

Abstract

This study investigates the production and economic aspects of an integrated farming system of freshwater fish, pigs and chickens. For purposes of the study the system was subdivided into four components.

(a) Tilapia fingerling production using fish silage in the feed

(b) Grow-out of all male tilapia fingerlings in ponds fertilized with pig-manure.

(c) The rearing of pigs on a diet incorporating fish silage

(d) The rearing of broilers on a diet also incorporating fish silage.

Each of these components was then studied by way of experimental investigations. Fingerlings were produced most efficiently on normal fish ration at a stocking density of 175,000/ha and the best returns were obtained from a stocking density of 175,000/ha and a feeding regime using a 50 % commercial feed 50 % fish silage mixture given at a rate of 3 % body weight /day. The fry to fingerling growth period lasted for 42 days. The costs of production of fingerlings at a stocking density of 175,000/ha was J\$0.54 each. At a lower stocking density of 125,000/ha it was J\$0.72 and at a high stocking density of 250,000/ha J\$1.04. Similarly the best returns from a pond grow-out system of all male tilapia was

obtained with a feeding regime of 3 % body weight per day and 104 kg /ha/day of pig manure.

Pig production gave the best returns when the animals were grown for 105 days on a diet of 25 % commercial feed and 75 % silage. The best growth rates were however obtained when pigs were fed commercial feed only. The actual production cost for the 25 % fish feed/silage mixture was J\$15.58/kg per pig, whilst that with commercial feed only was J\$26.28/kg per pig.

Broiler production using a 49 day growth period was best when the birds received a ration of 95 % commercial feed and 5 % silage. The best growth rate of 41.98 g/day and the best conversion ratio of 1.9 were also obtained with this ration. Cost of production in this system was J\$22.51 per kg of chicken .

Annual returns were estimated for a hypothetical fish farm of 2.2 ha made up of two brood ponds of 0.1 ha each, two nursery ponds 0.2 ha each and four food fish production ponds of 0.4 ha each. This module integrated with 1000 broilers and 80 pigs/crop was calculated to yield J\$926,024. Similar figures for a farm of similar size in which the components were non-integrated was J\$434,481. It seems therefore that for Jamaica a small integrated farm is likely to be a profitable venture.