MODEL PROJECT REPORT FOR FISH SEED PRODUCTION

Fish Seed Production: Part-1: Spawn Culture

Young immature broodfish, also called "broodfish candidates" are usually selected from market size fish. Market size fish population available for selection of broodfish candidates should be healthy, uniform in size and well developed. Population consisting of fish of different age and size or produced in strongly overstocked/underfed pond are not suitable for selection. Selected fish must be reared in well managed fish ponds where standing crop of fish does not exceed 1.6-2.0 ton/ha.

To avoid difficulties of using broodfish of too big size, yearly recruitment rate of population should be 25–30%. The broodfish candidates may be stocked in those ponds where matured broodfish are kept in off season period. As feed requirement of broodfish candidates is different, market size fish ponds are not suitable for rearing broodfish candidates.

Ponds with large water surface area and water depth of at least 1.5 m are best for broodfish candidates. Stocking ratio of different species should be in accordance with the general principle of stocking of polyculture ponds. Filter feeders should not exceed 35–40% and in it the ratio of zooplankton consumers (catla, bighead) should remain under 30%.

Pond water suitable for carp culture is also appropriate for keeping broodfish in hatcheries after hypophization till stripping. However, high temperature (above 30°C) and low oxygen content of pond water in dark period, may hamper ovulation. Use of cool well water, aerated properly, helps to avoid such difficulties. Moreover, it is easy to recognize ovulation in tanks with clear well water. Considering increased oxygen demand of broodfish after pituitary treatment, flow in the broodfish tanks of at least 1-1.5 liter water/minute/kg broodfish is necessary. Water supply can be decreased by aeration, but for removing metabolites at least 0.5 liter water/minute/kg is necessary.

For large scale incubation and keeping larvae untreated, pond water is not suitable. Presence of colloids, plankton (first of all Cyclops which may attack egg shell and newly hatched fry)

and high fluctuation of oxygen, hamper fry production. Higher temperature causes blooming of bacteria, increase in oxygen requirement and metabolite production of fry, deteriorating the environment. To improve those conditions in hatcheries supplied with pond water, pebble filters can be used. Ponds used for hatchery supply of water must be deep enough to avoid increased water temperature. Bottom condition of such ponds should be properly maintained and for that purpose the ponds should be kept dry in off season..

Sl no	Item Particulars	Quantity	Unit	Rate	Amount (in Rs.)
	Fixed Capital				
	Breeding pool 6m diameter (1no.) incubation chambers (1.5 m dia,6 nos) & egg collection chamber(2.5 X 1 X0.75 m,1no.) and shed	1	unit	200000	200000
	Overhead Tank (capacity 20,000 L) and accessories	1	unit	100000	100000
	Brood Stock and water intake ponds (0.5 ha)	1	ha	150000	150000
	Water pumps and accessories (Electric/Diesel 5HP)	1	Unit	40000	40000
					490000
A	**Variable Cost**				
1	Prospective Brood Fish	1200	kg	40	48000
2	Fuel for Diesel Pump	1	unit	20000	20000
3	Disinfectants including agents	1	nos.	15000	15000
4	Workers (6 workers for 3 months)	18	man month	3000	54000
5	Miscellaneous	1	unit	10000	10000
				Sub Total	**147000**
B	**Total Cost (B)**				
1	Variable Cost				147000
2	Depreciation on Fixed Capital Yearly	10%			49000
3	interest on Fixed Capital (yearly)	12%	annually		58800
				Grand Total	**254800**
C	**Gross Income (A)**				
	Sale of Spent Brood	1000	kg	55	55000
1	From Sale of spawn	50000000	nos.	0.006	**300000**
				Total	**355000**
				Net Income (A-B)	**100200**

Breakeven Analysis						
#	Cost Item	Year 2	Year 3	Year 4	Year 5	Year 6
A	Sales	**355000**	**355000**	**355000**	**355000**	**355000**
B	Variable Cost	**147000**	**147000**	**147000**	**147000**	**147000**
C	Total Variable Cost	**147000**	**147000**	**147000**	**147000**	**147000**
D	Gross Profit	**208000**	**208000**	**208000**	**208000**	**208000**
	Profit Before Depreciation	208000	208000	208000	208000	208000
	Depreciation	20800	20800	20800	20800	20800
	Profit Before Interest and Tax	187200	187200	187200	187200	187200
	Amount paid for Term Loan	59623	53508	47393	41278	35162
E	Profit Before Tax	**127577**	**133692**	**139807**	**145922**	**152038**
	Provision for Tax	0	0	0	0	0
	Net Profit	**127577**	**133692**	**139807**	**145922**	**152038**

Part-2 : Fry / Fingerling Culture

Fingerlings of about 100 mm are good for stocking in medium-sized ponds where predators have been eliminated. Advanced fingerlings of about 150 mm are best for stocking in seasonal ponds (because they grow fast and can be marketed in 6-8 months) Advanced fingerlings of about 150 mm are also good for large ponds and tanks and Medium Irrigation Projects (MIPs) where competitors and predators are present in good numbers (because they can better escape predation).

Once the fingerlings reach the right size they can be sold. After making arrangements with customers, the fingerlings should be harvested early in the morning and properly conditioned for transport in a hapa. Fingerlings are active. Any mishandling will easily result in heavy mortality. Like fry, fingerlings can be transported in polythene bags 1/3 full of water and 2/3 oxygen but this is expensive and only a limited number can be packed per container.

Sl no	Item Particulars	Quantity	Unit	Rate	Amount (in Rs.)
A	**Variable Cost**				
1	Pond Lease	1	unit	10000	10000
2	Bleaching Powder(10ppm chlorine)	1	unit	2500	2500
3	Fry	5000000	nos.	0.006	30000
4	Manures, Fertilizers and Lime	1	unit	8000	8000
5	Supplementary feed (rice bran, Ground nut oil cake)	750	kg	12	9000
6	Wages (man days@ Rs 125)	100	man days	125	12500
7	Miscellaneous	1	unit	5000	5000
				Sub Total	**77000**
B	**Total Cost (B)**				0
1	Variable Cost				77000
2	interest on Recurring Expenditure (monthly)	12%	annually		770
				Grand Total	**77770**

C	**Gross Income (A)**				
1	From Sale of Fry	1750000	nos.	0.08	**140000**
				Net Income (A-B)	**62230**

Breakeven Analysis						
#	Cost Item	Year 2	Year 3	Year 4	Year 5	Year 6
A	Sales	**140000**	**140000**	**140000**	**140000**	**140000**
B	Variable Cost	**77000**	**77000**	**77000**	**77000**	**77000**
C	Total Variable Cost	**77000**	**77000**	**77000**	**77000**	**77000**
D	Gross Profit	**63000**	**63000**	**63000**	**63000**	**63000**
	Profit Before Depreciation	63000	63000	63000	63000	63000
	Depreciation	6300	6300	6300	6300	6300
	Profit Before Interest and Tax	56700	56700	56700	56700	56700
	Amount paid for Term Loan	13999	13065	12132	11199	10265
E	Profit Before Tax	**42701**	**43635**	**44568**	**45501**	**46435**
	Provision for Tax	0				
	Net Profit	**42701**	**43635**	**44568**	**45501**	**46435**
	IRR	**49%**				

Sl no	Item Particulars	Quantity	Unit	Rate	Amount (in Rs.)
A	**Variable Cost**				
1	Pond Lease	1	unit	10000	10000
2	Bleaching Powder(10ppm chlorine)	1	unit	2500	2500
3	Fry	300000	nos.	0.08	24000
4	Manures, Fertilizers and Lime	1	unit	3500	3500
5	Supplementary feed (rice bran ,Ground nut oil cake)	5	tones	11000	55000
6	Wages (man days@ Rs 125)	100	man days	125	12500
7	Miscellaneous	1	unit	3000	3000
				Sub Total	**110500**
B	**Total Cost (B)**				0
	Variable Cost				110500
	interest on Recurring Expenditure (quarterly)	12%	annually		3315
				Grand Total	**113815**

C	**Gross Income (A)**				
	From Sale of Fingerling	180000	nos.	1	**180000**
				Net Income (A-B)	**66185**

Sl no	Item Particulars	Quantity	Unit	Rate	Amount (in Rs.)
A	**Variable Cost**				
1	Pond Lease	1	unit	20000	20000
2	Bleaching Powder(10ppm chlorine)	1	unit	5000	5000
3	Fingerlings	8000	nos.	1	8000
4	Manures, Fertilizers and Lime	1	unit	10000	10000
5	Supplementary feed (rice bran, Ground nut oil cake)	8	tones	9000	72000
6	Wages (man days@ Rs 125)	150	man days	125	18750
7	Miscellaneous	1	unit	5000	5000
				Sub Total	**138750**
B	**Total Cost (B)**				0
	Variable Cost				138750
	interest on Recurring Expenditure half yearly	12%	annually		8325
				Grand Total	**147075**
C	**Gross Income (A)**				
	From Sale of Fish	4000	kg	55	**220000**
				Net Income (A-B)	**72925**