MAJOR TECHNOLOGY GAPS IN MILKFISH CULTURE IN THE PHILIPPINES

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Exuberant optimism is what may be described of the prevailing attitude toward the development of aquaculture in the Philippines. Firstly, the 1970's started out with a fresh momentum for technological improvements in view of significant advances gained in the sixties. Secondly, the establishment in 1972 of the national UP-NSDB Inland Fisheries Project and the SEAFDEC Aquaculture Department provided strong backstopping by the academic communities in solving problems related to aquaculture through well-organized research undertakings.

Quick technology transfer is assured with the Philippine Council for Agriculture and Resources Research monitoring the results of research and the Bureau of Fisheries and Aquatic Resources extension network disseminating the information to the fish farmers and other end-users.

In milkfish farming, early benchmark information indicated two foremost problem areas as needing priority considerations because of their immediate and long-range effects. These are 1) standardization of fertilization techniques in pond and 2) fish nutrition and utilization of animal feeds.

The first recognized the fact that prevailing fertilization techniques were inexact and indeterminate. The second saw the importance of complete or supplemental feeding in increasing pond yields. Later, high priority was given to the artificial breeding of the sabalo and related studies to improve fry and fingerling survival as a result of recurring shortage in the supply of fish seeds following the boom of fish pen culture in Laguna Lake and unusual floods in Central Luzon.

Other priority areas included: 1) polyculture, 2) pest, predator and disease control, 3) post-harvest handling, f) utilization of agricultural waste products and 5) aquaculture engineering.

Production wise, a fairly substantial gain was attained. The national average output from milkfish ponds increased from about 500/kg/ha/yr to 640/ka/ha/yr in 1976. The figure for 1978 may be reasonably estimated to be somewhere in the vicinity of 800 kg/ha/yr.

However, there are clear indications that fields of fully developed and well-managed fishponds reach as high as 2000 kg to 2500 kg/ha/yr. The same tends to indicate that mediocre operations still prevail to bring down the national average by so much.

A look at some aspects of the present milkfish farming system provides indications of technological gaps.

Pond operation is still extensive. One single major factor for a successful operation is fertilization. The key is to grow natural food as abundantly as possible. Supplemental feeding using single-ingredient materials is resorted to only when the natural food communities are grazed before the fish are harvested. Up to this point, fertilization techniques are not yet so location-or area-specific as to enable manipulation of nutrients to desired levels depending on prevalent type of soil or climate or on desired food organisms.

Economically viable commercial pellets for milkfish fry or fingerling are yet to be developed. Present research studies have not established the nutritional requirements of the fish. Within the immediate future however pelletized feeds for milkfish may eventually be commercially manufactured.

The deep-water plankton method has not attained a level of perfection that would make it popularly accepted like the lablab method. Production from plankton ponds remain unpredictable ranging from very low to very high yields.

Polyculture is almost wholly confined to milkfish and prawn (P. monodon). The practice borders on the traditional since stocking ratios (milkfish to prawn) have not been fully evaluated. Potentials of other species such as tilapia, spadefish and mullet have not been tapped.

Improvements in fry and fingerling survival during transport, handling and rearing are noted. A number of stress factors like salinity, temperature, pH, have been identified. Culture, handling and transport techniques are gradually being modified.

The artificial spawning of the sabalo has been achieved, but much work has to be done before a hatchery operation becomes feasible. The development of broodstock has surfaced as a major problem.

One major problem is the control of pond pests and predators. The dangers are recognized in the continued use of inorganic pesticides and other forms of chemical poisons, but the unavailability of comparatively effective substitutes remains unresolved.

As a whole, technology gaps in some aspects of milkfish farming have been narrowed. In the others the gaps remain unchanged. The important thing is that they are recognized.