

# **Rainbow trout**

## ***(Oncorhynchus mykiss)***

- Rainbow trout (*Oncorhynchus mykiss*), an exotic freshwater salmonid, is one of the promising cultivable fish species in coldwater and has considerable scope for its expansion in uplands region.
- Being a low volume high value commodity, the trout has good potential for domestic consumption as well as foreign export.
- Rainbow trout requires cold (9-14°C), clean and highly oxygenated water (>7 mg/l) for ripening of brooder, successful breeding and hatchery activities.
- Rainbow trout breed during November to February and attains maturity after completion of 3<sup>rd</sup> year.
- Males and females are segregated prior to 2 months of spawning and reared at density of 5-10kg/m<sup>3</sup>. Two males to one female are deemed a satisfactory sex ratio for breeding operation.
- Mature females have round body appearance, bloat and soft belly and swollen and reddened vent, while male has dark and dull in appearance, large pointed snout with hooked lower jaw and oozing of milt.
- Dry stripping method is applied for spawning. Fertilized eggs remain lemon yellow or light green in colour with the size of 4-5 mm.
- 1500-1800 mature eggs can be achieved by a mature female trout weighing 1kg.
- Eggs are placed in meshed trays (mesh size- 1.5 -2.5 mm dia) @ 2000 eggs. Trays are placed in trough having flowing water (0.3-0.5 L per minute for 1000 eggs).
- Trout have prolonged incubation period extending to several days (40-60 days).
- Sac fry, called alevin (size 1.5 -1.8 cm, weight 45-50 mg) remain in trays until swim-up fry stage for 10 to 14 days after hatching and feed on reserve yolk material.
- Eggs are transported at eyed ova stage prior to 5 days of hatching. Free swimming fry are fed 10 times a day @ 5-10% of biomass with starter feed-I. After one week, feeding frequency is reduced to 3-4 times a day and fry are transferred into outdoor cemented nursery tanks.
- Fry can be stocked at density of 1000 numbers/m<sup>2</sup> and provided starter feed-II, grow upto fingerlings (8-12 cm) in 3 months of rearing. These 3 months old fingerlings can be stocked in raceways for production.
- For the production of 1 lakh fingerlings (8-12 cm), 400kg brooder are required, which produce 2 lakh fertilized eggs, 1.5 lakh fry with cumulative survival of 50% from eggs to fingerlings.

Contributor: Dr. N. N. Pandey and Dr. D. Sarma  
ICAR- Directorate of Coldwater Fisheries Research, Bhimtal, District-Nainital,  
Uttarakhand- 263136

[nityanfish@yahoo.co.in](mailto:nityanfish@yahoo.co.in)

# Photographs



**Stripping operation**



**Egg incubation**



**Eyed ova**



**Fry of rainbow trout**