

## Prevention of diseases through disinfection

As you have already learned, prevention of disease is always better than cure; good disinfection is the most important factor in preventing the entry and spread of disease in the farm. Here, we will learn how to disinfect equipment, tanks and ponds, fish eggs, juvenile fish and broodstock.

### \*Disinfecting equipment on fish farms

- a) Clean it well by brushing and rinsing.
- b) Apply one of the chemical solutions shown in the following chart, either with a sponge or ) a brush; whenever possible, immerse the equipment fully into the solution. Preferably use protective gloves .
- c) Wait for 10 to 15 minutes .
- d) Rinse thoroughly several times to remove toxicity, before using for fish .

### Disinfection of equipment

<b>Household bleach</b>	<ul style="list-style-type: none"><li>● for non-metallic equipment only</li><li>● make a stock solution at 250 ml/l</li><li>● use diluted solution = 5 percent stock solution (3 to 4 tablespoons/l)</li></ul>
<b>Iodophores</b>	dosage = 250 ppm AI <ul style="list-style-type: none"><li>● Romeiod (0.5 percent AI): 50 ml/l (10 teaspoons/l)</li><li>● Wescodyne (1.6 percent AI): 50 ml/3 l (10 teaspoons/3 l)</li><li>● FAM 30 (2.75 percent AI): 50 ml/5 l (10 teaspoons/5 l)</li></ul>
<b>Benzalkonium chlorides</b>	dosage = 200 ppm AI <ul style="list-style-type: none"><li>● Roccal (25 percent AI): 4 ml/5 l (4 teaspoons/25 l)</li><li>● Hyamine 3500 (50 percent AI): 2 ml/5 l (2 teaspoons/25 l)</li></ul>

### Disinfecting tanks

Rearing, storage and transport tanks can be disinfected with chemicals as shown in the \* chart below. Clean the tank thoroughly, especially in corners and drain areas. Apply the recommended solution either by hand with a brush or sponge or using an agricultural sprayer. Protect yourself properly, with gloves, goggles, mask and waders, especially while spraying.

## Disinfection of tanks

<b>Chlorine bleach</b>	for non-metallic tank dosage = 1 000 ppm Al for 20 min or 500 ppm Al for at least 1 h <ul style="list-style-type: none"><li>● Chlorine bleach liquid 13 percent Al: 7.5 ml/l (7 500 ppm or about 1 200 ppm Al) for 20 min</li><li>● Chlorine bleach powder (33 percent Al): 3 ml/l (3 000 ppm or 1 000 ppm Al) for 20 min</li></ul>
<b>Iodophores</b>	dosage = 500 ppm Al for 10 min <ul style="list-style-type: none"><li>● FAM 30 2.75 percent Al: 20 ml/l (4 teaspoons/l)</li><li>● Wescodyne 1.6 percent Al: 30 ml/l (2 tablespoons/l)</li></ul>
<b>Potassium permanganate</b>	dosage: = 1 g/100 l for 15 min

### \*Disinfecting earthen ponds

-disinfect drained ponds using quicklime, hydrated lime, calcium cyanamide or, if necessary, agricultural by-products.

-disinfect undrained ponds using organic poisons. Remember that this is never as effective as treating drained ponds, which is preferred .

### Disinfecting fish eggs

Fish eggs can be major sources of transfer of disease from infected broodstock to fry and fingerlings. For this reason, all fish eggs should be thoroughly disinfected before transfer to other facilities. For best results, proceed as follows

a) Freshly prepare a 50 ppm Al solution of an iodophore chemical, for example

• Romeiod (0.5 percent Al) 10 ml/l or 2 teaspoons/l

• Wescodyne (1.6 percent Al) 10 ml/3 l or 2 teaspoons/3 l

You will need plenty of this solution, at least 40 l for 100 000 eggs .

b) Adjust the pH of this solution to about 7 with a suitable buffer solution such as sodium bicarbonate (about 100 mg/l ).

c) Adjust the temperature of this solution to the incubation temperature of the eggs .

d) Use this solution to give a short bath of 10 minutes duration to each batch of eggs. When the solution turns yellow, replace it with a fresh one .

e) Rinse the eggs well three times with clean water at the incubation temperature .

f) Return the eggs to continue their incubation .

Note: fish eggs can be treated this way either immediately after fertilization or, more frequently, when they reach the eyed stage

If you run your own hatchery, it is best to treat your eggs regularly against the very - common infection caused by the fungus *Saprolegnia*

**BEWARE:** it is always safer to carry out preliminary tests when using a batch of chemicals or a fish species for the first time to determine when and how disinfection can safely be carried out

### **Disinfecting broodstock**

Whenever you import new broodstock into your fish farm, it should be disinfected on - arrival. Proceed as follows:-

a) Store the new broodstock in a tank or a small pond, kept separate from the other areas, and with a water supply which does not drain into other rearing units .

b) Give a bath of potassium permanganate for one hour, at the dosage of 5 to 10 ppm according to water quality .

c) Two days later, give a bath of formalin for at least four hours at the dosage of 10 to 15 ) ppm according to water quality. Alternatively, you may also use a mixed solution of malachite green and formalin (3.3 g malachite green/I formalin) for one hour at the dosage of 25 ppm .

A simpler but usually less effective way is to use a short bath of 10 minutes in a 2.5 percent - salt solution .