



Comparison of the effect of pellets made by Farmers wife and factory pellets on the weight gain of catfish

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Abstract

The economy population of Lumpo District IV Jurai is classified as poor. The farmer's wife does not contribute to the improvement of the family economy. The farmer's wife can be empowered to increase family income.

One of the efforts that can be done is to cultivate catfish. In catfish farming, farmers are constrained in the provision of feed. To solve the problem of availability of feed, farmers are trained to make their own feeds from low-priced raw materials and many are available at Nagari Limau Gadang.

A research study to determine the effect of using homemade pellets as a feed for the weight gain of catfish.

The research hypothesis is that the influence of the use of homemade pellets is not significantly different from factory pellets against the weight gain of catfish.

In the research method, the farmer's wife is compared to the use of homemade pellets with manufactured pellets. The number of experimental catfish was 12,000 with an average weight of 50 grams. The duration of study is 30 days. The fish are packed in the experimental pond 6 pieces measuring 3 x 5 m. Each pond is filled with 2 000 catfish. Feeding three times a day.

The results showed that the effect of homemade pellets on the weight gain of catfish was no different from the influence of factory pellets.

Keywords: farmer's wife, catfish, pellet, cultivation

Introduction

Nagari Limau Gadang is geographically adjacent to the Kerinci Seblat National Park (KSNP) area. Around 250 families have farmland in KSNP. The population fields are planted with various types of plants, such as cinnamon, nutmeg, coffee, areca nut and crops. Field-making activities are to cut down and burn forests. As a result of logging and burning many species of flora and fauna are threatened with extinction. Other economic activities that destroy the forest inhabitants are porters wood from KSNP, take the bark of madang keladi, taking manau, gaharu and hunting animals. Economic activities suppress KSNP area very rapidly, because the forests where they generate money to carry out the work, without their forests are not bus a hold of everyday life. Economic activity in farming outside the KSNP area and planting rice in the paddy fields is not sufficient to support the population's economy. If examined further, conducting economic activities in the KSNP area, is not the best and right choice, but is runaway and is forced to save the household economy.

Conducting economic activities (earning a living) in KSNP is high risk because the distance to pick up wood to the KSNP area reaches 14 km and the terrain traversed is very dangerous. Based on researchers' interviews with 20 residents, who carry out their daily activities as wood transport workers, all of them said they were bored into the forest, but forced. Doing economic activities in the village is not sufficient to meet the needs of life.

According to researchers, residents of Nagari Limau Gadang can

survive doing economic activities outside the KSNP if the government or concerned parties of KSNP are able to create selected economic businesses, such as raising poultry, gardening outside the KSNP and freshwater fish farming (Armen, 2015)^[4]. All of these businesses are very promising to improve the economy of the population. Nagari Limau Gadang is a village in District IV Jurai whose inhabitants work as farmers. They only rely on rice fields and utilize resources to meet their daily needs. This situation has happened for a very long time. The economic condition of the population of Nagari Limau Gadang is very poor, almost all residents of Nagari Limau Gadang work as farmers in the fields.

Women (farmers' wives) do not contribute directly to increasing family income to provide for the household. The farmer's wife always helps her husband carry out his duties as a farmer. Economically the farmer's wife does not ease the burden on the husband earning income.

The activities of the residents of Nagari Limau Gadang make a living in the KSNP, for example farming, hunting and gathering natural resources will damage the ecosystem and cause disasters. As evidence of damage to the KSNP Nagari Limau Gadang ecosystem, flash floods occurred in 1987, 1997, and 2005. According to (Yusran, 2011)^[14] the damage to the KSNP ecosystem could be overcome by transferring economic activities. One of the economic activities that can be carried out by the community is freshwater fish farming, because land and

water resources are very supportive. (Yusran, 2011) ^[14] stated that fish farming will be able to improve the community's economy so that they do not want to enter the forest area.

Poverty can literally be said as a state of not having enough. In various perspectives there are three types of poverty that are often put forward namely structural poverty, relative poverty and absolute poverty. Structural poverty is understood as poverty that arises as a result of government policies and corporate behavior that makes the poor, have little or no access to the productive economy. Relative poverty is poverty that arises not only from the aspect of income alone but also the living conditions in the social environment, while absolute poverty according (Ferryal, 2010) ^[7] is poverty that is measured from the level of ability to pay for a minimum living in accordance with human dignity of life.

Environmental damage is caused by many factors, especially human activities that are not friendly to the environment itself. Humans should be responsible for preserving the environment, but they actually damage the environment. They tend to take natural resources at will, causing damage and pollution. After natural resources are used, they do not care about the needs of future generations who also have the right to enjoy them. Needs often encourage humans to take KSNP natural resources on a large scale without regard to their impact. One of the main factors causing damage to the environment of KSNP is poverty (Ferryal, 2010) ^[7].

Many experts put forward the opinion that poverty is one of the main causes of environmental damage in KSNP. Environmental damage caused by the poor tends to be influenced by their mindset because they are squeezed by poverty, their minds are only focused on the food they can get to survive today. Narrow thinking is what drives them to damage the environment and seize natural wealth without giving time for nature to renew its resources (Altin, 2007) ^[7].

Forest destruction due to community poverty also occurs in the Kerinci Seblat National Park, Nagari Limau Gadang. Damage to the Kerinci Seblat National Park is estimated to have been quite severe, the damage has reached around 50 ha. Damage to the Kerinci Seblat National Park covers flora, fauna and land (Armen, 2015) ^[2].

Related to fish farming, fish farmers have problems in getting cheap feed, because the price of fish feed tends to increase. According to (Sinaga, 2013) ^[12] if farmers use factory-made feed ingredients, the value can reach 70% of all cost components. One effort that can be done so that freshwater fish cultivation is successful is making their own feed. Most of the raw material for fish feed is available at Nagari Limau Gadang. Researchers have also conducted training in making feed (pellets) for tilapia for young men and women in Nagari Limau Gadang. The results showed 95% of participants who were trained to become skilled at making feed (Armen, 2014) ^[4]. Researcher has conducted research on the comparative effects of homemade food to feed factory to gain tilapia. The results showed no significant difference between the effects of homemade pellets and factory-made pellets (Armen, 2014) ^[4]. According to the findings of relevant research, which researchers have done, the research on catfish farming is very possible to improve the family economy.

The research activities carried out are to guide, train, test and compare to get the best quality pellets. The best quality pellets produced are used as standard feed for catfish farming

To understand the implementation of the research it is necessary to understand about catfish and feed ingredients are in need. Catfish began to be known in Indonesia around 1986, these catfish live wild in swamps, freshwater rivers, but now the cultivation has been carried out intensively because it turns out this fish has a high nutritional content that consists of 17-37% protein, 4, 8% fat, 1.2% minerals, 1.2% vitamins and 75.1% water, the growth is fast, the fans are increasing due to the taste of the meat is tasty and delicious (Soetomo, 2009) ^[13].

In Indonesia, catfish are known by several names in accordance with their respective regional languages. In West Sumatra, it is called kalang fish and in Kalimantan it is called catfish (Suyanto, 2006). The characteristics of this catfish can be seen from several parts of the body that is elongated body shape with a flat head, mouth at the tip or terminal with 4 pairs of barbels consisting of 2 pieces of nasal antennae, mandibular groans in 2 pieces. Catfish have five fins consisting of double fins, which are pectorals are pectoral fins and abdominal fins, while unpaired fins are dorsal, caudal and anal fins. The pectoral fin is equipped with a non-toxic patile or spur, compared to local catfish, the catfish patil is shorter and blunt. Catfish skin is not scaly, but slippery because it is slimy. The body color is like mud, the head to the back is blackish brown, the abdomen and the lower part of the head are younger (Soetomo, 2009) ^[13].

One of the elements that greatly determines the growth and mortality of fish that are kept is the element of the availability of adequate food, in addition to the existing natural feed, then to increase or accelerate the growth of fish need to be fed nutritious. The provision of nutritious feed can increase the production of maintenance fish by up to three times compared to those not given nutritious feed.

Nutritious feed given to fish contains a minimum of protein, carbohydrates and fats. These three substances will be converted into energy that is needed to be able to carry out its activities, but the protein contained in a feed determines the growth of fish rather than carbohydrates and fats (Dewi, 2008). The function of nutritious food for fish is to nourish the body, replace damaged cells, after which the excess food left is used for growth. In line with Dewi's opinion, (Mudjiman, 2000) ^[8] said that the protein in the feed is needed by fish as a source of energy, to replace damaged cells and to grow.

Factors that need to be considered in providing nutritious feed for fish growth are feed quality and amount of feed. Protein contained in a food is a very important element for fish growth. Protein given is derived from animal protein and vegetable protein (Mudjiman, 2000) ^[8]. Nutritious feed that can be given for catfish is fine bran, cassava, coconut cake, trash fish, quail feces. Feed functions in fish growth. To grow fish optimally, adequate amount and quality of feed is needed. The purpose of feeding is to produce a lot of meat in a short time. Nutritious feeds can increase fish production up to three times compared to those that are not given nutritious feeds, then added by (Soetomo, 2009) ^[13] that by providing nutritious feeds, fish weight gain can be 25-35% every month from the start.

The raw material used to make catfish feed is the raw material that is widely available in Nagari Limau Gadang. This raw material is mixed into catfish feed. Raw materials needed to make

catfish pellets are (1) trash fish, trash fish is fish that is not used. Small fish and types of fish that are not consumed by the community can be classified into trash fish. The trash fish that has been dried contains 43% -50% protein. Trash fish can be used as a source of protein to make fish food (pellets). Trash fish contains protein which can become a standard as a source of protein for fish and poultry feed (Rinoto, 2014). (2) quail feces, quail feces are waste disposal from laying quail cultivation. Quail feces contain 18-20% protein, 11-15% carbohydrate. Protein and carbohydrate content that is high enough quail feces, then quail feces can be used as a source of protein and carbohydrates to make fish food. Quail stool prices are much lower than other feed ingredients. If fish farmers utilize nutritional sources from quail feces raw material, the price of feed produced will be lower than the price of feed made from other raw materials (Rinoto, 2014). (3) Cassava is a raw material that is prioritized in this study, because it is easy to obtain that people have never used it as feed raw material. Aside from being a raw material, cassava also functions as an adhesive (Armen, 2014) ^[5]. Cassava used is a form of boiled cassava that has been boiled. The purpose of boiling is to cause sap and eliminate toxic HCN contained by cassava. In the list of food ingredients analysis released by the Directorate of Nutrition of the Ministry of Health, it was stated that the nutrition of cassava is: protein 1.2%, fat 0.3%, carbohydrates 34.7%, water 63% (Rinoto, 2014). (4) Fine bran is a byproduct of rice milling, consisting mostly of a layer of pericarp and rice husk. This raw material is easily obtained in rice mills and it is cheap. The selected bran has a fine (grain) texture, is not moist, does not smell musty, and has a fresh color. Bran contains nutrients: protein 11.35%, fat 12.15%, 28.62% carbohydrate, 10.5% ash, fiber and water kasar 24.46% 10.15% (Mujiman, 2000).

Economically, catfish farming done by farmer groups is quite successful, they can generate profits for 10,000 seedlings in a period of 2-3 months around Rp.5,000,000, - if averaged the income of each farmer group member per day Rp.. 66,000, -, their income can increase if the price of feed is cheaper. The price of feed used by farmer groups is around Rp. 10,000, - / kg, if farmers can get feed worth about Rp. 5,000, - / kg, then each member of the farmer group will get a profit of Rp. 93,000, -, per day. One effort that can be done to lower the price of feed is that catfish farmers have to mix their own feed. The price of homemade food can be made Rp. 5,000, - / kg with good quality. Listening to this condition the members of the catfish farmer group must be touched by applied technology so that they are able to make their own feed to achieve independence in the field of feed.

The role of the wife can be used to improve the family economy. Economic activities that can be carried out by farmers wives are catfish farming. Catfish farming is not complicated and can be done by the farmer's wife while taking care of the household, generally the farmers have a decent land to be used as catfish ponds (Armen, 2017). Catfish cultivation is enough to make a profit. The fish farmers earn enough profit. The benefits of cultivation can still be increased if farmers can make their own feed. The profit gained will reach 40-50% If using factory feed the profit is only 20-25%.

Making your own fish feed does not require large capital. Price per kg can be reduced to 50%. The raw materials used are the raw materials that are around Limau Gadang, for example trash fish, quail feces, fine bran and cassava. The problem faced by farmers'

wives in catfish farming is the difficulty in getting fish seeds, making ponds and making feed.

The specific objective to be achieved in this research is that the farmer's wife can contribute to improving the family economy. The urgency of this study, if the family economy increases, KSNP is protected from population pressure. Innovative findings found in the research are the right formulation and skills to make quality feeds themselves and the certainty of factory-made pellets no better than those made by farmers' wives

Pellet (feed) is one important component in fish farming activities. According to Perius (2011), feed is a source of material and energy for fish survival and growth but on the other hand feed is the largest component (50-70%) of production costs. Increasing the price of fish feed without an increase in the selling price of fish from aquaculture is a problem that must be faced by every fish cultivator. Therefore, efforts to find alternative feeds that are cheap and easily accessible natural feed are continuously carried out in order to reduce production costs. The manufacture of fish feed in principle is the utilization of natural resources that are not fit for consumption directly by humans or the use of surpluses that have nutritional value and less economic value than animal food to be produced (Afrianto and Liviawaty 2005).

Feed is the most important element in supporting the growth and survival of fish. According to Wahyuningsih (2009), the types of commercially cultivated fish that are kept in a semi-intensive manner, the food that is eaten completely relies on the supply provided by the cultivator while the fish that are traditionally reared or fish that live freely in nature, only utilize naturally available feed. That is the reason why the growth rate and survival rate of fish that are kept intensively and semi-intensive are much higher than fish that are traditionally reared or that live freely in nature. The speed of growth of fish is greatly influenced by the type and quality of feed provided and environmental conditions his life. If the feed provided is of good quality, sufficient amount and supporting environmental conditions it can be ascertained that the rate of fish growth is fast as expected. Conversely, if the feed provided is of poor quality, the amount is insufficient and the environmental conditions are not supportive, it is certain that fish growth will be hampered (Amri and Khairuman 2002).

According to Wahyuningsih (2009), natural food ingredients commonly used are fish meal and soybean meal. If these ingredients can be replaced with other feed ingredients with the same quality of food substances, it will greatly reduce the cost of feed. Local food ingredients that are not yet familiar among fish farmers can be used to compile fish feeds such as rubber seed meal, cassava leaves, banana leaves, and kale. In order to utilize local feed ingredients and minimize feed costs, this research was carried out by providing different feeds (water spinach leaves, pellets, and pellets and water spinach) to tilapia seeds in the aquarium to see the effect of its growth rate.

This research is focused on determining the right formulation to make quality catfish pellets. This fish pellet is expected to be made by the farmer's wife. The wife of a farmer who is skilled at making feed will be able to grow catfish. Catfish farming by the wife of the farmer will improve the household economy of the farmer. Improving the family economy will reduce the pressure of farmers to KSNP (Armen, 2014). The farmer's wife does not

contribute directly to increase income to support the household. The farmer's wife always helps her husband carry out his duties as a farmer. Economically the farmer's wife does not ease the burden on the husband earning income (Armen, 2015).

The activities of the residents of Nagari Limau Gadang make a living in the KSNP, for example farming, hunting and gathering natural resources will damage the ecosystem and cause disasters. According to (Yusran, 2011) damage to the KSNP ecosystem can be overcome by transferring economic activities. Environmental damage is caused by many factors, especially human activities that are not friendly to the environment itself. They tend to take unlimited natural wealth, causing damage. Needs often encourage humans to take KSNP natural resources on a large scale without regard to their impact. One of the main factors causing damage to the KSNP environment is poverty (Ferryal, 2010) ^[7].

Many experts believe that poverty is one of the main causes of environmental damage in KSNP. Environmental damage caused by poor people tends to be influenced by their mindset because they are poor, their minds are only focused on the food they can get to survive. Narrow thinking that drives them to exploit natural resources without giving time for nature to renew resources (Altin, 2007). Forest destruction due to poverty also occurs in the Kerinci Seblat National Park, Nagari Limau Gadang (Armen, 2014).

Regarding fish farming, fish farmers face obstacles in getting cheap food, because the price of fish feed tends to increase. According to (Sinaga, 2013) ^[12] if farmers use factory feed ingredients, the value can reach 70% of all cost components. One effort that can be done so that freshwater fish cultivation is successful is making their own feed.

Catfish is a type of freshwater fish that has a blackish or brown body color. Catfish skinned with slippery skin covered in mucus, and do not have scales like other fish. The interesting thing about the body of this catfish is that when exposed to sunlight, the color of the catfish's body will turn pale. The body color will also change if the catfish is surprised to become a black and white striped like a mosaic. Catfish have a mouth that is approximately $\frac{1}{4}$ of their body length. Catfish are also nicknamed catfish because they have a mustache around the mouth, amounting to eight so that it resembles a cat. The catfish mustache functions as a tactile device when looking for food or is moving (Soetomo, 2009) ^[13].

In cultivating catfish, even though their survival rate is higher than other fish, they must still be met by at least the minimum standard criteria for catfish environment. To support the success of aquaculture and optimize the growth and development of catfish, fisheries experts set criteria or minimum standards for water quality in catfish farming ponds, both chemically and physically, which must be met to grow catfish. One of the determinants of growth and death of cultivated fish is the availability of sufficient food, so to accelerate the growth of fish need to be given nutritious feed. The provision of nutritious feed can increase the production of pet fish up to three times compared to those not given nutritious feed (Armen, 2017).

Nutritious feed given to fish contains a minimum of protein, carbohydrates and fats. These three substances will be converted into energy that is very necessary to be able to perform life activities, but the protein contained in a feed determines the growth of fish rather than carbohydrates and fats. Feed be the

most important component in the business of fish farming catfish. Catfish feed prices are not cheap. Most of the raw materials are imported. This is much complained by fish farmers. To answer the above constraints, it helps us to know how to make alternative catfish feed and as a substitute for factory-made pellets. There are two types of alternative feed that will be presented here, namely feed from main ingredients and feed that utilizes leftovers (Dewi, 2008).

Factors that need to be considered in providing nutritious feed for fish growth are the quality and amount of feed. Protein contained in food is an element that is very important for fish growth. The protein given is derived from animal protein and vegetable protein (Mudjiman, 2000) ^[8]. Nutritious feed that can be given to catfish is fine bran, cassava, trash fish, quail faeces.

Raw materials needed to make catfish feed: (1) trash fish is fish that is not used or has expired. Small fish and types of fish that are not consumed by the community can be classified into trash fish. The trash fish that has been dried contains 43% - 50% protein. Trash fish can be used as a source of protein to make fish food (pellets). Trash fish contain protein which can become a standard as a source of protein for fish and poultry feed, (2) quail feces are waste disposal from laying quail. Quail feces has been used by farmers to fertilize agricultural land. After analyzing it turns out that quail faeces contain 18-20% protein, 11-15% carbohydrate. Protein and carbohydrate content is high enough quail feces contained, the quail feces can be used as a source of protein and carbohydrates to make fish food. Quail feces price is much lower than other feed ingredients, for example bran. If fish farmers can utilize nutritional resources from quail faecal raw materials, then the price of feed produced will be lower than the price of feed made from other raw materials, (3) cassava is a priority material in this study, because it is easily obtained people have never used it as raw material for feed. Apart from 'as a raw material, cassava also functions as an adhesive (binder). Cassava used is in the form of boiled cassava which has been boiled (Rinoto, 2014) ^[10].

The lower the value of feed conversion, the less is needed to produce 1 kg of fish meat, that is, the more efficient the feed is turned into meat. Minerals needed by the body of the fish both for the formation of cells and the continuation of the body's metabolic processes and vitamins are needed primarily to control growth. According to Sahwan (2003) ^[11], carbohydrates are a source of energy for fish, and generally come from plants. Fat is useful as a backup energy, helps absorption of vitamins dissolved in fat and protects vital organs for fish. How to make fish food: pellets are artificial p for fish that are used to add nutrients so that fish develop optimally. In making pellets it must have a balanced protein, fat and fiber content that is suitable for fish development. Fish 1-3 months old need 35-50% protein and 4 months old need 25-40% protein.

The main requirements for artificial pellets must be high nutrition, easy to process and not contain toxins, easily obtained, affordable prices. Pellets are usually made with rice bran, golden snails, trash fish, papaya leaves, vitamins, concentrate, tempe yeast. How to make feed: (1) ed, golden snails, vitamins, concentrate mixed together and stir well, then add 100-125 grams of tempe yeast. stirring slowly and evenly, (2) the dough tightly, left to stand overnight so that the fermentation process can take place properly, (3) in the morning, the fermented dough which has been left in the stand overnight is mixed with salted fish and

papaya leaves that have been ground first. Then stir evenly, (4) prepared a pellet printer, and put the mixture. The resulting pellet is cut into pieces ranging from a maximum of 1.5 cm, then dried. (5) the pellet is then dried in the sun to dry using a wide container so that it can dry all, dry in direct sunlight, (6) the dried pellet is placed in a plastic bag so that it is waterproof, then stored in a room that has air circulation good (Armen, 2017). Homemade pellet is the right choice to use as a selection of tackling the problem of food self-sufficiency in catfish (Armen) to ensure the effect of artificial pellet wives of farmers to gain catfish, then do review test against artificial pellet quality farmer's wife. To test the quality of pellets made by farmers' wives, a comparative test of the effect of giving pellets made by farmers' wives with factory-made pellets on the weight gain of catfish.

Factory-made pellets used as comparison pellets are 781 brand factory pellets produced by PT. Central Pangan Pertiwi, Medan. Theoretically and practically factory-made pellets contain enough nutrition as food to increase the weight of catfish. The right family member is empowered to improve the family's economy through catfish farming is the farmer's wife. Farmer's wife in Nagari Limau Gadang, tends not to work to improve the family economy. The role of the farmer's wife is simply to deliver food to the fields and fields. Farmer's wife is economically unproductive increasing the family economy. Generally their activities only stay at home and only help cultivate land at certain times (Armen, 2017). The role of the wife can be used to improve the family economy. Economic activities that can be carried out by farmers' wives are catfish farming. Catfish farming is not complicated and can be done by the farmer's wife while taking care of the household.

Method

A farmer's wife of 20 people are grouped into four groups and determined as catfish farmers. They are fostered and directly involved in research. Research activities to make fish feed with raw material of trash fish, quail feces, fine bran and cassava.

In this activity sought the right formulation to get nutritional levels. By paying attention to the nutritional content of raw materials. To get a protein content of about 22, 92% in one kilogram of pellets, it takes 30% trash fish, 45% quail feces, 15% fine bran, 10% cassava, with the provision of 40% trash fish protein content, 20% quail feces, 12% fine bran and 1.2% cassava.

Variations in the formula for nutritional content are made in 4 types

- 30% trash fish: 45% quail feces: 15% fine bran: 10% cassava
- 35% trash fish: 40% quail feces: 15% fine bran: 10% cassava
- 40% trash fish: 35% quail feces: 15% fine bran: 10% cassava
- 45% trash fish: 30% quail feces: 15% fine bran: 10% cassava.

Of the 4 variations, one variation is the best compared to factory-made feed. The main requirements for artificial pellets must be high nutrition, easy to process, non-toxic, easily obtained, and affordable prices. Pellets are usually made with bran or bran, gold snails, salted fish, papaya leaves, vitamins, concentrates, yeast tempeh. How to make feed (pellets):

- taken trash fish, quail feces, fine bran, cassava mixed together and stir evenly, then added with tempeh yeast as much as 125 grams. stirred;
- the dough is tightly closed, let it sit one night so that the fermentation process goes well;
- the fermented dough that has been allowed to stand one night is mixed with salted fish and papaya leaves that have been ground first, then stirs evenly;
- prepared a pellet printer, and put the dough. The resulting pellet is cut into pieces around 1.5 cm. The pellet is then dried in the sun to dry. Research on catfish farming by the wife of the farmer to increase family income in Nagari Limau Gadang District IV Jurai, phase 1 has succeeded in fostering the farmer's wife and making pellets. Research will continue in year II. In year II, it will be known the quality of standard pellets made by the farmer's wife.

Furthermore, to examine the effect of feeding made by farmers' wives and factory-made feed, research was conducted. The study was conducted in 8 permanent ponds, 5 x 4 size, water depth of 80 cm. pond treatment divided into six units, each unit consisting of two ponds, one pond by artificial pellet mill and an other by pellet-made wives of farmers. Each pond included 2000 catfish. The initial weight of the fish put into the pond around 45-55 grams. Feeding is done 3 times a day. Schedule of feeding, 7:00, 13:00 and 16:00.

The fish is sampled to be weighed every 10 days for 30 days. The number of fish sampled to be weighed as many as 50 fish, sampling was carried out 5 times for each pond. Fish samples were not put into the treatment pond before the sampling was completed.

Results and Discussion

The percentage of farmers' wives who understand and do not understand in making pellets (feed) before being developed, can be seen in table 1.

Table 1: Percentage of farmers' wives who understand and do not understand in making pellets (feed) before being fostered.

No	Activity	Qty Wife Farmers	No Understand	% No Understand	Understand	% Understand
1	Make Pellets	20 people	20	100%	0	0%

Listen to the low percentage of farmers' wives in making feed. This situation is in accordance with Armen's statement (2017) that the wife of a farmer only helps her husband work for a living

in the fields and there are no other activities.

The percentage of farmer's wives who understand and do not make pellets after being developed, can be seen in table 2.

Table 2: Percentage of wives who understand and do not understand in making pellets after being fostered.

No	Activity	Number of Farmers Wives	Do not understand	% Do not understand	Understand	% Understand
1	Make Pellets	20 people	3	15%	17	85%

Table 3: Percentage of quality raw material for pellets.

No	Percentage of raw materials for quality pellets			
	Trash fish	Quail feces	Fine bran	Cassava
1	30%	45%	15%	10%
2	35%	40%	15%	10%
3	40%	35%	15%	10%
4	45%	30%	15%	10%

Pellets made from 30% trash fish, 45% quail feces, 15% fine bran and 10% cassava obtained pellets containing 22.82% protein and 17% carbohydrate. This pellet is suitable for raising catfish. Based on pellet laboratory tests that contain very good nutrition for catfish enlargement, are pellets made from 40% trash fish raw material, 35% quail feces, 15% fine bran and 10% cassava. Laboratory test results show that pellet quality is

standard for catfish feed because the protein needed for catfish growth is around 20-23% (Armen, 2017).

Homemade pellet laboratory test results can be seen in Table. 4

Table 4: Results of fish feed analysis.

Analysis results Sample No.	Carbohydrates (%)	Fat (%)	Protein (%)
1	38.39	2.20	22.08
2	26.55	2.09	34.60
3	39.56	2.32	21.79
4	31.40	1.95	28.03

Based on the comparative test of the effect of the influence of pellets made by farmers' wives and factory pellets on the weight gain of catfish in the experimental pond, the data is shown in Table 5.

Table 5: Weight gain data of catfish given homemade feed and factory pellets in the treatment pond.

Pool	Treatment	Initial Weight (gr)	Catfish Weight Increase per 10 days (gr)																		Average
			I						II						III						
			I	II	III	IV	V	Average	I	II	III	IV	V	Average	I	II	III	IV	V	Average	
I	Homemade	100,000	3250	3180	3295	3195	3220	3228	4255	4160	4350	4270	4250	4257	5775	5770	5800	5750	5760	5771	4419
	Factory	100,000	3255	3270	3290	3190	3210	3243	4235	4260	4410	4390	4280	4315	5675	5800	5810	5690	5840	5763	4440
II	Homemade	100,000	3120	3190	3316	3270	3360	3251	4115	4320	4560	4450	4210	4331	5620	5740	5792	5780	5795	5745	4443
	Factory	100,000	3300	3290	3247	3145	3325	3261	4325	4280	4492	4485	4500	4416	5711	5790	5682	5873	5800	5771	4483
III	Homemade	100,000	3009	3270	3191	3235	3278	3197	4310	4600	4318	4433	4602	4453	5870	5620	5576	5699	5788	5711	4453
	Factory	100,000	2999	3000	3086	3220	3188	3099	4501	4570	4325	4449	4591	4487	5876	5973	5492	5426	5630	5679	4422

Listening to the results of a comparative study of the effect of giving pellets made by farmers' wives with factory-made pellets is very good. Pellets made by farmers' wives can add weight to catfish. The influence of pellets made by farmers' wives and factory-made pellets on the weight gain of catfish was not significantly different. The influence of pellets made by farmers' wives and factory-made pellets can be seen in Table 5.

Conclusion

1. The farmer's wife is capable and skilled at making quality catfish feed.
2. Raw fish, quail feces, fine bran and cassava can be made into high-quality catfish feed.
3. Pellets made by farmers' wives can increase the weight gain of catfish.
4. There is no significant difference between pellets made by farmers' wives and factory-made pellets.

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