

Milkfish grow-out culture in ponds

Total investment cost in 1 ha pond is P27,000 for extensive straight-run, P44,000 for modular, P184,000 for semi-intensive, and P256,000 for intensive. Return on investment (ROI) in extensive straight-run after a year is 51%, thus payback period is 1.5 years. ROI in modular after a year is 102%, payback is 10 months. ROI in intensive after a year is 4%, payback is 4 years. In semi-intensive, there is still no ROI after a year



Considering the seasonal pattern in fish prices, it appears that extensive and modular systems are profitable even if harvest would fall during periods with low selling price of fish.

Modular, and also intensive, systems are profitable when harvest occurs at times of high selling price

Milkfish farming, practiced in Southeast Asia for over 500 years, is regarded as the backbone of Philippine aquaculture.

In 2000, about 45% of global milkfish production came from the Philippines, mostly from brackishwater ponds. About 42% came from Indonesia, also from brackishwater ponds; 12% from Taiwan, mostly from freshwater pond; and 1% from countries that include Guam, Micronesia, and Singapore.

In 2001, about 49% of the Philippines' aquaculture production (excluding seaweeds) was milkfish cultured from brackishwater ponds; about 2% was from marine pens and cages, and less than 1% from freshwater pen. The remaining 48% of the country's production includes shrimp and tilapia.

Milkfish production has three major culture systems: extensive, semi-intensive, and intensive. Common milkfish culture in brackishwater pond is classified into extensive straight-run, extensive modular, semi-intensive, and intensive.

In extensive, stocking density is low; thus fish depends on natural food for their nutrition. Stocking density for straight run is from 2,000 to 3,000 fish per ha in 2 to 50 ha ponds. There could be one to three croppings per year with the yield from 700 to 1,500 kg per

ha per year. Stocking density for modular is 3,000 fish per ha in 1 to 10 ha ponds. There could be six to eight croppings per year with the yield from 2,000 to 3,000 kg per ha per year.

In intensive culture, stocking density is high; thus fish depends largely on artificial feed and very little natural food. Stocking density is more than 20,000 fish per ha in 0.1 to 1 ha pond. There could be two to three croppings per year with the yield from 4,000 to 12,000 kg per ha per year

In semi-intensive culture, fish depends on both natural and artificial feed. Stocking density is from 8,000 to 12,000 fish per ha in 1 to 5 ha ponds. There could be two to three croppings per year with the yield from 2,000 to 4,000 kg per ha per year

Milkfish is stocked in extensive and semi-intensive ponds after about 40 days of pond preparation and growing of natural food. Preparation includes pest and predator control, drying, liming, and organic and inorganic fertilization.

In a modular system, pond preparation should not exceed 30 days to synchronize with the rearing period in other ponds. Pond drying could be shortened to 12 days and it is not necessary to apply lime on the second to the sixth cropping.

Stocking of milkfish should be done in early morning. It is also recommended that salinity and temperature levels in transport bags should be close to those of the pond before fish are released.

Milkfish is a daytime feeder; it feeds frequently. In semi-intensive ponds, milkfish is fed one month after stocking when biomass is 300 to 400 kg per ha, or when natural food is inadequate. In intensive ponds, milkfish is fed immediately after stocking to supply nutrients needed by fish at higher density and biomass.

Maximum production and feed ration were already determined in order to prevent water pollution in pond. In semi-intensive pond with no aeration, maximum biomass of milkfish should be about 0.8 to 1.3 tons per ha and feed ration should not be more than 50 kg per ha per day. In intensive ponds, estimated maximum biomass should not be more than 5 tons per ha and feed ration should not exceed 100 kg per ha per day.

Based on the nutritional requirement and water quality, feeding rate for milkfish is 4% of biomass when weight is below 150 g, 3% when weight is from 150 to 200 g, and 2% when weight is 300g. However, feeding rate should be adjusted so as not to exceed the maximum feed ration.

Milkfish is harvested after three to four months.



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