Review Article

Profile Analysis of Milkfish Nursery Pond Culture in Cibuaya District, Karawang Regency (Case Study in Cemarajaya Village)

ABSTRACT

Pond aquaculture is an alternative aquaculture activity that has high economic value and can be developed in coastal areas. The purpose of this study was to describe the profile of milkfish pond aquaculture in Cemarajaya Village, Cibuaya sub-district, Karawang Regency. The method used is a case study with quantitative analysis and descriptive data analysis. The sampling technique used Puropsive sampling with 30 respondents. The result show the first for characteristic of cultivation majority are the male, range of age in 50-54 years with an elementary school of education level and then majority of cultivation have been doing this cultivation 2-6 years. Second for general condition majority cultivation 1-5 Ha area, they buy the fish seed IDR 25-30/fish with transportasion cost in IDR 300.000-500.000. the cultivation can be stocking from 300.000 – 500.000 fish/Ha with cost of fertilizer in IDR 225.000-550.000 and cost probiotic in IDR ≤100.000. the production ini cultivation can be 190.000 – 255.000 fish/Ha/cycle which is selling at a price IDR 100-200/fish. the labor can be have 10% from production as a cost of labor.

Keywords: milkfish; nursery pond; profile; case study; descriptive

1. INTRODUCTION

Indonesia is an area that has a water area of about 6,315,222 km^2 and has as many as 13,466 islands [1]. Indonesia also has a large area of agricultural land and coastal areas. The available land area and a favorable climate make the territory of Indonesia suitable as a place to cultivate carious types of fish and shrimp. The abudance of marine products in Indonesia can generate large income for the company, but the more fishing activities will have a negative inpact on the availability of fish in nature. To overcome these problems, aquaculture can be used as an alternative that can be chosen because pond aquaculture is an alternative that has high economic value and can be developed in coastal areas.

Pond is one type of brackish water aquaculture habitat located in coastal areas. There are three systems commonly used in aquaculture, namely tradisional (extensive) system, semi-intensive system and intensive system. The difference in that system are fish stocking density, increase in feeding and other inputs [2].

Milkfish (*Chanos-chanos*) is one type of fish that is quite widely cultivated in Indonesia. milkfish has a healthy source of protein because the protein contained in milkfish does not contain cholesterol, besides milkfish is also of high economic value, so it is not surprising that many people are trying to cultivate milkfish in ponds aquaculture for their business.

Karawang regency is a regency that makes milkfish as a leading commodity of

pond aquaculture. According to data from the recapitulation of leading commodities, in 2019 the number of milkfish production reached 19,722.02 tons/year. The production increased compared to milkfish production in 2018 [3].

Cemarajaya Village is a village located in karawang regency. The people in this village have a man livehood as milkfish nursery cultivators. In 2021 production of milkfish from nursery aquaculture will reach 126 fish/year. This is the main attraction for this research so, th purpose of this study was to describe the profil of milkfish pond aquaculture in Cemarajaya village, Cibuaya sub-distict, Karawang regency.

2. METHODOLOGY

The method uses in this study is a case study. Case studies is a scientific series that is carried aout intensively, in detail, and in depth about a program, event, and activity, either at the individual, group of people, or institution or organization level to gain in depth knowledge about the event [4]. This research was conducted in Cemarajaya Village, Cibuaya sub-district, Karawang regency.

2.1 Types and Sources of Data

The types and sources of data used are primary data and secondary data. Primary data comes from direct interviews with responden using structured questionnaires. Secondary data comes from related agencies such as the Departement of Marine Affairs and Gisheries of Karawang Regency, as well as other data sources that have been published. Survey and data collection this study was carried out from March 2022 to June 2022.

2.2 Sampling Technique

The sampling technique used in this study is purposive sampling. Purposive sampling is a sampling method based on certain considerations such as population characteristics or previously know characterisitcs [5]. the criteria for respondents selected in the study are:

1. Cultivators who carry out of manage milkfish nursery culture ponds.
2. Have a minimum of 1 year cultivation experience.
3. Have a minimum land area of 1 Ha.

The samples taken in this study were 30 milkfish nursery cultivators in the Cemarajaya village, Cibuaya sub-district, karawang regency.

2.3 Data Analysis

This study uses quantitative analysis and descriptive data analysis. The quantitative analysis is used to describe the characteristics of cultivators and general condition of milkfish nursery cultivation in Cemarajaya Village, Cibuaya sub-distict, Karawang regency. The data obtained from questionnaires and interviews which is processed using numbers to facilitate the analysis process. Quantitaitive data are presented in the form of diagrams and tabeles an then analyzed descriptively.

3. RESULTS AND DISCUSSION

3.1 Characteristics of Respondents

Respondents of cultivators in Cemarajaya village are male with 100% or equal to 30 people. This is because cultivation activities require stronger anergy because almost all of the activities are carried out in ponds [6].

Based on the age majority of cultivators are aged 50-54 years with 37% or 11 respondents. Between 15-60 years is a productive age. This means that most respondent are in the productive age because they are in the category of productive age [7].

Based on lavel of education the respondents in this study showed that 77% were had an elementary school. This show that the respondent have a lower of education. The low of lavel education obtained will lead to the long applivation of modern technology because the education sector has a major role in shaping the ability of a developing country to absorb modern technology and develop production capacity in order to create sustainable growth and development [8].

Based on the long of work experience majority respondents are in the category of 2-6 years with a 26% or 8 respondents.this show that the respondents have been doing this work long enough so that they already have the skills to carry out cultivation activities. According grom the theory, work experience is closely related to the skills they have. The longer they try to learn in a business field then they will have higher skills [9].

3.2 General Condition of milkfish nursery culture

3.2.1 Land Area

The land area for cultivation activities owned by cultivation majority ranges from 1-5 Ha with 80% or 24 respondents. The area of land will affect the amount of production produced. Based on the theory, high land area will result in high production whreas low land area will result in low production [10].

3.2.2 Fish Seed Source

Milkfish seed for cultivation activities in Cemarajaya Village come from Bali island. This is because milkfish seeds from Bali have good quality and affordable prices. In addition, the Bali island is also a major producer of milkfish seeds in Indonesia. Cultivators buy the fish seeds collectively with prices ranging IDR 25,00-30,00/fish seeds. The difference of price is caused by the availability of seeds in the market.

3.2.3 Transportaion Cost of Fish Seed

The fish seeds used in cultivation are sent by suplier using land routes. Cultivation only incur transportation costs to pick up the fish seeds send by the supplier to the Karawang regency. Majority respondents incur transportation costs in range IDR 300.000 – 500.00,- with 83% or 25 respondents. Based on the interview result of respondetns, the transportation costs of fish seeds can be seen in Tables 1.

Table 1. Transportation Cost

Transportaion Cost (IDR/Ha/cycle)	**Frequency**	**Presentase**
300.000 – 500.000,-	25	83%
550.000 – 750.000,-	4	13%
>750.000,-	1	3%
Total	**30**	**100%**

difference of price is caused by the availability of seeds in the market.

3.2.4 Stocking density of Fish Seeds

The stocking density of fish in nursery cultured ranges from 300.000- 500.000 fish/Ha./cycle with an average of 348.333 fish/Ha/cycle. This stocking density dependens on the size of the pond and the capital owned by the cultivation.

Table 2. Stocking Density of respondents in cultivation

Stocking Density	**Frequency**	**Percentage**
300.00-350.000	24	80%
400.000-500.000	6	20%

Total	**30**	**100%**

3.2.5 Feed of Fish Seeds

Feed is a very important factor in aquaculture. In this nursery cultivation, the main feed given is natural food in the from of klekap. This natural food will meet the needs of feed for 4-5 weeks. Then if the fish stock is still available in the pond after 5 week, there will be additional feed in the from of pellets or expired bread. The pelles ysed are Grobes, Fengli, Hi-Pro-vite, and Sinta brands. As for the price of additional feed range from IDR 3,000-20,000/kg.

Table 3. Cost of Feed Fish

Cost of Feed Fish	Frequency	Percentage
≤1.000.000,-	21	70%
1.050.000–2.000,-.000	1	3%
2.050.000–3.000.,-000	2	7%
>3.000.000,-	6	20
Total	**30**	**100%**

3.2.6 Cultivation Fertilizer

The milkfish nursery cultivation in Cemarajaya Village use urea fertilizer. Urea fertilizer is used to grow the natural food in the from of klekap. The price of urea fertilizer ranges between IDR 3,000-3,500/kg. The majority of respondent spend for fertilizer IDR 150.000-500.000,- with presentage 57% or 17 respondent. The cost of fertilizer depends on the stocked of fish because this fertilizer is a source for the growth of natural feed that will be used during the cultivation of fish nursery is carried out.

3.2.7 Cultivation Probiotics

Probiotics used in milkfish nursery culture in Cemarajaya village are EM4, Ursal and Lodan. The use of probiotics are uses only one of the three type. It is use depends on the stock and cultivation needs. For the price of each probiotic used is for EM4 IDR 23,000; Ursal IDR 42,000 and Lodan IDR 20,000. Based on the study majority spend for probiotics in IDR ≤100.000,- with presentage 83% or 25 respondents. The cost of probiotic depends on the amount and type of probiotic used. The probiotics cost can be seen in Tables 4.

Table 4. Probiotics Cost

Probiotics Cost (IDR/Ha/cycle)	Frequency	Percentage
≤100.000	25	83%
>100.000	5	17%
Total	**30**	**100%**

3.2.8 Production of Cultivation

The production of milkfish nursery cultivation in Cemarajaya village ranges from 120.000 – 315.000 fish/Ha/cycle. In one year the cultivation of this nursery can have 6-10 cycle. In one cycle has a maintenance period of 3-6 weeks. The amount of production dependens on the area of land and the stocking density of the cultivation density. The majority of respondents can produce 190.000 – 255.000 fish/Ha/cycle with presentage 57% or 17 respondents.

3.2.9 selling Price of Fish seeds

The selling price of milkfish from nursery farmers to grow-out farmers dependens of the size they need. For sizes 3-4 cm with a cultivation period of 1-2 weeks where this size is usually called a gelang kunci, it is sold at a price of IDR 100,00/fish. For the size of 5-6 cm with 3-4 weeks of cultivation is sold at a price of IDR 150,00/fish. This size is called a filter. The last for size 10-12 cm with a cultivation period of 5-6 weeks is sold at a price IDR 200,00/fish.

3.2.10Labor of Cultivation

In the nursery cultivation in Cemarajaya village, labor is divided into 3 activities, namely 1). 1-2 people for pond preparation stage; 2). 1-2 people for the fish rearing stage; 3). 2-3 people for the harvesting stage. In this workforce need, the majority of cultivators also participate derectly in aech stage of cultivation, especially at the maintenance stage. For the provision of wages to workers in maintenance, pe percentage of the production is usually devided. The results received by workers are 10% of the total production each cycle. Meanwhile, for the provision of wages to workers in the harvesting stage of IDR 50.000 – 100.000 /ten thousand fish/cycle.

4. CONCLUSION

This paper This paper explain about profile of milkfish nursery pond in Cemarajaya Village, Cibuaya sub-district, Karawang regency. this profile explain about characteristic of cultivators and general condition of milkfish nursery culture. The result for characteristic of cultivators show based on the gender the respondents are 100% male or 30 respondents are male. Based on the age majority are in productive age with most percentage 37% in 50-54 years. Than based on the lavel of education 77% they are had an elementary school. The las is characteristic based on the long of work experience majority they are in 2-6 years with percentage 26%.

The result for general condtion of milkfish nursery culture 80% respondent have a land area 1-5 Ha. The cultivator buy fish seed in Bali island with prices range IDR 25.00 – 30.00/fish and the transportation cost for fish seed 83% incur the transportation in range IDR 300.000 – 500.000. for the stocking density majority cultivation are stock in 300.000 – 350.00 fish/Ha/cycle with persetage 80%. For feed they are used a natural food and in the additional feed from pellets or expired bread. Than for the cultivation fertilizer 57% respondent spend IDR 150.000 – 500.000 and for the cultivation probiotict 83% the are spen in IDR ≤100.000. the cultivators in Cemarajaya village majority can produce 190.000-255.000 (57%) and then they can selling the product in rage IDR 100-200/fish. The last for cost of labor cultivation. The cultivator can pay the labor in the rearing stage with 10% from production in one cycle meanwhile, for the labor in harvesting stage the cultivator can pay of IDR 50.000 – 100.000 /ten thousand fish/cycle.

MANAGERIAL IMPLICATIONS

The results of this research can be used as information and can be developed by parties related to this research. First expected form the researches is for the readers it can be a new insights and knowlage expecially about profile nursery pond. The second for the relevant agencies this researches can be used as input for the development and and inmprofment of milkfish nursery culture. The last is for the student this researches expected to provide information to studies science related about analysis profile of nursery pond and socio-economic.

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