Economic Evolution of Fish Farms

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Feeding Level or Feeding ratio

Amount of food given for fish Depending on total fish wet weight

FR ranging between 1-20% depending on the following factors

2- Size and age of fish	1- Fish species
4- Light period	3- Water temperature
6- Purpose of cultivation	5- Chemical and physical characteristics of water

Practical method for measuring Daily Food (DF)

DF depend on total fish weight and FR

1- Calculate total fish weight

2- Determine FR

3- Calculate DF according to following formula

Daily Food = (Feeding Ratio X Total Fish Weight)/ 100

1- Food conversion rate (FCR)

2- Specific Growth Rate (SGR)

3- Daily Growth Rate (DGR)

FCR = Weight of food consumed/Increased weight of fish

FCR = Daily Food X Days No./(W2-W1)X fish No.

$$\text{SGR} = (\text{Ln } W_2 - \text{Ln } W_1 / t_2 - t_1) \times 100$$

$$\text{DGR} = (W_2 - W_1) / (t_2 - t_1)$$

W_2 = Average Fish Weight at time t_2

W_1 = Average Fish Weight at time t_1

Example

1000 fish of average weight 10 g cultured in pond for 30 days. It is fed on commercial diet at 5% FL, Its average weight became 15 g. Calculate FCR, DGR and SGR

FCR= (DF X No. days) / (W2 –W1) Fish No.

Daily Food = (Fish Weight X Feeding Ratio)/ 100

Fish Weight = Average Fish Weight X Fish No.

Fish Weight = 10X 1000 = 10 000 g

Daily Food = (10000X 5)/ 100 = 500 g

FCR= (500 X 30) / {(15- 10) X 1000} = 3

$$SGR = \left(\frac{\text{Ln } W_2 - \text{Ln } W_1}{t_2 - t_1} \right) \times 100$$

$$SGR = \left(\frac{\text{Ln } 15 - \text{Ln } 5}{30} \right) \times 100$$

$$SGR = \left(\frac{2.7 - 2.3}{30} \right) \times 100$$

$$SGR = 1.3\%/\text{day}$$

$$DGR = (W_2 - W_1) / t_2 - t_1$$

$$DGR = 15 - 10 / 30$$

$$DGR = 5 / 30$$

$$DGR = 0.167 \text{ g/day}$$

HOME WORK

10000 fish of average weight 30 g cultured in pond on artificial food at 5% FL, results obtained as follow. Evaluate The work of this pond and give advice to the culturist.

الوفيات	معدل الوزن (غم)	التاريخ
0	30	1/3/2009
0	45	20/3/2009
0	100	19/4/2009
50	220	20/5/2009
0	310	10/6/2009