

## **Analysis of the Utilization of Golden Snail Processing as a Animal Feed Product in the Economy of the Siparmahan Village Community, Harian District, Samosir Regency**

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### **Abstract**

This study aims to analyze the magnitude of the influence of using golden snail to become animal feed flour in the economy of the people of Siparmahan Village, Harian District, Samosir Regency. The method used in this study is descriptive analysis method, data collected by direct observation, documentation, and interviews. The sample in this study is the community of Siparmahan Village, Harian District, Samosir Regency, which is a community dominated by farmers. The results of the study showed that the processing of golden snails into animal feed that could be sold had a positive effect on the community's economy. The community will receive an additional income of around 30% of the average total income of the people in the village.

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**Keywords:** Economy, Product, Processing, Keong Mas.

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### **INTRODUCTION**

The majority of Siparmahan Villagers are farmers. Their source of income depends on agricultural products. According to data obtained from the head of Siparmahan Village, the average land area owned is 0.5-1.5 ha/farmer. The types of plants they grow are rice plants. This rice plant plays an important role for the survival of Siparmahan Village farmers (Parulian et al., 2019).

With a community that is dominated by farmers whose income is not too high, the average income of the Siparmah village community is IDR 1,500,000 per month. So that an additional source of income is needed to be able to support the economy of the village community. However, the expected source of income is more practical and does not really require high capital so that it can be reached by farmers (Meert et al., 2005). In addition, this source of income is expected to be close to the community and the process is easy to understand.

In the cultivation of rice plants, there are many factors that affect agricultural yields. One of the factors that always damage agricultural products is the presence of plant-

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disturbing organisms or plant pests, one of which is the golden snail. The existence of the golden snail is very disturbing when the planting season arrives, the golden snail reproduces quickly. The World Food Organization (FAO), estimates the amount of damage caused by the pest ranges from 10-40%. Marwoto 1997 reported that there are three species of Pomacea in Indonesia, namely Pomacea canaliculata L, Pomacea insularum D, and Pomacea paludosa S. The golden snail (Pomacea sp.) is a herbivore (plant eater), which is very dangerous because it attacks rice at a young age so that the formation of clumps is hampered. , attacks the leaves so that the leaves become hollow and there are streaks of mucus that cause the leaves to fall (Sulistyanto D, 2006). In tropical areas like Indonesia, snails are active and lay eggs all year round (Hylton Scolt, 1958 in (Cazzaniga, 2006)). So that the development and impact of the attack given by the golden snail is so massive and explosive from year to year.

The bad impact of the golden snail for farmers is of course very troubling for farmers (Mutiarra & Kholil, 2022)v. In particular, the people of Siparmahan Village have never consumed golden snails as food. They generally always try to destroy it by applying pesticides. However, the application of these pesticides will actually have a bad impact on the environment. In particular, the soil element will be depleted because by spraying this pesticide besides the golden snail, living things in the soil will also die, especially earthworms. If this continues, the soil nutrients will be depleted. Therefore, other solutions are urgently needed in addition to maintaining ecological balance, but also providing a good effect for people's sources of income.

The nutritional content of the golden snail can replace the commonly used animal feed, namely fish meal (Narto et al., 2022; Rohaeni et al., 2021) The nutritional content of the golden snail is very good for use as feed for livestock such as poultry, fish, and others. According to BPPLM Jakarta (Purnomo & Utami, 2019) the use of golden snails to feed ducks has been proven to be able to increase egg yields by up to 80%. Feeding about 4.5% golden snail flour in beef cattle also gives good growth results and the highest profit rate compared to other feeds. As fish feed, substituting 25-75% fish meal for golden snail flour has a good effect on individual daily growth rate, feed efficiency, protein retention, and fat retention.

**Table 1. Nutritional Content in Keongmas according to the Center for Community Training Development (BBPLM) Jakarta 2018**

| <b>Nutrition</b> | <b>Percentage (%)</b> |
|------------------|-----------------------|
| Crude protein    | 51,8                  |
| Crude Fat        | 13,61                 |
| Coarse Fiber     | 6,09                  |
| Ash Content      | 24                    |
| Metabolic energy | 2049.98 kal/kg        |

Source: bbplm-jakarta.kemendesa.go.id

## RESEARCH METHODS

The form of this research is research and development. Where the first time the author conducted research in the literature from research journals then conducted research on farmers in Siparmahan Village by observation and interviews. Data from sample examination results are classified and tabulated and then considered by review analysis and then displayed descriptively in the form of ideas or ideas. The population in this study were all the people of Siparmahan Village, while the sample in this study was the Paddy Farming Community of Siparmahan Village. This research was conducted in Siparmahan Village, Harian District, Samosir Regency. Which village is one of the villages with underdeveloped status with the majority of farming communities. Agriculture in this village is dominated by rice farming. Besides that, the source of income for the people in this village is still monotonous by relying on agricultural crops.

## **RESULT AND DISCUSSION**

### **Conditions and Problems Faced by Siparmahan Village Farmers Due to the Mas Conch Pest**

Siparmahan Village is in Harian District, Samosir Regency, North Sumatra Province. The majority of Siparmahan Village residents are farmers. The condition of the village that has many irrigation channels has made the community choose to farm water rice plants. The average farmer in Siparmahan village cultivates 0.5-1.5 ha of land/farmer. Their lives are very dependent on the results of rice farming. So that if there is crop damage or unsatisfactory results due to pest attacks, farmers will experience quite severe difficulties.

Siparmahan Village Farmers are currently faced with quite a big problem. Since 2015 there has been quite an explosive breeding of golden snails in the rice fields of Siparmahan village farmers. Koeng mas attacks farmers' rice plants, especially young rice plants. As a result, the damage caused was quite large, causing Siparmahan village farmers to experience a significant decrease in their yields (Saputra et al., 2018; Widiastuti et al., 2015). In the eyes of farmers, the golden snail itself is a dirty animal and not suitable for consumption, usually they will give pesticides to kill the snail. However, the application of this pesticide turned out to have a negative impact on the environment which resulted in fish also dying, not only those in the rice fields but also fish in the river (Isnainingsih & Marwoto, 2011; Lonta et al., 2020). In addition, microbes and living things in the soil also die, such as earthworms also die if they are exposed to the pesticide spray. This of course will have an impact on the depletion of soil fertility.

### **Processing of golden snail into feed flour**

Processing golden snail pests into a product with selling value. The golden snail, which has been considered a farmer's pest because it is so invasive and multiplies quickly, has caused a lot of harm to farmers. By making golden snails into feed flour, this is a solution in turning pests into blessings and a source of income for farmer residents in Siparmahan Village. Mas snails are taken from rice fields and processed using good

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methods and techniques so that they become a product that has a sale value, namely Mas snail feed flour (Elhadary et al., 2013). The following are the stages of making Mas snail feed flour.

1. First collect the snails,
2. Second, do not give snails for about two days. This is done so that the snails get rid of leftover food in the digestive system which is likely to be toxic. Then separate the meat from the shell.
3. Slice the snail meat into thin pieces. Dry it in the hot sun or in a 600C oven, so that the water content in the snail meat is reduced by approximately 14%.
4. After the snail meat is completely dry, grind the meat into flour (granule). This golden snail meat powder can be used as a mixture in animal feed.

Making golden snail shell flour, processing the shell into flour is the same as golden snail meat flour, namely don't feed the snails for two days, then separate them from the meat (AHMAD, 2013). Furthermore, the golden snail shell is cleaned of dirt and dried. Pound the shells in a container and grind with a grinding machine. Meat meal and golden snail shell are ready to be mixed in animal feed as a nutritional enhancer.

### Profit Potential Analysis

The following is a cost calculation analysis:

**Table 2 Profit Potential Analysis**

| Biaya Variabel   | Perhitungan  | Biaya perbulan   |
|--|--|------------------|
| Keong Mas:   | Rp. 0  | Rp. 0            |
| Packaging:   | Rp. 500 x 72   | Rp. 36.000       |
|  |  |                  |
| Milling Machine Cost   | Machine Price = Rp.<br>1,200,000<br>(for 5 years of use) |                  |
| Monthly machine depreciation fee   | 1.200.000 : 5x12<br>= 1.200.000 : 60                     | Rp.20.000        |
|  |  | <b>Rp.56.000</b> |
| Note: Milling Machines can also be replaced with other alternatives such as using crushed stone, if the cost for the machine is considered too expensive |  |                  |

The following is an analysis of the calculation of total income:

1. 1 kg of Golden Snail Feed Meal sells for IDR 7,000, this price is quite competitive and much cheaper compared to fish meal which costs IDR 15,000 – IDR 20,000 in the market, while the nutritional content is not much different.
2. Estimated number of products per month: 72 kg.

**Table 3 Calculation of Total Net Income**

|                |   |
|----------------|---|
| Monthly income | Number of product yields per month x Product price per kg |
| Monthly income | 72 kg x IDR 7000 = IDR 504,000/month                      |

|                  |  |
|------------------|--|
| Total net income | Monthly income - Monthly expenses      |
| Total net income | IDR 504,000 – IDR 56,000 = IDR 448,000 |

**Table 4 Percentage of Increase in Farmer's Income**

| The average monthly income of Village Farmers                           | Rp 1.500.000  |
|---|---|
| Percentage of additional farmer income from the processing of Keong Mas | Rp 448.000 / Rp 1.500.000 x 100% = 29,86 %<br><b>rounded to 30%</b> |

So by processing the Mas snails into animal feed products, Siparmahan Village farmers will get an additional income of 30% or IDR 448,000 per month. Of course this will greatly help the people of Siparmahan Village to assist them in their daily lives and improve their welfare.

### CONCLUSION

Based on the results of the research above, the authors conclude that there is a positive influence from processing golden snails into feed flour on the economic development of rural communities which are dominated by farmers. The amount of additional income earned is IDR 448,000 with a percentage of 30% of the average total income of the village community of IDR 500,000. In addition to the perceived economic benefits, farming communities can also reduce the impact of this pest on their rice plants.

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