37% of Indonesia's total production. Although the contribution of production is still relatively small, the snake fruit from North Sumatera Province continues to increase in area and production. In North Sumatera, there are several regencies / cities of snake fruit centres, namely South Tapanuli, Mandailing Natal, Karo Regency and Padang Sidempuan City. Karo Regency has grown as a new centre for snake fruit, while other regencies / cities have become centres for snake fruit Sidempuan [11,12]. Snake fruit can grow in various environment conditions, but to achieve optimal results requires certain requirements. The best zones for growth of snake fruit are 20° NL and 20° SL. Therefore, the world's snake fruit producers are countries located in the region. Indonesia which is located in the zone of 5° North Latitude (NL) and 10° South Latitude (SL) is potentially a good snake fruit area. Most of the snake fruit areas in Indonesia are located between 0° - 10° SL (Yogyakarta Special Region Province, Central Java Province, East Java Province, North Sumatera Province, and Bali Province) and a small part between 0° - 5° NL [11].

Karo Regency, located in North Sumatera, stretches at an altitude of 600 - 1,400 m above sea level. The area is cool with temperatures ranging from 14° – 26°C and an average humidity of 89%. With this topography, the Karo highlands are very potential as a horticultural commodity producing area [13].

2. Materials and methods
The location of research was determined purposively. Supported by a pre-survey conducted in accordance with the specific objectives of the study, the research was conducted in Kutambaru Village, Tiganderket Subdistrict which is one of the main centres of snake fruit in Karo Regency. The determination of this village to be a research area was carried out also with the consideration that this village is the centre for production of snake fruit which was affected by the eruption of Mount Sinabung and the community has been facilitated and assisted by a partnership system (between
village communities, private sectors, local government, and universities) in the development of an agricultural-based creative economy. This research already implemented in March to July 2020.

This research was conducted using a qualitative approach. The research design used in this study was a survey design which was conducted by selecting respondents from the entire population of snake fruit farmers who already knew the creative economy development plan based on snake fruit farm. In order to achieve the research objectives, the population in this study were farmers who cultivated snake fruit and were involved in snake fruit agribusiness in Kutambaru Village. The population of farmers who cultivate snake fruit is 150 farmers. Meanwhile, the number of samples determined using the Slovin Method [14] was 60 farmers.

The sample of farmers was determined using the Simple Random Sampling Method or randomly selected among the population of snake fruit farmers in the village of Kutambaru. The data used in this study include primary data and secondary data. Primary data obtained from the interview process to respondents using a questionnaire and through direct observation. Meanwhile, secondary data were collected from various related agencies, such as the Agriculture Service and the Karo Regency Statistics Agency, as well as other agencies and literature related to the research objectives.

The attitude of farmers in this study was measured by the Likert Summated Rating Method, giving a score of 1 to 5, namely strongly agree, agree, doubt, disagree and strongly disagree for both positive and negative statements. Measurement categories using the interval width formula. The attitude of farmers towards the snake fruit based-agroindustry development plan is aimed at 8 positive statements and 6 negative statements, while the attitude of farmers toward the snake fruit based-agrotourism development plan is aimed at 11 positive statements and 7 negative statements. The relationship between socio-economic factors and farmer attitudes toward the development of the snake fruit-based creative economy was analysed using the Spearman Rank Correlation Model [14]. To test the significance level of the relationship, the z Test was used, because the samples taken were more than 30 (N > 30) with a confidence level of 95%.

3. Results and discussion

3.1. Attitudes of respondents toward the creative economy development plan in Kutambaru Village

Based on the results of the scoring of respondents' answers to positive and negative statements submitted as indicators of attitude. Attitudes in this study were measured by the Likert Summated Rating Method, namely by giving a score of 1 to 5, namely strongly disagree, disagree, doubt, agree, and strongly agree. The sum or total of all response scores to the positive and negative questions is calculated and intervalized, then the recapitulation results are presented in table 1

**Table 1. Recapitulation of the total score of respondents' attitudes toward the creative economy development plan in Kutambaru Village**

| Attitudes Category | Farmers attitudes towards the Snake Fruit-based Processing Development | Farmers attitudes towards the Snake Fruit-based Agrotourism Development |
|--------------------|-------------------------------------------------|-------------------------------------------------|
|                    | Total Score Interval of Attitude | The Number of Respondents | Total Score Interval of Attitude | The Number of Respondents |
| Strongly disagree  | 14.00 - 25.19                      | 0                          | 18.00 - 32.39                    | 0                          |
| Disagree           | 25.20 - 36.39                      | 0                          | 32.40 - 46.79                    | 1                          |
| Doubt              | 36.40 - 47.59                      | 4                          | 46.80 - 61.19                    | 2                          |
| Agree              | **47.60 - 58.79**                   | **54**                     | **61.20 - 75.59**                | **55**                     |
| Strongly agree     | 58.80 - 70.00                      | 2                          | 75.60 - 90.00                    | 2                          |

Average of Total Score of Attitude: 52.17 for the Snake Fruit-based Processing Development Plan and 67.2 for the Snake Fruit-based Agrotourism Development Plan.
Based on the calculation of the total score of attitudes toward the creative economy development plan in the form of snake fruit-based processed products, the total average score was 52.17. This total score is included in the total score interval of 47.60-58.79 or grouped as the agree category. Meanwhile, the calculation of the total score of attitudes toward the snake fruit-based agrotourism development plan, obtained an average total score of 67.20 which is also included in the agree category. Thus, it can be summarized that the community of farmers in Kutambaru Village agrees or in other words supports the creative economy development plan in the form of a snake fruit-based product processing or snake fruit-based agrotourism.

3.2. Relationship between socio-economic factors and farmers' attitudes toward the development plan for snake fruit-based processing

The socio-economic factors that shape farmers' attitudes studied in this study are age (years), number of family members (persons), area of snake fruit farming land (hectares), length of time following formal education (years), experience in cultivating snake fruit (years), insight and knowledge about agricultural/agroindustry product processing and agrotourism, access to mass media, problems faced in farming, cultural or customary influences when making decisions, the influence of other people in making decisions and snake fruit farm income per ha (rupiahs/ hectares). The relationship between socio-economic factors and farmer attitudes toward the snake fruit-based Processing Development Plan in Kutambaru village is shown in table 2.

| No. | Attitude Shaping Factors                                      | Correlation Coefficient (Rs) | z calc. | z table | Probability | Note         |
|-----|--------------------------------------------------------------|------------------------------|---------|---------|-------------|--------------|
| 1.  | Age (years)                                                  | 0.098                        | 0.7528  | 1.96    | 0.55        | Not Significant |
| 2.  | Number of family members (persons)                          | 0.023                        | 0.1767  | 1.96    | 0.864       | Not Significant |
| 3.  | Area of snake fruit farming land (hectares),                | 0.046                        | 0.3533  | 1.96    | 0.726       | Not Significant |
| 4.  | Experience in cultivating snake fruit (years)                | 0.234                        | 1.7974  | 1.96    | 0.072       | Not Significant |
| 5.  | Length of time following formal education (years)            | 0.181                        | 1.3903  | 1.96    | 0.167       | Not Significant |
| 6.  | Insight and knowledge about agricultural / agroindustrial product processing | **0.257**                    | 1.9741  | 1.96    | **0.048**   | Significant |
| 7.  | Access to mass media, problems faced in farming             | **0.315**                    | 2.4196  | 1.96    | **0.014**   | Significant |
| 8.  | Problems faced in farming                                   | -0.106                      | -0.8142 | 1.96    | 0.422       | Not Significant |
| 9.  | Cultural or customary influences when making decisions      | -0.13                       | -0.9985 | 1.96    | 0.321       | Not Significant |
| 10. | The influence of other people in making decisions           | -0.169                      | -1.2981 | 1.96    | 0.197       | Not Significant |
| 11. | Snake fruit farm income per ha (rupiahs/ hectares)          | 0.106                        | 0.8142  | 1.96    | 0.42        | Not Significant |
Table 2 showed that $z$-calculation is greater than $z$-table at the 95% confidence level, both for farmers' insights about the science of processing snake fruit products and farmers' access to the media, so $H_0$ is rejected and $H_1$ is accepted. Thus, farmers' insights about the science of processing snake fruit products and farmers' access to the media are related to farmers' attitudes toward the snake fruit-based processing development plan.

Table 3. Hypothesis testing the relationship between attitude-forming factors and farmers' attitudes toward the snake fruit-based agrotourism development plan

| No. | Attitude Shaping Factors                                      | Correlation Coefficient (Rs) | $z$ calc. | $z$ table | Probability | Note          |
|-----|-------------------------------------------------------------|------------------------------|-----------|-----------|-------------|---------------|
| 1.  | Age (years)                                                 | 0.02                         | 0.1536    | 1.96      | 0.988       | Not Significant|
| 2.  | Number of family members (persons)                         | 0.01                         | 0.0762    | 1.96      | 0.995       | Not Significant|
| 3.  | Area of snake fruit farming land (hectares),                | 0.163                        | 1.2582    | 1.96      | 0.213       | Not Significant|
| 4.  | Experience in cultivating snake fruit (years)               | 0.301                        | 2.4038    | 1.96      | 0.019       | Significant   |
| 5.  | Length of time following formal education (years)           | 0.15                         | 1.1554    | 1.96      | 0.252       | Not Significant|
| 6.  | Insight and knowledge about agro-tourism                   | 0.388                        | 3.2061    | 1.96      | 0.002       | Significant   |
| 7.  | Access to mass media, problems faced in farming             | 0.384                        | 3.1673    | 1.96      | 0.002       | Significant   |
| 8.  | Problems faced in farming                                  | -0.017                       | -0.1306   | 1.96      | 0.897       | Not Significant|
| 9.  | Cultural or customary influences when making decisions      | -0.149                       | -1.1445   | 1.96      | 0.256       | Not Significant|
| 10. | The influence of other people in making decisions           | -0.063                       | -0.4839   | 1.96      | 0.632       | Not Significant|
| 11. | Snake fruit farm income per ha (rupiahs/ hectares)          | 0.106                        | 0.8142    | 1.96      | 0.42        | Not Significant|

Table 3 showed that $z$-calculation is greater than $z$-table at the 95% confidence level, for farmers' experience in cultivating snake fruit, farmers' insights about the science of processing snake fruit products and farmers' access to the media, so $H_0$ is rejected and $H_1$ is accepted. Thus farmers' experiences in cultivating snake fruit, farmers' insights about the science of processing snake fruit products and farmers' access to the media are related to farmers' attitudes toward the snake fruit-based agrotourism development plan.

4. Conclusions

4.1. Conclusions
The attitude of farmers toward the snake fruit-based creative economy development plan (both snake fruit-based processing and snake fruit-based agrotourism) is included in the category of support or agreeing. Factors related to farmers' attitudes toward the development plan for the creative economy of snake fruit-based product processing are farmers' insights about the science of processing snake fruit products and farmers' access to the media. Meanwhile, factors related to farmers' attitudes toward
snake fruit-based agrotourism development plans are the duration of farmers' experiences in farming snake fruit, farmers' access to the media, and farmers' insights about snake fruit agrotourism.

4.2. Suggestions
The attitude of the snake fruit farmers who support the snake fruit-based creative economy development plan must be maximized to become real support for the implementation of the plan, in the form of participating in ideas, money or labour. The attitude of the snake fruit farmers who support the snake fruit-based creative economy development plan should be used as the basis for promoting partnerships between institutions within the village and institutions outside the village to support the implementation of the snake fruit-based creative economy development plan.

References
[1] Maryunianta Y and Kesuma S I 2018 The Impact of the Mount Sinabung Eruption on Snake fruit Farming Businesses and the Management Strategy (Case: Kutambaru Village, Tiganderket Subdistrict, Karo Regency) (Medan: Research Institutions of Universitas Sumatera Utara)
[2] Badan Pusat Statistik Kabupaten Karo [Central Bureau of Statistics of Karo District] 2013 Kabupaten Karo dalam Angka 2012 [Karo in Figures 2012] (Karo: Badan Pusat Statistik Kabupaten Karo [Central Bureau of Statistics of Karo District])
[3] Badan Pusat Statistik Kabupaten Karo [Central Bureau of Statistics of Karo District] 2018 Kabupaten Karo dalam Angka 2017 [Karo in Figures 2017] (Karo: Badan Pusat Statistik Kabupaten Karo [Central Bureau of Statistics of Karo District])
[4] Maryunianta Y and Kesuma S I 2018 Analysis of snake fruit farmer satisfaction levels on agribusiness agency services (case: snake fruit agribusiness in Kutambaru Village, Tiganderket Subdistrict, Karo Regency) IOP Conference Series: Earth and Environmental Science 454 012040
[5] Muller D J 1986 Measuring Social Attitudes: A Handbook For Researchers and Practitioners (New York: Teachers College Press)
[6] Azhar S 2005 Sikap Manusia, Teori dan Pengukurannya [Human Attitudes, Theory and Measurement] (Yogyakarta: Pustaka Pelajar)
[7] Departemen Perdagangan Republik Indonesia [Ministry of Trade of Indonesia] 2008 Pengembangan Ekonomi Kreatif Indonesia 2025 (Rencana Pengembangan Ekonomi Kreatif Indonesia 2009 - 2015) [Indonesian Creative Economy Development 2025 (Indonesian Creative Economy Development Plan 2009 - 2015)] (Jakarta: Departemen Perdagangan Republik Indonesia [Ministry of Trade of Indonesia])
[8] Setiawan I 2012 Agribisnis Kreatif Pilar Wira Usaha Masa Depan [Creative Agribusiness Pillars of Future Entrepreneurship] (Jakarta: Penebar Swadaya)
[9] Budiasta I W 2011 Konsep dan potensi pengembangan agrowisata di Bali [Concept and potential of agrotourism development in Bali] dwijenAGRO 2 1
[10] Soemarno 2008 Pengembangan Kawasan Agrowisata [Planning-Development of Agrotourism Areas] Accessed from http://www.blogspot.com/outpost/
[11] Santosa H B 1990 Salak Pondoh [Pondoh snake fruit] (Yogyakarta: Kanisius)
[12] Tjahjadi, I N 1989 Beringin salak [Planting snake fruit] (Yogyakarta: Kanisius)
[13] Dadang 2008 Mengunjungi Pusat Sayuran di Tanah Karo [Visiting the Vegetable Centre in Tanah Karo] Accessed from http://www.agrina-online.com/agrina
[14] Sugiyono 2011 Metode Penelitian Kuantitatif Kualitatif dan R&D [Quantitative Research Methods and R&D] (Bandung: Alfabeta)

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