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Analysis of Factors Affecting the Use of Certified Catfish Breeders on Catfish Shuters in Tegal District

Analisa Faktor-Faktor Yang Mempengaruhi Penggunaan Indukan Ikan Lele Bersertifikat Pada Pembenih Ikan Lele Di Kabupaten Tegal

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ABSTRACT

There are still catfish hatcheries found in Tegal District that use brooders derived from the results of rearing spread seeds (jonggolan), not catfish specifically for certified breeders. The use of jonggolan as broodstock is feared to cause a decrease in the quality of catfish fry due to inbreeding or inbreeding. This research is expected to be able to determine the factors that influence the use of certified catfish broodstock so that prevention can be done to avoid losses to catfish farmers and improve the steps that need to be decided in making policies at the relevant agencies. This study uses a descriptive correlational statistical analysis method. The data was taken from all catfish hatcheries in Tegal District with a total of 100 respondents then the data was processed with SPSS 24 year 2022 software. The variables of age, last education, training or socialization about fisheries that have been followed, and the origin of the broodstock used have a significance value greater than 0.05. then there is no significant correlation (relationship) to the parental strain variable used. The Capital Estimation variable has a significance value less than 0.05 (Sig. 0.000). then there is a significant correlation (relationship) to the parental strain variable used. Spearman correlation value of 0.351 indicates that the direction of the correlation is positive with a weak correlation strength. Age factor, last education, training or socialization by the Fisheries Service that has been followed, the origin of the broodstock (government assistance, independent purchase or jonggolan) does not affect the use of certified catfish breeders. Capital owned factors that influence the decision of farmers in using certified catfish broodstock.

ABSTRAK

Pada kegiatan pembenih ikan lele di Kabupaten Tegal masih ditemukan banyak menggunakan indukan yang berasal dari hasil pembesaran benih sebar (jonggolan), bukan ikan lele yang khusus untuk indukan yang bersertifikat. Penggunaan jonggolan sebagai indukan dikhawatirkan akan terjadi penurunan kualitas benih ikan lele karena terjadinya perkawinan sekerabat atau inbreeding. Penelitian ini diharapkan dapat mengetahui faktor-faktor yang mempengaruhi penggunaan indukan ikan lele bersertifikat sehingga dapat dilakukan pencegahan untuk menghindari kerugian pada

pembudidaya pembesaran ikan lele dan perbaikan langkah-langkah yang perlu diputuskan dalam mengambil kebijakan pada instansi terkait. Penelitian ini menggunakan metode analisa statistik deskriptif korelasional. Data diambil dari seluruh pembenih ikan lele yang ada di Kabupaten Tegal dengan jumlah 100 responden kemudian data diolah dengan software SPSS 24 tahun 2022. Variabel usia, pendidikan terakhir, pelatihan atau sosialisasi tentang perikanan yang pernah diikuti, dan asal indukan yang digunakan memiliki nilai Signifikansi lebih besar dari 0.05. maka tidak terdapat korelasi (Hubungan) yang signifikan terhadap variabel strain indukan yang digunakan. Variabel Estimasi Modal memiliki nilai Signifikansi lebih kecil dari 0.05 (Sig. 0.000). maka terdapat korelasi (Hubungan) yang signifikan terhadap variabel strain indukan yang digunakan. Nilai korelasi spearman sebesar 0,351 menunjukkan bahwa arah korelasi positif dengan kekuatan korelasi yang lemah. Faktor Usia, pendidikan terakhir, pelatihan atau sosialisasi oleh Dinas Perikanan yang pernah diikuti, asal indukan (bantuan pemerintah, pembelian mandiri atau jonggolan) ternyata tidak mempengaruhi dalam penggunaan indukan lele bersertifikat. Faktor Modal yang dimiliki yang mempengaruhi keputusan pembenih dalam menggunakan indukan ikan lele yang bersertifikat.

Kata Kunci	*ikan lele, indukan, inbreeding, pembenihan*
Keywords	*broodstock, catfish, hatchery, inbreeding*
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INTRODUCTION

Public awareness of the importance of a healthy lifestyle is increasing, especially in the transition era of the COVID-19 pandemic, all levels of society are working together to maintain the stability of a healthy environment by implementing health protocols and providing complete nutritional intake. This can be seen from people who are now wiser in choosing white protein (fishery products) over red protein (meat). People are starting to realize that fishery products have high nutritional content, and are certainly considered safer than cholesterol.

One type of fish that is quite popular among the public is catfish, apart from being cheaper than other freshwater fish, catfish also contains essential amino acids which are very necessary for children's growth. In an effort to fulfill animal protein originating from fish, which has a distinctive taste and is easy to obtain, now many people like catfish (Pelipa, 2016). These are some of the reasons why the demand for catfish on the market is never low and continues to increase. Likewise, in Tegal Regency, the demand for catfish for consumption is quite high, whether it is sold fresh, processed or ready to eat at Lamongan stalls. This is proof that people really like catfish compared to other freshwater fish. Until now, only catfish are sold alive and fresh (Rozi, 2018). The high demand for catfish consumption has also resulted in an increase in the need for catfish seeds, because this is an interrelated link in the chain.

In accordance with statistical data from the Ministry of Maritime Affairs and Fisheries (KKP) 2020, catfish production was recorded at 347.5 thousand tons. Every year the amount of catfish production actually always increases, but until now the

number is still not able to meet market demand. The problem that often occurs for farmers in meeting the demand for consumption-sized catfish is the difficulty of obtaining quality and large quantity seeds. To get quality catfish seeds that are healthy and resistant to disease attacks, quality parent strains are also needed, namely using certified catfish parents as recommended by the Ministry of Maritime Affairs and Fisheries.

Several certified catfish broodstock strains that have been officially issued by the government through the Ministry of Maritime Affairs and Fisheries are the Pearl Strain (Lathif, 2021) and the Sangkuriang Strain (Pangandongan, 2019). The regional government of Tegal Regency, through the Fisheries Service, has provided assistance with certified catfish breeders with the Sangkuriang and Mutiara strains. However, until now there are still catfish breeders who use uncertified broodstock (jonggolan). The use of uncertified broodstock allows inbreeding to occur which will result in a decrease in the quality of the seed produced, such as low fecundity and hatching rate, susceptibility to disease, slow growth, physical defects (Astuti, 2019). The subsequent negative effects will not only be experienced by seed farmers but will also affect grow-out cultivators who will experience losses. This encourages research to be carried out on the factors that influence catfish hatcheries using certified catfish broodstock.

METHODS

This research was conducted in the Tegal Regency area and carried out from February to March 2022. The respondents in this research were all catfish hatcheries in Tegal Regency totaling 100 respondents using saturated sampling or census (Hardjanto, 2021). Data collection was carried out through interviews and field surveys. The data that has been collected will be analyzed using correlational descriptive statistics using SPSS software.

RESULT AND DISCUSSION

Result

The results of data collection through interviews and field surveys and analyzed using correlational descriptive statistics using SPSS software resulted in the following data processing:

Descriptive Statistical Analysis

Table 1. Descriptive Analysis of the Age variable (X1)

Criteria	Number of respondents	Percentage (%)
15 s/d 64 years old	98	98.00
> 64 years old	2	2.00
Total	100	100.00

Source: Research data processed using SPSS 24 software in 2022

Table 2. Descriptive Analysis of the Final Education variable (X2)

Criteria	Number of respondents	Percentage (%)
SD	9	9.00
SLTP	17	17.00
SLTA	54	54.00
D3	2	2.00
S1	18	18.00
Total	100	100.00

Source: Research data processed using SPSS 24 software in 2022

Table 3. Descriptive analysis of training/socialization variables regarding fisheries (X3)

Criteria	Number of respondents	Percentage (%)
Never	63	63.00
Once	37	37.00
Total	100	100.00

Source: Research data processed using SPSS 24 software in 2022

Tabel 4. Analisis Deskriptif variabel Estimasi Modal (X4)

Criteria	Number of respondents	Percentage (%)
< 5 Jt	20	20.00
5 Jt s/d 10 Jt	32	32.00
> 10 Jt	48	48.00
Total	100	100.00

Source: Research data processed using SPSS 24 software in 2022

Table 5. Descriptive Analysis of Parent Origin Variables Used (X5)

Criteria	Number of respondents	Percentage (%)
Government Assistance	42	42.00
Jonggolan	21	21.00
Independent Purchase	37	37.00
Total	100	100.00

Source: Research data processed using SPSS 24 software in 2022

Tabel 6. Analisis Deskriptif variabel Strain Indukan (Y)

Criteria	Number of respondents	Percentage (%)
Not certified	21	21.00
Certified	79	79.00
Total	100	100.00

Source: Research data processed using SPSS 24 software in 2022

Pearson product moment correlation analysis prerequisite test

Before carrying out the Pearson product moment correlation test, it is necessary to carry out a prerequisite test to find out whether the research data meets the test criteria or not. In this case the test used is the Kolmogorov-Smirnov or Shapiro-Wilk normality test. data is said to have a normal distribution if the significance value is greater than 0.05 (sig. > 0.05). If the prerequisites are not met, an alternative non-parametric test is carried out, namely the Spearman rank correlation test (Field, 2018). The following are the results of the Normality test of the research variables.

Table 7. Normality test results of research variables

Variabel	Significance Normality test		Note
	Kolmogorov-Smirnova	Shapiro-Wilk	
Age (X1)	0.000	0.000	Tidak Normal
Last education (X2)	0.000	0.000	Tidak Normal
Training/Socialization about Fisheries (X3)	0.000	0.000	Tidak Normal
Capital Estimation (X4)	0.000	0.000	Tidak Normal
Origin of the Parent Used (X5)	0.000	0.000	Tidak Normal
Parent Strains (Y)	0.000	0.000	Tidak Normal

Note: normally distributed if Sig > 0.05 (Field, 2018)
Source: Research data processed using SPSS 24 software in 2022

Based on the results of the Normality test in the table above, the following results can be seen:

- Normality testing using the Kolmogorov-Smirnova method showed that all research variables had a significance value of less than 0.05 (Sig < 0.05). Based on these results, it can be decided that all research variables are not normally distributed.
- Normality testing using the Shapiro-Wilk method showed that all research variables had a significance value of less than 0.05 (Sig < 0.05). Based on these results, it can be decided that all research variables are not normally distributed.

Based on the results of normality testing using the Kolmogorov-Smirnova and Shapiro-Wilk methods, it can be seen that all variables do not have a normal distribution. Therefore, correlation testing uses the non-parametric method of the Spearman rank correlation test.

Spearman Rank Correlation Test

Korelasi Rank Spearman atau yang biasanya disebut dengan Spearman Rank Correlation Coefficient is one application of the correlation coefficient in non-parametric statistical data analysis methods. This non-parametric statistic is a measure of association or relationship that can be used if one or both variables measured are on an ordinal scale (in the form of rankings) or both variables are quantitative but normal conditions are not met. Nonparametric statistics assumes that statistics are used when the data does not have parameter information, the data is not normally distributed or the data is measured in ranking form. The test criteria are that there is a significant correlation if the Sig. smaller than 0.05. (Field, 2018). The strength of correlation between variables is determined based on the magnitude of the correlation coefficient (r) with the criteria of very weak (>0.20), weak (0.2 to <0.4), moderate (0.4 to <0.6), strong (0, 6 to <0.8) and very strong (> 0.8) (George & Mallery, 2019) below are the results of the Spearman rank correlation test.

Table 8. results of Spearman rank correlation analysis of the Parent Strain variable (Y)

Independent variable	Correlation Coefficient	Sig. (2-tailed)	Note
Age (X1)	0.074	0.466	Not significant
Last education (X2)	0.083	0.409	Not significant
Training/Socialization about Fisheries (X3)	0.192	0.056	Not significant
Capital Estimation (X4)	0.351	0.000	significsnt
Origin of the Parent Used (X5)	-0.048	0.635	Not significant

Source: Research data processed using SPSS 24 software in 2022

Based on the results of the Spearman Rank Correlation Test in the table above, the following results are obtainedt:

- Variables X1, X2, X3, and X5 have a significance value greater than 0.05. then there is no significant correlation (relationship) with the variables Y.

The Capital Estimate variable (X4) has a significance value smaller than 0.05 (Sig. 0.000). then there is a significant correlation (relationship) with variable Y. The

Spearman correlation value of 0.351 indicates that the direction of the correlation is positive with a weak correlation strength.

Discussion

Of the 100 seed farmers who were respondents, 98% of the seed workers were in the productive age range, namely 15-64 years (Meliza et al., 2019). Meanwhile, in terms of education level, 54% of the seedmen had at least a Senior High School (SLTA) education and 18% had at least a tertiary education. This is one of the factors for the high use of certified catfish broodstock in Tegal Regency even though 63% of the hatcheries have never attended training on fisheries. It can be seen that 79% of hatcheries have used certified catfish broodstock. The younger the seed, the more enthusiastic they will be to learn new things and the higher the level of education, the more quickly they will adopt innovation. In line with the opinion which states that the younger the cultivator, the faster the adoption of innovation and those who are educated are relatively faster in adopting innovation (Darwita et al., 2018). Facilitating access to technological information originating from instructors, other developers and social media is also a factor in the innovation adoption process, so that the more frequently instructors communicate to offer an innovation, the faster the rate of acceptance of the innovation (Adawiyah, 2018). Catfish breeders will adopt new technology if the information they receive is obtained in detail from people they like and of course with the hope of making a profit. Apart from that, communication and participation behavior with various groups also has a close influence on the level of technology absorption. As is known, the technology adoption process is the process of rejecting or accepting a technology, after going through the stages of knowledge, decision and implementation (Darwita et al., 2018).

However, after being analyzed using correlational descriptive statistics using SPSS software, the results showed that the variables age, last education, training or socialization regarding fisheries that had been attended, and the origin of the broodstock used had a significance value greater than 0.05. This means that there is no significant correlation (relationship) with the parent strain variable used. This shows that the factors of age, recent education, training or socialization about fisheries that have been involved, the origin of the broodstock (government assistance, independent purchase or jonggolan) apparently cannot influence hatcheries to use certified catfish broodstock.

Capital is an asset in the form of money or other non-monetary forms owned by investors which has economic value (Law No. 25 of 2007). Business capital is defined as funds used to run a business so that it continues to grow. In running a business, capital can be interpreted from various aspects, namely capital to open a business for the first time, capital to expand a business and capital to run a daily business (Indra, 2018). Data shows that 48% of seeds in Tegal Regency have capital > 10 million and 32% of seeds have capital between 5 - 10 million, while only 20% of seeds have capital < 5 million. After analysis using SPSS, the fact that capital has a significance value smaller than 0.05 (sig. 0.000) is revealed. This shows that there is a significant correlation (relationship) with the parent strain variable used, although the Spearman correlation value is 0.351, indicating that although there is a positive direction of correlation, the strength of the correlation is weak. According to research conducted, the greater the capital, the greater the amount of productivity that can be increased so that it can increase sales and can also improve business performance. Apart from that, capital has a positive and significant effect on income. This is in line with data which shows that the level of use of certified

broodstock in Tegal Regency is quite large, as evidenced by 37% of hatcheries obtaining certified broodstock by purchasing independently, although hatcheries still receive government assistance in the form of certified broodstock. So only capital factors have an influence on the hatchery's decision to use certified catfish broodstock.

CONCLUSSION

Based on the research results, the following conclusions can be drawn :

1. Descriptively, the factors age and level of education are related to the level of understanding and adoption of innovation/technology.
2. Of the several factors tested, it turns out that only the capital factor has a significant correlation with the use of certified catfish broodstock, although the correlation is still weak.
3. The use of certified catfish broodstock is still hampered by the limited stock of prospective broodstock available at official agencies.

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