

## Yield of Kangkong (*Ipomoea aquatica* Forskal) in the Okoy River, southern Negros Island, Philippines\*

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Most of the shallow and narrow bed (average depth, 3 m; average width, 7 m) and banks of the Okoy River are planted to kangkong (*Ipomoea aquatica* Forskal; Fam. Convolvulaceae). This plant is well-adapted to growing in standing waters, fishponds, and muddy fields and along creeks in the tropics (Anon., 1971) with little care, even when grown among weeds. Some thirty families living along the Okoy River benefit economically from kangkong farming.

**Farming.** Farmers divert part of the stream flow to kangkong plots (*kahon*) made of piled-up boulders, rocks and mud. Kangkong cuttings are set in these plots, usually at the advent of the rainy season. The stems are harvested a month later by clear-cutting the whole plot. The stumps of the original cuttings produce new stems that are harvestable after three or four weeks. No replanting occurs the rest of the year; harvesting is continuous for eight months, after which the plots are left to fallow. Fertilizers are applied after harvest to plots producing commercial quantities of the plant, while small plots for home consumption are often left unfertilized.

Kangkong grows year round (Anon., 1971), but farmers report stunted growth and low harvest in summer. While waiting for the rains that allow recovery of their plants, they cultivate fallowed areas. During the rainy season the river sometimes swells, washing away plots in the river bed. These are repaired when the water subsides.

**Marketing.** Cuttings of kangkong are tied in small bundles (*ba-at*) weighing 980 grams on the average. Baled bundles are transported to the Dumaguete City market. These bundles were sold for ₱0.25 until November 1981. Since December 1981, kangkong bundles have been sold for ₱0.30. As many as 2,100 bundles are sold every day in this market.

Kangkong is primarily used as pig fodder, chopped and added to corn bran. Kangkong stems constitute a major portion of the hog feed for local backyard piggeries. But kangkong is also a cheap source of vitamins A, B, and C, calcium, potassium, and iron for the human diet (Anon., 1971). The leaves contain more protein than carbohydrates and also have roughage value.

**Yield and Income.** Approximately 10 hectares along the Caman-jac-to-Palimpinon portion of the Okoy River were planted to kangkong in 1979 and about 16 hectares in 1981. In 1979 the farms yielded about

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2,000 bundles per hectare per month; in 1981, 3,100 bundles. Being productive for eight months on the average, the farms yielded about 16,000 bundles/ha/year in 1979 and about 24,800 in 1981. These yields are equivalent to 16 metric tons per hectare per year in 1979 and 22 in 1981. Thus, kangkong farms generated a gross income of P500 per hectare per month or P3,600/ha/year in 1979, and P775/ha/month, June to November 1981, and P930/ha/month, December 1981, or P6,510 per hectare per year in 1981. Kangkong farming is profitable enough that some farmers have converted their rice paddies to kangkong farms.

Some exceptionally productive areas produced as many as 21,200 bundles (21 metric tons) per hectare in 1979 or 32,900 bundles (32 metric tons) in 1981. Kangkong yields elsewhere in the Philippines have reached 40 metric tons per hectare per year (Anon., 1971).

The reasons for the difference in the estimates for 1979 and 1981 can only be conjectured. Better farming techniques (e.g. fertilizer application) may play a part. In 1979, it was not common to fertilize kangkong plots; by 1981, farmers had started to apply inorganic fertilizers. It is possible that expenditures on fertilizers may have canceled out profits from increased production, resulting in no increase in net income per hectare. At any rate, the yields in 1979 and 1981 are much lower than those in Hongkong, where intensive kangkong farming using fertilizer every two or three weeks yields as much as 90 metric tons per hectare per year (Anon., 1976).

Considering the above yield figures, farming kangkong in the manner described in this paper seems an effective way of trapping nutrients washed down from the Okoy watershed area, enhancing river productivity.

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