

## FURTHER OBSERVATIONS ON BREEDING OF CARPS WITH OVAPRIM

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### INTRODUCTION

Our trials during 1988 and 1989 (Nandeeshha *et al*, 1990 a & b) had shown the usefulness of Ovaprim as an alternate spawning agent to pituitary in breeding of various species of carps. Extensive trials carried out during 1989 (Nandeeshha *et al*, 1990 b) in different agro-climatic regions of India also showed the ready acceptance of this new drug by fish breeders.

In order to reconfirm the results obtained with Ovaprim during the previous two years, further experiments were conducted in different parts of India during the breeding season of 1990. Besides testing the drug for its impact on breeding, the following additional objectives were envisaged during the trials in 1990.

1. To compare the efficacy of Ovaprim with commercial carp pituitary in terms of spawning success, number of ova released, fertilization and hatching percentage under different climatic conditions.
2. To work out the economics of seed production using Ovaprim and pituitary for different farms.
3. To study the size of eggs and hatchlings in the two different treatments.
4. To work out the optimum dosage of Ovaprim required for males of different species of carps.

The results obtained in different states for various species of carps during the breeding season of 1990 are compiled and presented in this report. Those interested to know more details about the evolution of Ovaprim and experimental methodology should consult our previous report (Nandeeshha *et al*, 1990 b). The results of all trials conducted during 1990 are summarised in Table 10. Based on the total weight of fish, the number of eggs obtained/kg body weight was 1.14 lakhs in Ovaprim treatment as compared to 0.85 lakhs in pituitary. Similarly in terms of number of hatchlings obtained/kg. It was 0.72 lakhs as against that of 0.43 lakhs in pituitary treatment. This large variation indicates that nearly 40.28% more hatchlings/kg could be obtained through usage of Ovaprim in place of commercial pituitary. Based on our three years trials with Ovaprim, we conclude that Ovaprim usage has the following advantages over that of commercial pituitary.

1. Reduced handling of brood fish due to the single injection given to both the sexes simultaneously. This not only decreases /avoids post-spawning mortality of fish, but also increases spawning response.
2. The percentage of fertilization and hatching are generally higher with Ovaprim.
3. There appears to be no adverse effect on the health and growth of hatchlings. Additional studies might provide valuable information on the growth of hatchlings.
4. In economic terms, the usage of Ovaprim will bring in higher revenue due to better realisation of eggs, fertilization and hatching.

Additional experiments are essential to confirm the impact of Ovaprim on the growth and survival of hatchlings. Our observations are too preliminary to draw any conclusion on growth aspect. To determine the suitability of female brood for spawning, draw a few eggs from the posterior region of the ovary using a catheter. Immerse eggs in a solution containing 70 % acetic acid and 30% alcohol. After about five minutes observe nuclei position. Acentric or peripheral location of nuclei indicates readiness of fish for spawning. The central location of nuclei indicates unpreparedness or unsuitability of fish for

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### Appendix - I

#### Dosage of Ovaprim for carps

<u>Species</u>	<u>Ovaprim(ml/kg)</u>
Catla	0.40-0.50
Rohu	0.30-0.40
Mirgal	0.25-0.30
Silver carp	0.40-0.70*
Grass carp	0.40-0.80*
Fringe-lipped carp	0.30-0.40*
Big head carp	0.40-0.50*

\* Dosage needs further refinement

#### NOTE:

Depending on the condition of the brood, the dosage can be altered within the range mentioned above to obtain the best results.

There are two separate preparations of Ovaprim for female and male, respectively. The difference between these two preparations is only in the concentration of salmon gonadotropin releasing hormone and domperidone. The concentrations of these two chemicals is calibrated in such a way that the dosage of Ovaprim required to be injected remains almost same for both the sexes.

Pituitary glands can also be used successfully in place of Ovaprim for male fish. Simultaneous injection of Ovaprim to females and pituitary to males can also be followed.

To determine the suitability of female brood for spawning, draw a few eggs from the posterior region of the ovary using a catheter. Immerse eggs in a solution containing 70 % acetic acid and 30% alcohol. After

about five minutes observe nuclei position. Acentric or peripheral location of nuclei indicates readiness of fish for spawning. The central location of nuclei indicates unpreparedness or unsuitability of fish for breeding. For more details on this and several other aspects of breeding of carps the following publication may be consulted.

V. G. JhIngran and R.S.V. Pullin, 1988. A hatchery manual for the common, Chinese and Indian major carps. ICLARM Studies and Reviews, 11, 191 p. Asian Development Bank, Manila and International Centre for Living Aquatic Resources Management, Manila. Philippines.

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Appendix - II  
GUIDELINES FOR USAGE OF OVAPRIM

1. Select good quality - well matured female and male brood fish.
2. Weigh the brood fish, draw the Ovaprim solution into a hypodermic syringe and inject the required dosage simultaneously to both the sexes. Dosage can be calculated as follows.

$$\text{Quantity to be Injected (ml)} = \text{Weight of brood fish} \times \text{Dosage of Ovaprim}$$

3. Release female and male fish together in a breeding pool.
4. Examine response of brood fish after 8-12hr. The response may be early or delayed depending on the condition of the breeders and environment.
5. Calculate the percentage of fertilization after allowing the eggs to develop for 3-4 hr. Compute the number of eggs/litre.
6. Keep the eggs for hatching and provide optimal conditions. Retain the hatchlings till yolk absorption. Compute the hatching percentage.
7. Count the number of hatchlings observed in one ml spawn measuring cup.
8. Release the hatchlings to well prepared nurseries.
9. Ovaprim can be stored at ambient temperature.

In order to assess the usefulness or otherwise of Ovaprim to your farm, use pituitary treated fish as control. Keep the eggs obtained from pituitary treated fish separately for hatching and rear hatchlings separately. In all trials care must be taken to select fishes of identical condition for both Ovaprim and pituitary treatments.