

**Southeast Asian Fisheries Development Center**

**Aquaculture Department**

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Aqua Farm News

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1993

# Vuon, ao, chuong

Aquaculture Department, Southeast Asian Fisheries Development Center

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Southeast Asian Fisheries Development Center, Aquaculture Department (1993). Vuon, ao, chuong. Aqua Farm News, 11(1), 9-10.

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the bottom monoline. The average production cost of the bottom monoline in northern Bohol was P2.71/kg in 1981. This increased to P4.29 - 6.22/kg in 1988. Higher production costs in the raft monoline resulted in lower return on investment (93%) and longer payback period (0.9 year) than in the bottom monoline (243%, 0.4 year). Sensitivity analysis showed that at equal seeding rates, the bottom monoline method is more profit-able.

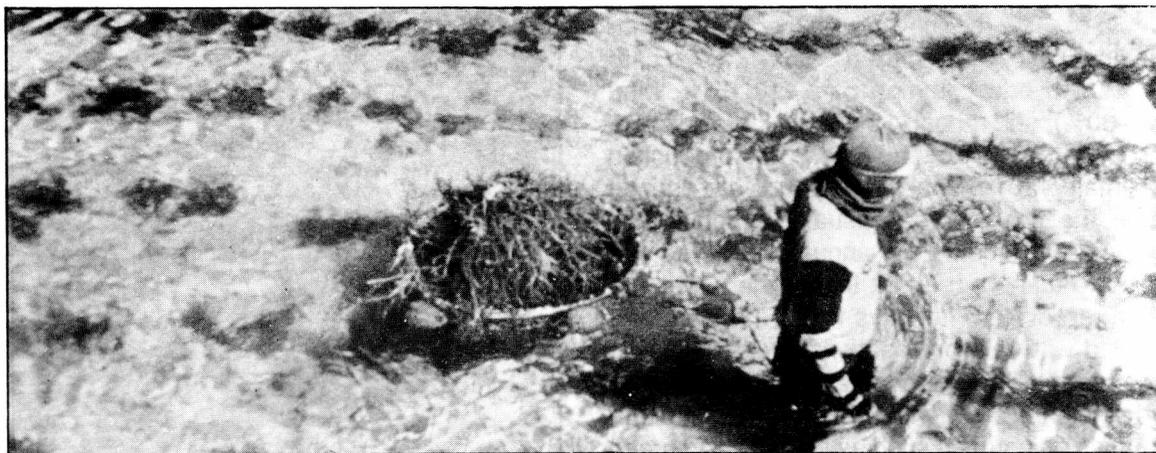
The availability of seedlings and capital limit the small-scale production of seaweed. Seedlings are purchased from other seaweed farmers and the supply is not assured. The inputs used in a seaweed farm depends on whatever cash the farmers have on hand. Further problems include grazing on seaweeds by sea urchins and other herbivores, shading by epiphytes, and bad weather.

Seaweed farming is an attractive livelihood for fishermen and a high yielding investment. Demand for seaweed grows by about 10% per year, with the world supply coming mainly from developing countries. Through the bottom monoline culture, good drying, and sound post-harvest practices, higher production and profits are attainable.

Source: GPB Samonte, AQ Hurtado-Ponce, and RD Caturao. 1993. *Economic analysis of bottom line and raft monoline culture of Kappaphycus alvarezii var. tambalang in Western Visayas, Philippines*. *Aquaculture* 110:1-11.

This paper won for SEAFDEC/AQD the second prize in the Best Paper Competition (Socioeconomics category) in the 1992 National Research Symposium of the Department of Agriculture. - Ed.

### *Seaweed culture in the Philippines.*



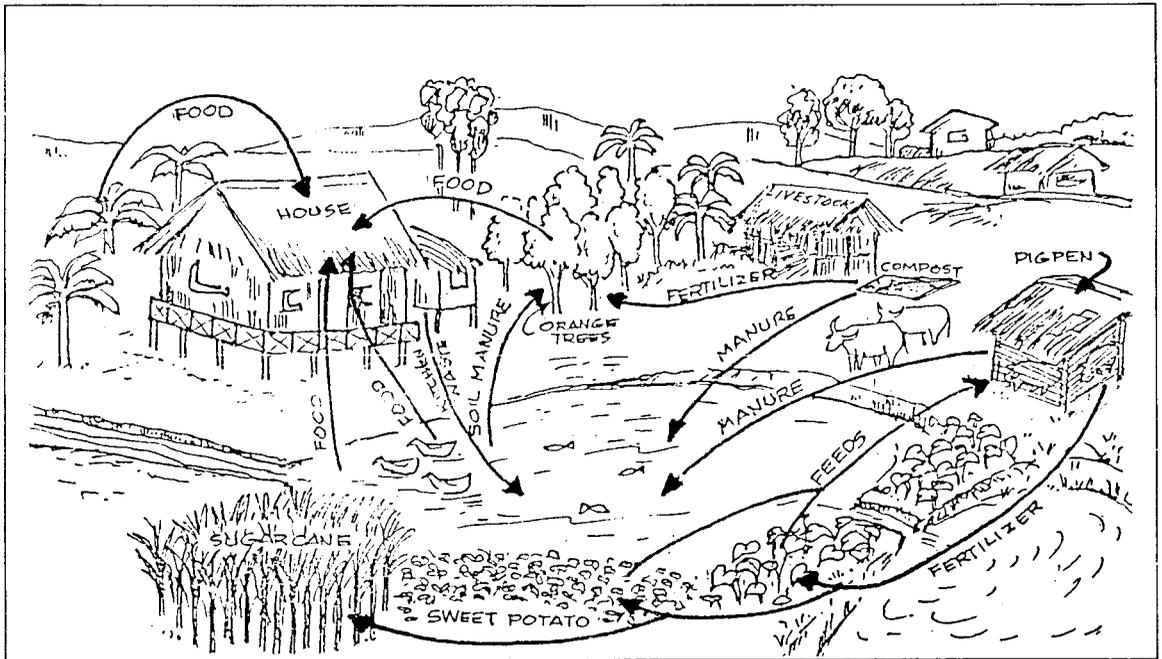
## Vuon, ao, chuong

The Vietnamese *vuon, ao, chuong* means garden-pond-livestock pen. This system, termed VAC, integrates the homelot, garden, livestock and fish pond. It has become a traditional approach to family food production in the rural regions of Vietnam after it was developed in the early 1980s to improve the diets of the rural poor.

The VAC system is family-managed, with practically all the labor coming from the household. VAC farms can be found under a variety of agro-ecological conditions, including irrigated lowlands, rain-fed uplands, and peri-urban areas.

About 85-90% of the rural families maintain a garden and a livestock pen, and 30-35% of these have fish ponds. In many villages, 50-80% of families have the full VAC system. About 30-60% of family incomes come from VAC, and a few derive all income from it.

Fruits commonly grown in the Vietnam lowlands include banana, orange, papaya, peach litchi, longan, and apple. In the suburbs, ornamental trees and flowers are planted as a main source of income. Vegetables grown include green onion, sweet potato, cress, tomato, cabbage, and water spinach. These perennial and annual crops provide year-round food to the house and products for the market.



**The integrated farming system in Vietnam:** The garden has an area of 200-300 m<sup>2</sup> with fruit trees and vegetables. Livestock are raised on farm products or by-products. Livestock manure and pond mud are used as fertilizer. The pond is stocked with many species of fish.

Most families keep a variety of animals on the farm, including one or more water buffaloes and cattle, one or more pigs, and several ducks and chickens. The livestock pens are constructed at the corner of the garden close to the pond. The large ruminant animals are allowed to graze, or are fed farm by-products. The swine and poultry are usually fed kitchen wastes, as well as cassava, rice bran, sweet potato, banana trunks, and water hyacinth. Livestock manure is used as fertilizer for the ponds.

Families have ponds 50-400 m<sup>2</sup> with a depth of 1-1.2 m. They are stocked with 1-2 fingerlings/m<sup>2</sup> of silver carp (25-35%), grass carp (2-5%), hybrid common carp (10-15%), rohu (20-30%), and mrigal (15-25%). Harvest is continuous throughout the year with production estimated at 1-5 t/ha-yr. The ponds are drained after the final harvest (usually in January or February). Pond mud is annually removed and used to manure the fruit trees. The ponds are then kept dry for a few days, limed, manured, and refilled with rain or irrigation water. Domestic washings and kitchen wastes may be channeled into the pond along with some livestock manure. Leaves of legumes such as peanuts and green

beans are also used as fertilizer in ponds. Pond water is used for irrigating the garden, especially the vegetables.

Source: International Institute for Rural Reconstruction and International Center for Living Aquatic Resources Management. 1992. *Farmer-proven integrated agriculture-aquaculture: a technology information kit.*

