

CHICKEN VISCERA - A POTENTIAL CHEAP FEED IN SHRIMP CULTURE

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At a glance one may think that the fishery resources in the huge water mass surrounding the Indian sub-continent are limitless as to afford endless exploitation. But an examination of the trends in marine fish and shellfish production shows the shrimp catch which was 0.2 million tonnes in mid seventies had stagnated at 0.185 million tonnes in late seventies and thereafter, despite increased fishing efforts. Like some of the south-east Asian countries i.e., Thailand, China, Taiwan, Philippines, Indonesia, etc. the production in India can be boosted further through scientific farming in coastal environment to atleast 0.5 million tonnes of fish including prawns per year (Srivastava et al, 1983. Fisheries Development in India, Concept Publishing Company, New Delhi) and 0.1 million tonnes of prawns alone (Muthu 1978. CMFRI Special Publication No. 3), against the production of 25,000 tonnes of prawns in 1989 (World Shrimp Farming, 1989, Aquaculture Digest).

It is estimated that a total extent of 2.6 million ha. of brackishwater areas are available contiguous to our coasts suitable for mariculture (Noble, 1990. Industrial Fisheries Association Annual Vol.7, Cochin), yet it is practiced only in 60,000 ha. At an av-

erage rate of 416 kg/ha (World Shrimp Farming, 1989 op.cit.) the production in 1989 works out to be 25,000 tonnes contributing to 44% in world's total and placing India at 7th position among the shrimp culturing countries.

Traditional system of shrimp farming is mostly carried out in the states of West Bengal and Kerala. The production from this is generally around 500 kg/ha/crop (Ganapati, 1991. Souvenir : National Seminar on Shrimp Seed Production and Farming, College of Fisheries, Orissa) and the species involved are of low valued ones. The semi-intensive type of farming has reached a production level ranging between 500 and 2,000 kg/ha/crop in Andhra Pradesh, Orissa, Tamil Nadu, Kerala, etc. (Ganapati, 1991, op.cit.). Considering the need of the nation in the respect of food production and socio-economic development, it is imperative to bring the vast unutilised coastal areas under culture with the help of scientific knowhow.

Prawn seed and nutritionally balanced compounded feed are the basic requirements for shrimp farming. Production of prawn in extensive type of culture depends upon natural food. But in intensive culture/farming the artificial feeding is unavoidable. In such cases compounded

balanced diet becomes necessary. The production achievable through supplementary feeding depends on the quality of feed. As amino acid profile of the molluscan meat closely resembles the amino acid composition of the prawn meat; mussels, clams and squids are given as food for prawns. The supply of these from natural sources are limited. Culture technique for them are yet to be perfected. If cultured it may cost more than the prawns themselves. On account of this it has become highly necessary to find substitutes to formulate an efficient feed. Such raw material besides being cheap must be readily available in the locality as to reduce the cost of production. Chicken viscera can be of significance in this matter.

Day by day chicken is gaining importance as a food for human consumption and people have accepted poultry farming as a business. The achievements in animal husbandry including poultry in 1982 were quite high when compared to that of 1951. The production figures of various items between these two years taken from the 'Report of the Working Group on Animal Husbandry (including poultry) and Dairing for formation of the 8th Five Year Plan, June 1989' are as follows:

Animal	Production in million nos		% increase
	1951	1982	
Goat	47.2	95.2	101.7
Cattle	155.3	192.4	23.9
Buffalo	43.4	69.8	60.8
Sheep	38.1	48.8	28.1
Pig	4.4	10.1	129.6
Poultry (Eggs not included)	73.5	207.7	182.6

The increase as noticed from the percentage is tremendous and it is particularly very high in the case of poultry. In poultry the broiler chicken production alone in numbers is of the following order:

Year	Production
1984-85	60 million
1987-88	100 "
1989-90	137 "
1994-95	348 "
(projected)	

The number of poultry produced in 1982 in coastal states tabulated below,

States	Production (in million nos)
West Bengal	28.67
Orissa	10.68
Andhra Pradesh	32.39
Tamil Nadu	18.28
Kerala	15.08
Karnataka	12.10
Maharashtra	19.84
Gujarat	3.57

amount to 68% of the country's total production (Report on Working Group 1989, op.cit.) Applying the same percentage, the production in coastal states for which no further break up is given is calculated to be 93.16 million numbers in 1989-90 and 236.64 million numbers in 1994-95 with the average weight of 1.5kg for a chicken, the above production would be 139,740 tonnes in 1989-90 and 354,960 tonnes in 1994-95. Uncleaned viscera forms about 15%

of the total body weight of the chicken and in cleaned condition it accounts for 10%. At the second rate 139,740 tonnes of chicken produced in coastal states in 1989-90 would have provided 13,974 tonnes of cleaned viscera. For 1994-95, it will be 35,496 tonnes.

Mohapatra, Ajithkumar and Noble 1991 (Proceedings of Abstracts : National Seminar on Shrimp Seed Production and Farming, College of Fisheries, Orissa) in a study on the use of chicken viscera as prawn feed found 3.4 kg. of a feed compounded with 35% chicken viscera and 65% of other ingredients like ground nut oil cake, rice bran and shrimp waste, gave 1 kg of Indian white prawn (*Penaeus indicus*).

If ten percent of the estimated cleaned chicken viscera in 1989-90 was used for pelletisation it could have given about 4,000 tonnes of feed and for 1994-95 it will be over 10,00 tonnes. At the 3.4 food conversion ratio given above, the prawn output from this would be 1,176 and 2,971 tonnes respectively for 1989-90 and 1994-95.

In dried form, cleaned chicken viscera contains 52% protein. In the formulated feed reported by Mohapatra, Ajithkumar and Noble 1991 (op.cit.) it was 35.2% giving only 3.4 food con-

version ratio. If better compounding with higher protein percentage is made, the conversion ratio can be increased and prawn production enhanced.

With production of chicken in coastal states they may be in a position to use viscera alone in boiled condition. With 12 to 15% protein in wet condition (52% in dry weight) the boiled viscera fed directly to prawns in some farms near Cochin is showing promising results. Prawn production expected by using 10% of the chicken viscera in dry pelleted form is already given in this account. If another 10% can be used in wet condition, which may not be difficult in coastal states as the raw material is available there, a similar additional production, if not more, can be anticipated. Using the entire available raw material may not be possible. Moreover there may be some other use for them from place to place. Because of these reasons, the proposed use as chicken feed is limited to 20% in this write up. If more can be used, higher the return would be.

Use of beef waste and entrails is already existing in many places in the country. If such protein source available in the form of waste from ever growing poultry and animal husbandry sector is properly used, there should be no dearth for cheap feed for prawns in the country.

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