

TWELVE USES OF SALT ON THE TROUT FARM

By
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Salt (sodium chloride) is one of the safest and oldest used chemicals on fish farms. Granulated salt with no additives can be purchased in 50- or 80-pound bags at local farm supply stores. Some beneficial uses of salt include:

1. **Parasite Control**- one pound of salt for every two gallons per minute water flow in raceways or earthen systems with good water turnover has proven to be effective in controlling most parasites. Monthly treatments are usually adequate when water temperatures are between 50 F. and 65 F. If summer afternoon water temperatures rise to 65F or above, weekly treatments may be needed for effective parasite control. Costia is more difficult to control with salt. If it becomes a problem, formalin treatments may be needed.

2. **Columnaris Control**-Salt flush treatments have proven effective in preventing columnaris. The frequency of treatments will vary according to conditions on each farm and the water temperature. Monthly treatments may be adequate when the water temperature is in the upper 50's. Treatments at least once a week or more may be needed when the water temperature is above 65F. If lesions are seen on the gills of trout or other symptoms increase, salt alone may not control columnaris. Promptly begin feeding feed containing terramycin (3.5 grams active oxytetracycline per 100 pounds of fish) for 10 days.

3. **Saprolegnia Fungus Control**-Routine salt treatments on production fish usually help reduce fungal development. When fish are being moved, a 1-1.5% salt solution (8.3-12.5 pounds/100 gallons of water) either in the hauling tank or for thirty minutes prior to moving provides an effective treatment. Another recommended treatment is exposing fish to a 3% (4 ounces/gallon of water) salt solution for about 4 minutes or until fish show signs of distress. Weaker fish do better in the less concentrated salt solution. Some fish culturists have noticed that when fish are weak and in water with high hardness, saprolegnia is more difficult to control.

Fish culturists who do not like using formalin may consider the use of salt on trout eggs. A treatment of 2-3% salt solution for 15 minutes every other day has been found effective in preventing growth of saprolegnia on eggs. A 2% treatment would require 2.5 pounds of salt for each gallon per minute flow for the 15 minute period. If water could be adequately aerated and recirculated for 15 minutes, a 2% treatment would only require 2.67 ounces of salt for each gallon of water. If fungus is established, treatment for a longer period of time will be needed. A treatment of 5% for up to one hour on alternate days may be required to halt an existing infection on eggs. Do not allow sac fry to be exposed to this concentration of salt.

4. **When using Formalin**-Prior salt treatment will reduce the chances of mortality of fish and increase the effectiveness of the formalin treatment for parasite control. A salt flush immediately following the formalin treatment will help to recondition the damaged gills and reduce the chances of delayed mortality. One pound of salt for every four gallons per minute water flow should be adequate for both treatments.

5. **Acid Rain Relief**-A sudden drop in pH creates much stress in trout. The fish usually act very nervous and even try to get out of the raceway or pond in order to escape the irritating effects on their gills and skin. When this condition is seen during or after a rainstorm, the immediate addition of salt will help to relieve stress. When fish have been damaged from acid rain, the continuous use of

white salt blocks (with no additives) at the head of the system for 2 to 3 days will assist in recovery. Salt blocks used during rainstorms when acid rain is a potential problem will be helpful in providing the fish with needed ions, as well as providing relief from some of the stress on the gills. If problems become critical, you may need to install a system at the head of your farm to add a buffer, such as hydrated lime.

6. **Muddy Water Relief**-If water becomes muddy during a heavy rain or if it is stirred up during cleaning, a salt flush treatment will aid in the removal of foreign particles on the gills. One pound of salt for every four gallons per minute should be adequate.

7. **Grading And Inventorying Stress Relief**-A salt flush just prior to grading, inventorying, and other handling fish will help to calm the fish and better prepare them for the handling stress.

Salt relieves the gills of excess water and stimulates the release of ammonia and nitrates from the blood. It is especially beneficial to trout grown in soft water by assisting with the salt balance needed in their blood and tissues.

8. **Hauling Stress Relief**-the use of salt in transport tanks is a common practice to reduce stress. Concentrations as high as 0.8% (6.4 pounds/100 gallons of water) can be used safely for extended periods. In soft water, many biologists also recommend the addition of gypsum (3.3 ounces/100 gallons) to increase calcium hardness and baking soda (2.7 ounces/100 gallons) to help prevent the pH from dropping. After the fish are delivered to raceways or ponds, the use of salt blocks for several hours will help prevent fish health problems from hauling and handling stress.

9. **Gill Problem Control**-One of the major problems of early feeding fry in hatcheries is the accumulation of uneaten feed and fecal material on the gills. This frequently leads to environmental and bacterial gill problems. Salt treatments administered at least weekly help rid the gills and skin of excess mucus containing foreign material and organisms.

10. **Low Oxygen Relief**-When fish are gaping at the incoming water due to low oxygen, a salt flush will quickly relieve stress and reduce chances of mortality. One pound of salt for every 4 gallons per minute should be adequate. For extended relief, the use of salt blocks will be helpful.

11. **Ice Control**-Salt can be poured on your intake screen to help melt ice, to reduce ice problems on raceway screens and even to help keep pipes open during severe cold. It is also beneficial when sprinkled on icy work areas.

12. **Algae Control**-Salt sprinkled on filamentous algae (slimy and threadlike) in shallow areas around the edge of ponds will help keep it under control. Several applications will probably be needed during the year.

Unlike many chemicals, salt can be safely used regardless of water temperature. However, the use of salt does not replace the need for good management practices such as keeping raceways and ponds clean, starving fish before handling or hauling, maintaining proper densities, and avoiding overfeeding.

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