IJSSR
International Journal of Social Service and Research

Vol. 4, No. 11, November 2024
e-ISSN: 2807-8691 | *p*-ISSN: 2807-839X

EFFECT OF FREQUENCY OF FEEDING HI-PRO-VITE 781N-1 ON THE GROWTH OF GOLDEN FISH (*Cyprinus carpio*) IN THE GOLDEN FISH BREEDING CENTER OF TOMONAMO IN LETEFOHO VILLAGE SUB DISTRICT SAME, MUNCIPLAITY OF MAUNUFAHI, TIMOR-LESTE

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Keywords
Artificial Feed Hi-Pro-Vite 781N-1, Goldfish (Cyprinus carpio), Growth

ABSTRACT
The purpose of this study was to determine the effect of the frequency of artificial feeding Hi-Pro-Vite 781N-1 on the effective growth of goldfish (*Cyprinus carpio*) in Timor Leste, Timor. The study used a complete randomized design (CRD) with 3 treatments and 3 replications, in which the conditions of the test unit are carried out according to randomization for all test units. The results of the research conducted for eight weeks (56 days) regarding the frequency for artificial feeding hi-pro-vite 780N-1 were: water temperature, water oxygen, sin water, and total dissolved solids (TDS) of 42.4 ppm, and the results of water quality measurements once a week in the morning (08.00 WIB), on average (20.00 htl) and in the afternoon (05.00) for 8 weeks (58 days). The results obtained during the research week (65 days) fresh at water temperature with a value of 20.2 oC with water oxygen 2.89 pmm, water content 8.3 pmm and TDS 42.4 pmm are indeed a good tolerance for the growth of carp fry (*Cyprinus caprio*). The behavioral impact of feeding frequency on carp growth and health is explored to refine feeding practices that promote well-being alongside growth. The findings could benefit feed manufacturers and aquaculture stakeholders by informing product development and feeding strategies tailored to maximize growth in carp, contributing to sustainable aquaculture practices. This study offers practical guidance for optimizing feeding practices to enhance growth efficiency, which is crucial for improving fish yield and farm productivity.

INTRODUCTION

Timor Leste is a country that has a lot of wealth through water and land, therefore to develop the wealth we must prepare quality human resources so that they are able to manage and develop and transform the country better in the future, its development like other countries. Based on development to meet the criteria in this beloved land of Timor Leste, our quality contribution, collaboration and awareness are needed to comply with the RDTL constitution. Based on the fisheries sector, a great struggle is needed in order to create jobs for the community, to produce animal protein sources and to increase the country's foreign exchange resources. The fisheries subsector that can be developed is the fisheries and aquaculture subsector (WorldFis, 2016).

The most productive activity that can guarantee fish with quality and quantity, as well as competitive prices such as aquaculture business activities, being an activity that can be carried out on the coast, in the sea, and can also be done on dry land, the fish that have been cultivated in Timor Leste

are: Tilapia, Dumbo Catfish, Goldfish, Milkfish, and Tilapia. The fisheries area is also a very important agricultural sector to increase family economic income, through fish production, but the supply of fish in the market until now still depends on the results of fishing from the sea every year. Therefore, good and sustainable aquaculture techniques are needed to supply fish to the market. Fish is a type of marine, freshwater, and saltwater organism that has good nutritional value with a fatty substance composition based on (USDA, 2009).

Fish feed is an important factor in determining the creative results of fish farming, but it must spend large funds, feed is relatively large up to 30%-70% of the total production funds. Further, in fish farming, if the preparation of the feed nutrition formula is not maximized, it is considered to be a problem for fish farming activities (Hardy & Kaushik, 2021; Jobling, 2016; Lall & Dumas, 2022; Munguti et al., 2014; Wang et al., 2021), after which the feed consumed by fish will be less useful effectively and efficiently for growth.

In addition, all of them must be carried out proper feeding management and remain consistent, starting from the frequency and possibly also the time of feeding, the fish feed food given is approximately 25%, and also the remaining 75% will be discarded or left in the water, the rest of the food is produced or mineralized into ammonia bacteria, in the accumulation and dominance of ammonia affects fish farming including eventually dead fish.

The purpose of this study was to determine the effect of the frequency of artificial feeding Hi-Pro-Vite 781N-1 on the effective growth of carp (*Cyprinus carpio*). The research contributes to the field of aquaculture and fish farming by providing insights into the impact of feeding frequency using Hi-Pro-Vite 781N-1 on the growth of carp (*Cyprinus carpio*). This study offers practical guidance for optimizing feeding practices to enhance growth efficiency, which is crucial for improving fish yield and farm productivity. Additionally, the findings could benefit feed manufacturers and aquaculture stakeholders by informing product development and feeding strategies tailored to maximize growth in carp, contributing to sustainable aquaculture practices.

METHODS

This research was conducted on July 30, 2022 and ended on September 30, 2022. The research was conducted at the Nursery Center, Tomonamo Village, Letefoho Suco, Same District, Manufahi Municipality, Timor-Leste. The location used for this study was 1 (one) unit of nursery pond with a size of 20 x 10 cm2, and each unit was separated by a net or pala with a size of 1 m3. The material used for research is carp (*Cyprinus carpio*) including feed Hi-Pro-Vite 781N-1 In addition, to know more clearly the location of the research can be seen in Figure 2 below:

Figure 1. Research Location

The materials used in this study are as follows; goldfish seeds (*Cyprinus carpio*) weighing 5 grams with a total of 180 seeds, each treatment leaves or enters 20 fish and uses artificial feed type Hi-Pro-Vite

781N-1, Dasin Research used to fly fish and other equipment, Ruler, Pencil and notebook, Thermometer, DO Meter, pH Meter, TDS Meter, Camera, Eskopneet, Basket, Hapa neet 1 x 1 x 1 m^3, 8 mm wire, bamboo.

The method used in this research is the experimental method, to determine the maximum growth that affects the growth and development of goldfish (*Cyprinus carpio*) seeds better. The design used in this research is a complete randomized design (CRD) with 3 treatments and 3 replications, a complete randomized design is used if the conditions of the test unit are carried out according to randomization for all test units. Such as experiments conducted in laboratories or greenhouses so that the influence of the environment is easier to control.

Based on the treatments used in the study are as follows;

1) Treatment A: Goldfish (*Cyprinus carpio*) were fed once a day.
2) Treatment B: Goldfish (*Cyprinus carpio*) were fed twice a day.
3) Treatment C: Goldfish (*Cyprinus carpio*)

Feed is given three times a day. In addition, to know the complete randomized design in the study according to the Lotteray Against Unit 9 method more clearly can be seen in Figure 3 below:

Research design per unit

1 m^3

AR3	CR1	AR2
BR1	AR1	BR2
CR2	BR3	CR3

1 m^3

Figure 2. Research design per unit

Fish Seed Release Process

In this fish seed deposit, researchers first selected fish seeds (*Cyprinus carpio*), then continued with monitoring fish seeds for one day (24 hours). In addition, the time of seed release that researchers do or release in the afternoon (05.00 htl), and the density of release according to the plan in each treatment that has been determined with the same density. Planning the frequency of feeding was given by researchers in treatment A; goldfish (*Cyprinus carpio*) were fed once a day at 08.00 htl with 3 repetitions, for treatment B; twice a day at 08.00 htl and 05.00 htl with 3 repetitions, for treatment C; fed three times a day at 08.00 htl, 12.00 htl and 05.00 htl with 3 repetitions.

Fish Feeding

Try to use artificial feed during the study period, the fish seedlings to be fed are artificial feed with a size of 2 mm (Hi-Pro-Vite 781N-1) with a feeding frequency per day at a dose of 5% of the fish weight. Based on the total fish feed given every day must be compared with the total weight of the fish and changes in its population, information on the average weight of fish and fish population is considered to come from fish cultivation activities in samples (sampling), to find out the calculation of fish feed per day can use the following formula:

$$\text{Total food per day (gr)} = \frac{TT}{F} x\ 5\%$$

Description:

TT = Total fish weight (gr)

F = Frequency of feeding (time/day)

In addition, artificial feed is feeding per day at a percentage of 3% - 5% of the total remaining weight of the fish, based on the feed used to feed the fish with a frequency of 2-3 times per day a. According to Barrows and Hardy (2001) added that talking about the feed given to consumed fish to determine the value of food efficiency is to use the following formula:

$$EP = \frac{(Bt+Bd)-Bo}{F} x\ 100\%$$

Description:
EH = Feed Efficiency (%)
Bt = Final total fish weight (gr)
Bd = Total weight of dead fish (gr)
Bo = Total weight of the first fish (gr)
F = Amount of feed consumed by fish (gr)

Water Quality Monitoring

Every week there will be cleaning activities in the net or para net and thermometer measurements of water quality in this research activity such as water temperature, water acidity, water oxygen, and total dissolved solids (TDS), water quality observations. Parameters are carried out once a week in the morning (08.00), afternoon (12.00) and evening (05.00).

Sampling

To observe the growth of fish every week (7 days) once, fish are observed as representative samples for each treatment. The difference is that each representation of treatment A will take 10 samples for each repetition, treatment B will take 10 samples for each repetition and treatment C will take 10 samples for each repetition.

Research Variables

Research variables are the characteristics or behavior of subjects who have variables with different values, the variables in this study are independent variables and dependent variables. The independent variable in this study is the frequency of artificial feeding on goldfish (*Cyprinus carpio*) and the dependent variable in this study is fish growth (Sugiyono, 2007).

The observation variables in this study are the growth and survival of goldfish (*Cyprinus carpio*) directly can be known by observing body weight through analytical tie tools and the number of all fish that survive until the last period. The formulation used to analyze the data in this study is as follows, the growth of weight and length of fish including direct survival.

Fish Weight Growth

Rapid body weight growth (W) was calculated using the formula (Effendi M.I, 2000) as follows:

$$W = Wt\text{-}Wo$$

Description:
W = Rapid body weight growth (grams)
Wt = Total final average weight (grams)
Wo = Total first medium weight (grams)

Fish Length Growth

Fast length growth (L) was calculated using the formula (Effendie M.I, 2000) as follows:

$$L = Lt - Lo$$

Description:
L = Rapid length growth (cm)

Lt = Total Mid-Final Length (cm)
Lo = Sum of first center lengths (cm).

Relative Growth

According to scientists Subandiyono and Hastuti (2014), that to determine the relative growth of fish weight (%/day) is calculated using the following formula:

$$RGR = \frac{Wt-Wo}{Wo} x\ 100$$

Description:
RG = Relative growth (%)
Wt = Weight of fish at last release (g)
Wo = Weight of fish first released (g)

Survival

Fish survival calculated using the scientist formula (Effendi, 2002) is as follows:

$$SR = \frac{Nt}{No} x\ 100$$

Description:
SR = Direct Born Rate (%)
Nt = Last live fish count during the survey (fish)
No = Number of first live fish surveyed (fish)

RESULTS

Based on the results of the Goldfish Growth study conducted for eight weeks (56 days) regarding the frequency of artificial feeding Hi-Pro-Vite 781N-1, and the fish (*Cyprinus carpio*) used in the study refers to the total number of goldfish (*Cyprinus carpio*) amounted to 180 fish with an average first fish weight of 5 grams, during the study the research owner monitored the growth of carp (*Cyprinus carpio*) weight and length per week as shown in the following table:

Carp weight

Table 1. Average weight growth of goldfish (*Cyprinus carpio*) per week

Weekly sampling	Average initial and final carp weight growth in the survey Treatment								
	AR1	**AR2**	**AR3**	**BR1**	**BR2**	**BR3**	**CR1**	**CR2**	**CR3**
0	5	5	5	5	5	5	5	5	5
1	6.3	6.1	5.9	6.7	6.6	6.7	6.9	7.0	6.7
2	7.1	6.9	7.0	8.5	8.8	8.7	8.8	8.5	8.7
3	8.4	8.6	8.5	10.3	10.1	10	10	10.4	9.8
4	9.5	9.7	9.5	11.9	11.7	12	12	12.1	11.8
5	10.6	10.5	10.5	13.8	13.6	14.1	13.8	14	13.8
6	11.7	11.6	11.5	15	15	15.3	15.1	15	14.8
7	13	13.4	13.2	16.7	17.2	17	17.2	16.9	17.4
8	14.1	14.3	14.1	19.3	18.9	19	19.3	19.3	18.8
Δw	**9.1**	**9.3**	**9.1**	**14.3**	**13.9**	**14**	**14.3**	**14.3**	**13.8**
Mediu		**9.2**			**14.1**			**14.1**	

Carp length

Table 2. Average length growth of goldfish (*Cyprinus carpio*) per week

Weekly sampling	Average length growth of early and late carp in the survey Treatment								
	AR1	**AR2**	**AR3**	**BR1**	**BR2**	**BR3**	**CR1**	**CR2**	**CR3**
0	6.5	6.5	6.6	6.6	6.5	6.7	6.5	6.5	6.5
1	6.3	6.1	5.9	6.8	6.7	6.8	6.8	6.9	6.8
2	6.8	6.8	6.9	7.4	7.4	7.5	7.4	7.3	7.4
3	7.3	7.4	7.3	8.1	8	7.9	7.7	8	7.8
4	7.6	7.7	7.6	8.5	8.5	8.5	8.5	8.5	8.4
5	7.9	7.7	7.8	9	9.1	9.3	9.3	9.3	9.2
6	8.3	8.2	8.2	9.5	9.5	9.4	9.4	9.4	9.4
7	8.8	8.9	8.8	9.8	10	10	10	9.9	10.1
8	9.5	9.6	9.5	11.2	11	11	11	11	11.3
Δw	**3.0**	**3.1**	**2.9**	**4.6**	**4.5**	**4.3**	**4.5**	**4.5**	**4.8**
Mediu		**3.0**			**4.5**			**4.6**	

Results of Analysis of Variance (ANOVA)

The results of statistical analysis of variance on the growth of weight and average length of carp (*Cyprinus carpio*) in the table above are as follows.

Fish weight

Table 3. Results of Analysis of Diversity/Analysis of Varience (ANOVA)

Source	GL	TB	BK	F_{sura}	F_{tabel}	
					5%	**1%**
Treatment	2	48.68	24.34	521.60	5.14	10.92
Error	6	48.96	0.047			
Total	8	97.64				

Table 4. Results of DLK Least True Difference Test (BNT) 5% Task for Goldfish (*Cyprinus carpio*)

Treatment	Mediu Value	Notation	5% BNT value
A	9.2	A	11.98
B	14.1	B	
C	14.1	B	

Fish length

Table 5. Results of Analysis of Diversity/Analysis of Varience (ANOVA)

Source	GL	TB	BK	F_{sura}	F_{tabel}	
					5%	**1%**
Treatment	2	4.73	2.36	112.00	5.14	10.92
Error	6	4.86	0.021			
Total	8	9.58				

Table 6. Results of DLK Least True Difference Test (BNT) 5% Task Length of Goldfish (*Cyprinus carpio*)

Treatment	Mediu Value	Notation	5% BNT value
A	3.0	A	11.98
B	4.5	B	
C	4.6	B	

Relative Body Weight Growth Results

The results of absolute growth of carp (*Cyprinus carpio*) per day (%/day) in the study can be seen in Table below:

Table 7. relative body weight growth (%)

Carp relative weight growth results (%)			
Ulagan	**Treatment**		
	A	**B**	**C**
1	1.83	2.86	2.86
2	1.86	2.78	2.86
3	1.83	2.8	2.76
Total	5.52	8.44	8.48
Mediu	1.84%	2.81%	2.83%

Results Feeding frequency

Based on the results of research conducted for eight weeks (56 days), namely about the frequency of artificial feeding Hi-Pro-Vite 781N-1 for the growth of carp (*Cyprinus carpio*) with a dose of 5% according to the weight of the fish. fish This is the total of each frequency of feeding, the efficiency (%) of feed consumed by fish can be seen clearly in the following:

Table 8. Total efficiency (%) for feeding frequency

Feeding efficiency (%) resulting from feeding frequency			
Repeat	**Treatment**		
	A	**B**	**C**
1	36.3	46.9	46.0
2	37.8	45.1	46.1
3	36.6	45.0	44.8
Total	111	137	137
Mediu	36.90%	45.67%	45.63%

Survival Results

Based on the results of carp survival (*Cyprinus carpio*) in the study can be seen in the table below:

Table 9. Survival of carp (*Cyprinus carpio*)

Carp survival rate (%)			
Repeat	**Treatment**		
	A	**B**	**C**
1	100	100	100
2	100	100	100
3	100	100	100
Total	300	300	300
Mediu	100%	100%	100%

Water Quality

Water quality measured once a week in the morning (08.00), afternoon (12.00), evening (05.00) for eight weeks (56 days) were: water temperature, water oxygen, sin water, and total dissolved solids. (TDS), the results of water quality measurements during the study are shown in the following table:

Table 10. Average results of water quality measurements

Water quality measurement time per week	Average results for water quality thermometers			
	Water temperature	**Oxigen water**	**Water acidity**	**TDS**
Dader	19.3	2.38	8.2	43.9
Meudia	20.5	2.97	8.3	42.7
Lokraik	20.7	3.32	8.3	40.7

Total	60.5	8.67	24.8	127.3
Mediu	20.2 C°	2.89 ppm	8.3 ppm	42.4 ppm

Through the results of research on the frequency of artificial feeding hi-pro-vite 781N-1 for the growth of goldfish (*Cyprinus carpio*) for eight weeks (56 days) researchers monitored the growth of goldfish (*Cyprinus carpio*) every week increasing to the average weight and length of each treatment see table 3-4 above, the results showed that the growth of goldfish (*Cyprinus carpio*) was lowest in treatment A (fed once a day) with an average weight of 9,2 grams/head, average length of 3.0 cm/head in contrast to treatment B (fed twice a day) average weight of 14.1 grams/head, average length of 4.5 cm/head including treatment C (fed three times a day) obtained an average weight of 14.1 grams/head, average length of 4.6 cm/head, based on the value of weight and average length in treatment B and C without direction or the same value. In addition, through statistical tests of variety analysis (ANOVA) on the growth of weight and length of carp (*Cyprinus carpio*) as shown in tables 5-7 above, the results of the Fsura value are greater than the Ftable value and this gives a brief conclusion that returning H0 and accepting H1, then the value is considered to have an influence, which is then used to continue the very small difference test (BNT 5%) seen in tables 6-8 that each value is different from treatment A (given once a day) is lower than treatment B (fed twice a day) and C (fed three times a day), based on the value of treatment B and C are considered not different or the same.

In addition, the frequency technique of artificial feeding hi-pro-vite 781N-1 for the growth of goldfish (*Cyprinus carpio*) becomes a special parameter as an indicator of the technical success of the results of the frequency of feeding on fish. Research stated that feeding 2-3 times a day is very necessary because the physiology of goldfish (*Cyprinus carpio*) in the digestive system food (stomach) is too low, then this food is destroyed by goldfish (*Cyprinus carpio*) or hadodok everything, which will eventually give back food to the fish (Hanief et al., 2014).

After that through researchers about the frequency of artificial feeding hi-pro-vite 781N-1 for the growth of carp (*Cyprinus carpio*) to find out more clearly can be seen in the following figure:

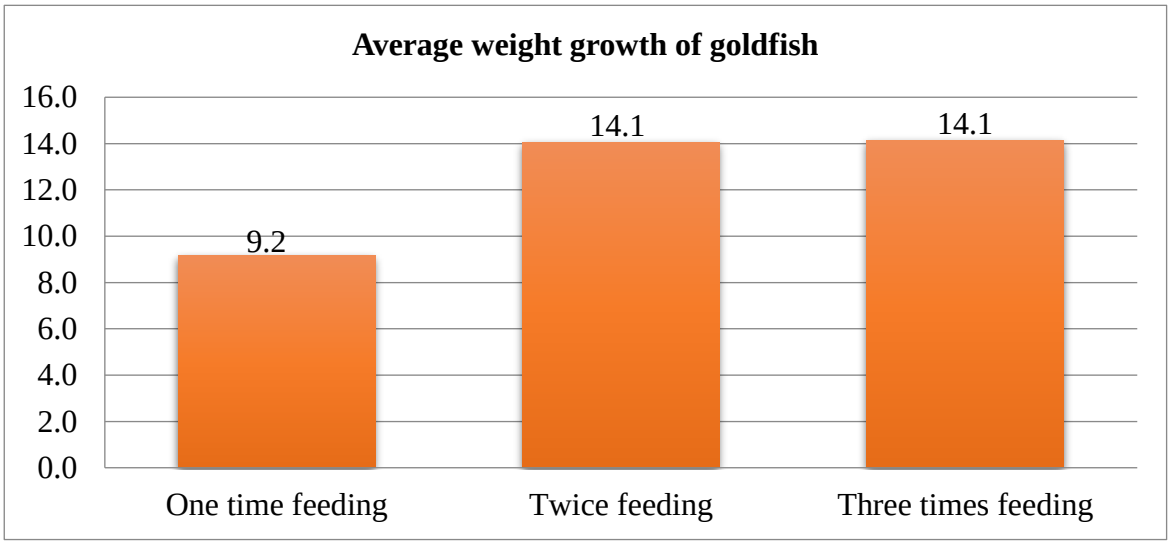

Figure 3. Average weight growth of goldfish (*Cyprinus carpio*)

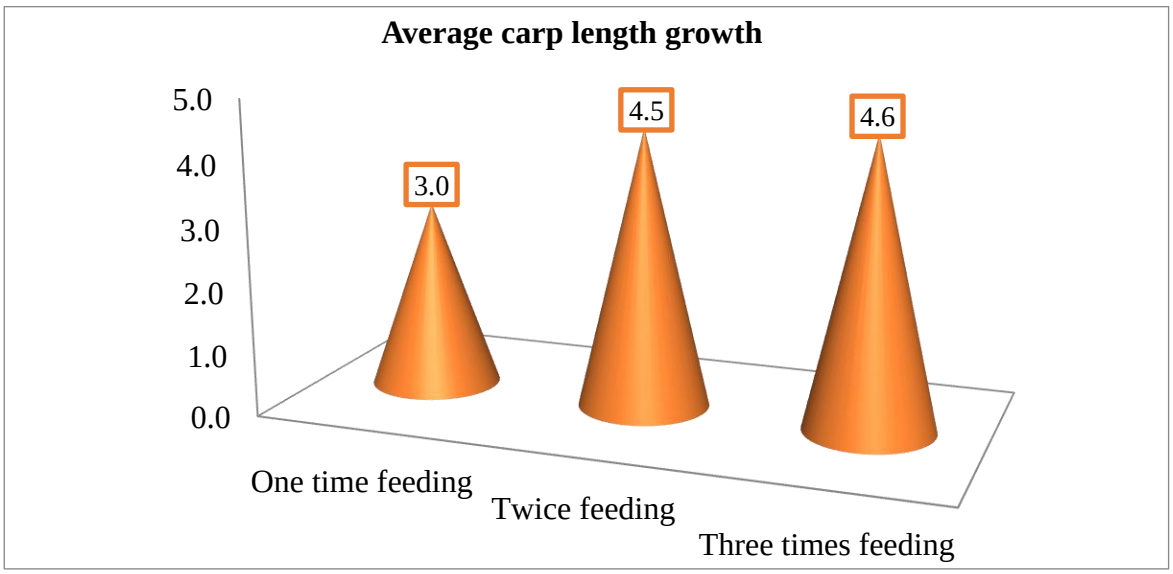

Figure 4. Average length growth of carp (*Cyprinus carpio*)

Based on the results of the average weight growth of carp (*Cyprinus carpio*) in Figure 5 above to look back at the results of relative weight growth (%/day) carp (*Cyprinus carpio*) within eight weeks (56 days) can be seen in Table 9 above that the relative weight (%) seen in treatment A (feed once a day) relative weight (%) of 1,84%/head and treatment B (feed twice a day) relative weight (%) of 2.81%/head including treatment C (feed three times a day) obtained a relative weight (%) of 2.83%/head based on the value of the relative weight (%/day) in treatment A is lower than treatment B and C. This phase is considered good because compared to the researchers, the relative weight (%/day) in treatment A is lower than treatment C. This phase is classified as good because compared to researchers (Insan and Rusmedi, 2005) in his research that chef carp (*Cyprinus carpio*) fed with a frequency of 2 times a day gives an effect on relative weight growth of 2.19%/day, and the frequency of feeding carp (*Cyprinus carpio*) three (3) times a day has a relative weight growth of approximately 3.22%/day which is good, compared to the frequency of feeding once a day (1) and four (4) per day. Through the results of research for eight weeks (56 days) to know clearly about the relative weight (%) of carp (*Cyprinus carpio*) can be seen in the following figure:

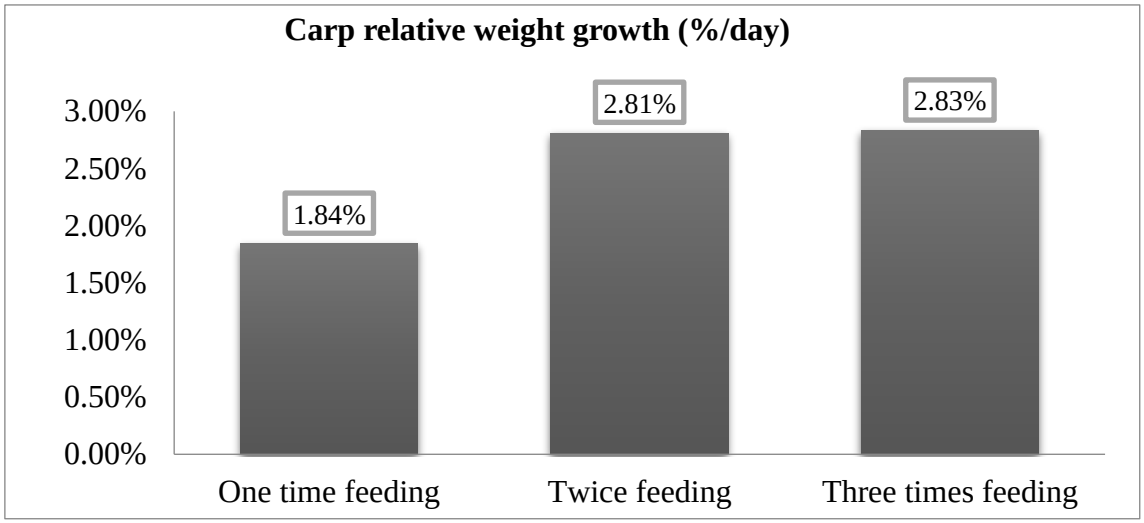

Figure 5. Relative weight growth (%/day) of carp (*Cyprinus carpio*)

Fish-Consumed Foods

Through the results of research on the frequency of artificial feeding hi-pro-vite 781N-1 with a minimum protein content of 31%, minimum fat 5%, maximum fiber 5%, maximum acidity 13%, maximum water 12% this is used for feeding carp (*Cyprinus carpio*) for eight weeks (56 days) obtained the results of feed consumed by fish is the efficiency (%) of feed or effectiveness on the growth of carp

(*Cyprinus carpio*), which in each treatment can be obtained as shown in table 10 above, it can be seen that the lowest feed efficiency (%) is found in treatment A (feeding once a day) with feed efficiency (%) of 36,90%, in contrast to treatment B (twice daily feeding) efficiency (%) of food with a value of 45.67%, including treatment C (three times daily feeding) obtained efficiency (%) of food with a value of 45.63%, in the value of efficiency (%) of food with treatment B and C is not different or refers to the value, and through the value of efficiency (%) of feed shown in each treatment it is considered that the feed used to feed fish (*Cyprinus carpio*) during the study is good or indeed effective for fish growth. In this phase, it is supported by a scientist named Zulkifli, 2004 in (Lestari et al, 2013) that the value of good food efficiency is more than 25%. The factors that influence the decrease/increase in food efficiency are the types of nutritional sources and calculate the components of nutritional sources in the food are the same or not with each other (Subekti, 2014). If the value of food efficiency increases high, the use of feed for fish is considered to increase efficiency or effectiveness (Kordi, 2007).

In addition, the results of the study for eight weeks (56 days) to clearly determine the efficiency (%) of food can be seen in the figure below:

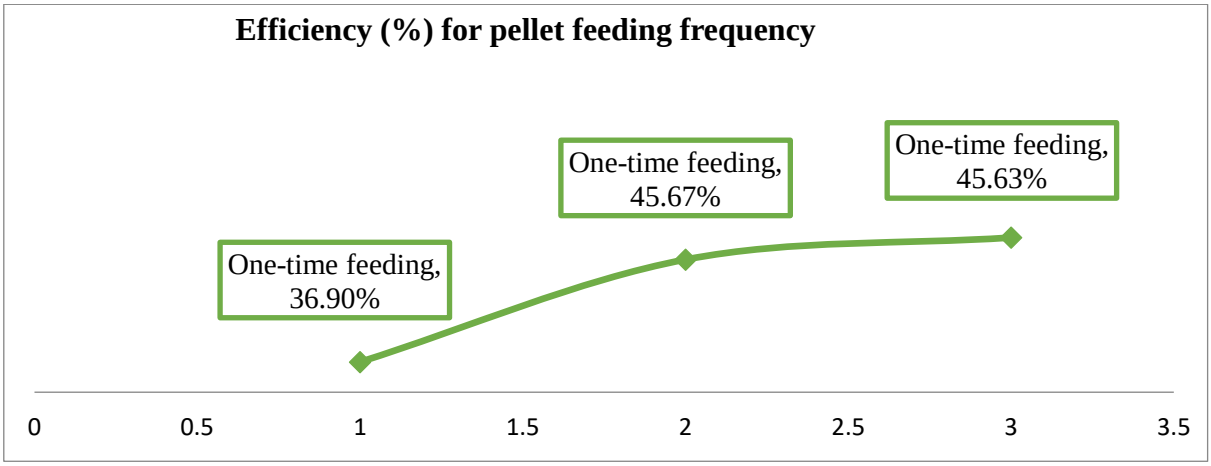

Figure 6. Efficiency (%) of feed or effective for carp growth

Survival of Goldfish (*Cyprinus carpio*)

Based on the results of the study of the frequency of artificial feeding hi-pro-vite 781N-1 for the growth of goldfish (*Cyprinus carpio*) refers to researchers to observe the survival of goldfish (*Cyprinus carpio*) for eight weeks (56 days) can be seen in table 11 above it can be seen that each treatment A (feed once a day) and B (feed twice a day) including treatment C (feed three times a day) this is the offspring of goldfish (*Cyprinus carpio*) alive or 100% for fish survival, based on the survival value of carp (*Cyprinus carpio*) in each treatment A, B and C is not different or the value is the same means the survival of the offspring of carp (*Cyprinus carpio*) observed during the study refers to all survival (100%) is better because these results refer to the research by Nuari et al. (2016) on fish with the benefits of uut biofloc considered as a supplement for 35 days which resulted in fish survival of 73%-80%. The survival of live fish (%) is less than 50% this means too little or bad (Chumaidi, 2005). The living as a percentage of the total fish that live according to certain times, living organisms are influenced by density and other factors such as age, water level, water temperature, ammonia concentration (Mudjiman, 2004). To find out more about the survival of carp (*Cyprinus carpio*) through the results of his research can be seen in the picture below:

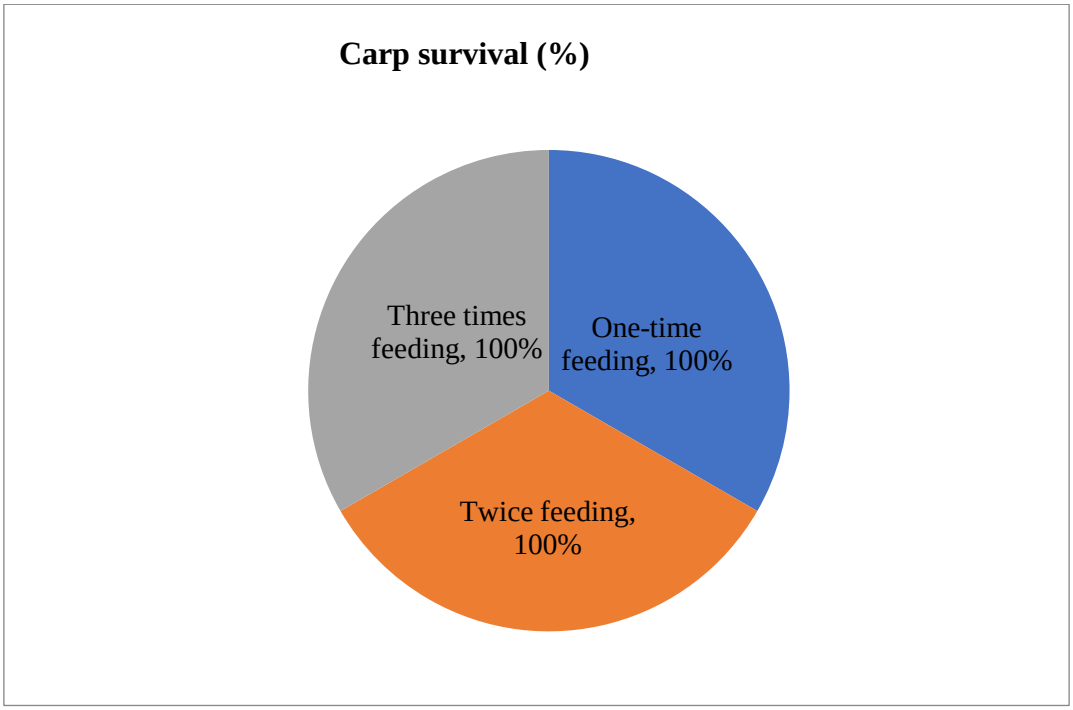

Figure 7. Carp survival results (*Cyprinus carpio*)

Water Quality

Based on the results of research on the frequency of artificial feeding hi-pro-vite 781N-1 for the growth of carp (*Cyprinus carpio*), researchers monitored water quality parameters once a week in the morning (08.00 WIB), on average (20.00 htl) and in the afternoon (05.00 htl) for eight weeks (56 days) obtained results for water quality can be seen in table 12, showing the water quality parameters in the results obtained water temperature 20.2 oC, water oxygen 2.89 pmm, water content 8.3 pmm, and total dissolved solids (TDS) of 42.4 pmm so that it is considered a good water quality thermometer for goldfish (*Cyprinus carpio*).

In addition, support from scientists' research on water quality thermometers for fish (*Cyprinus carpio*) is that the normal temperature for fish (*Cyprinus carpio*) to live in an environment is between 20-25 oC, and growth will decrease when the water temperature is less than 13 oC, besides this growth will decrease rapidly stopped by food consumption, when the temperature has dropped to 5°C. The optimal dissolved oxygen (DO) for fish (*Cyprinus carpio*) to survive directly is between 2.40 - 4.19 Mg/L, as well as dissolved DO from 2 mg/L for a long time, will have an impact on food consumption and growth, including killing the carp (*Cyprinus carpio*) itself (Bachtiar, 2000).

The degree of water salinity is supported by Khairuman (2008) that the degree of water salinity is determined by the concentration of H ions denoted by 1-14, the number 7 is considered water in normal conditions, in addition to this when the number less than 7 refers to water in good condition, and the number above 7 is considered water in good condition, in addition to the degree of low water concentration or low oxygen is considered to be affected due to less oxygen consumption in increased respiratory activity. and such as less feed consumption or considered to occur conditions in the water are bokon, good fish growth occurs in water degrees between 6-7 or normal, and the degree of sin The normal water level of carp (*Cyprinus carpio*) is between 7-9. The total dissolved solids water quality thermometer supported by Permenkes No. 492/Menkes/Per/IV/2010 raises questions about the quality of drinking water, the total dissolved solids (TDS) that can be consumed is around 500 mg/l.

Based on the results of the water quality thermometer research itself for eight weeks (56 days) to find out more clearly can see the following picture:

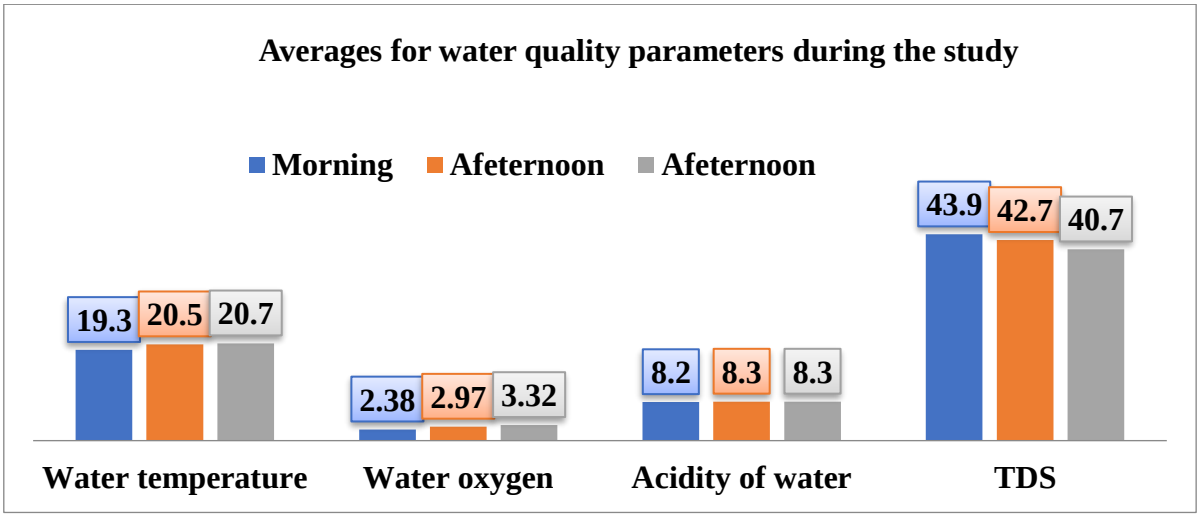

Figure 8. Water quality monitoring

CONCLUSION

The research concluded that feeding frequency significantly influences the growth of carp (Cyprinus carpio) using Hi-Pro-Vite 781N-1 feed, with treatment C (three feedings per day) showing the highest relative weight gain (2.83% per head), followed by treatment B (two feedings per day, 2.81% per head), and treatment A (one feeding per day, 1.84% per head). However, feeding frequency did not affect survival rates, as all treatments exhibited similar percentages. Water quality parameters, including temperature (20.2°C), dissolved oxygen (2.89 ppm), water sin (8.3 ppm), and total dissolved solids (42.4 ppm), were within optimal ranges for carp growth. Future research could explore long-term effects of feeding frequencies, alternative feeds, environmental interactions, behavioral impacts, economic feasibility, and genetic variations to refine feeding practices and enhance aquaculture productivity.

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