

**Sixty Six Percent Reduction in Amount of Formalin Used to Control Fungus on Eggs
During Incubation by Changing the Treatment Method**

**John B. Shrable
Ennis NFH, MT
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At the Ennis National Fish Hatchery, the standard procedure for controlling fungus during egg incubation has been daily flow thru treatments with Formalin at 1250 ppm for 15 minutes. Total Formalin used has averaged about 6 drums per year. Formalin costs \$250 to \$300/drum including freight.

During February 7, 1995 to March 20, 1995, the Formalin egg treatment procedure was changed from a daily 15 minute flow treatment at 1250 ppm to a daily 5 minute flow plus 10 minutes stagnation at 1250 ppm. By this method, only 1/3 as much Formalin was required but the treatment time and concentration were not changed. The Formalin pump was run for 5 minutes to obtain a uniform concentration of 1250 ppm Formaldehyde in the egg jars. After 5 minutes the Formalin pump was shut off and the water supply line to the egg jars was capped for an additional 10 minutes. No fungus was observed on the eggs during this 42 day period.

This Treatment method has become standard procedure and will reduce total Formalin required by 2/3 as illustrated below, water flow to egg jars is 4 gpm and the treatment concentration is 1:800 (1250 ppm):

Old treatment method: 15 minutes flow thru

$$\text{ml Formalin to use} = \frac{4 \text{ gpm} \times 15 \text{ minutes} \times 3785 \text{ cc/gal}}{800} = 284 \text{ ml/jar}$$

New treatment method: 5 minutes flow plus 10 minutes stagnation

$$\text{ml Formalin to use} = \frac{4 \text{ gpm} \times 5 \text{ minutes} \times 3785 \text{ cc/gal}}{800} = 95 \text{ ml/jar}$$

During 1994, six drums of Formalin were used by the old treatment procedure. Only two drums would have been required using the new treatment procedure. At a cost of \$300 per drum, \$1200 would have been saved and only 1/3 as much Formalin would have been discharged into the environment with no reduction in fungus control. If other Federal, State and private hatcheries adopted this treatment procedure, many thousands of dollars would be saved and the amount of Formalin discharged into the environment would be greatly reduced.