

# How to start the preparation of fish ponds before shrimp farming

The main objective of pond preparation is to provide a clean rearing environment and optimal growth and survival conditions for shrimp. Effective pond preparation is an integral part of successful shrimp farming. Poor preparation can lead to soil deterioration during crop growth, release of nutrients and toxic compounds into the water column, stress on shrimp, and possible environmental problems due to effluent discharge. Good pond preparation is also a positive measure for disease control and should be an important aspect of a disease management strategy. Pond sludge that accumulates on the bottom of the pond may also need to be removed prior to the next crop; sediment disposal on the farm must be done responsibly. Intensive shrimp farming requires a considerable amount of feed to be added to the pond over the course of a season (about 10 tons for a 5-ton crop). This large input of organic matter has the potential to overload the sediment with organic matter, causing deterioration of the pond soil and thus affecting the growth of the next crop. Due to the action of aerators and water flow during crop growth, pond silt can build up in the center of the pond, creating a mound in the center of the pond when the pond is drained.

Key instructions for pond preparation.

Completely drain the pond. This helps to remove disease-carrying crustaceans and other aquatic animals from the pond's previous crop.

Coordination with neighboring farmers. Block off water intakes and sluice pipes and other sources of water entering the pond. Use pumps to remove any water damage from the pond. Manually remove any snails, barnacles and gastropods.

Increase the pond's water holding capacity. Dikes must be compacted to prevent water from seeping out. If needed, additional soil should be procured from outside to increase the height of the dike. Pond water depth must be maintained at a minimum level of 1.2 m in the middle of the pond, with a wooden water depth scale to monitor water depth. A 30 cm freeboard should be left from the water surface to the top of the dike.

Remove organic waste accumulated from unfed feed, dead and decaying plankton/algae, and decaying shrimp feces. These wastes release toxic gases, such as ammonia and hydrogen sulfide, into the pond water, causing stress or death of shrimp.

Organic waste forms a black layer on the soil and accumulates mainly in feeding areas, in the center and corners of the pond, and in ditches, where it is completely removed with a scraper when the soil is slightly moist. Dump the waste in a ditch at the top of the dike, covered with good soil. Make sure that the dumped organic waste does not enter the pond through rainwater. If it is difficult to remove the black soil completely, plow the soil when it is wet and wait for it to dry out.

Dry out the bottom of the pond until the soil loses moisture. Sunlight and drying will kill algal spores, benthic algal mats, fish eggs and any predators that may remain in the soil. Coordinate drying adjacent ponds at the same time to prevent water from seeping out of other ponds. Ponds should be dried in the hot sun for 20 to 30 days or longer until their soil is cracked.

Plow the ponds 2 to 3 times in 2 to 3 day intervals. This will help oxidize organic matter and reduce gastropods. Plowing the bottom of the pond will expose more soil surface area, increasing the oxidation effect and encouraging more aerobic bacteria. The tillage process also usually helps break down organic residues and nutrients locked in the soil, making them biologically more available for the next crop. After tilling, compact the bottom of the pond to reduce turbidity and seepage.

When ponds cannot be dried, wet pond preparation can be done. Apply tea seed cake or chlorine (20 ppm). Remove all animal carcasses before plowing. Plow the pond with 15 to 20 cm of water using a tractor with a gauge wheel. After plowing, drain the pond.

Fertilization and liming of the pond bottom will help to increase the mineral content of the pond bottom, especially in ponds with low soil fertility and ponds that have been farmed for more than 10 years. Apply 250-1000 kg/ha of dried vermicompost or compost. Spread vermicompost or compost all along the bottom of the pond. Do not use poultry manure or raw cow manure for fertilization.

Apply lime to maintain soil pH. Use a soil pH meter to test soil pH. Soil should be wet when using equipment. The level of lime applied during pond preparation depends on the soil pH. Follow the dosage in the table below.

5	200	400
5.5	150	300
6	100	200
6.5	50	100

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