

## Tilapia farmers in Fiji learn to make floating feed

*For aquaculture farmers, feed is a major operating cost. In Fiji, it has been estimated that feed represents 50–60% of production costs for fish farmers. To improve feeding efficiency, the Pacific Community (SPC) and Fiji’s Ministry of Fisheries (MoF) have collaborated to invite world-renowned fish feed expert Dr Albert Tacon to share his knowledge and experience during a feed training workshop. From 6–10 May 2019, 13 fish farmers and 12 MoF staff attended the workshop at MoF’s Nadurulou Freshwater Research Station (NRS). The training was organised as part of the New Zealand Ministry of Foreign Affairs and Trade ‘Sustainable Pacific Aquaculture Development Project’ (Pac.Aqua).*

Workshop participants were particularly interested in the production of trial batches of floating feed, a first for Fiji. In 2018, the NRS feed room was renovated and a new floating feed machine, built in China and with the capacity of producing 150 kg of feed per hour, was installed with assistance from the Food and Agriculture Organization of the United Nations and SPC. Globally, most commercial farmers utilise floating feed as it allows them to see fish feeding on the surface and observe how much they consume. Done correctly, this can have major impact on feed cost reduction. However, this technology and operational know-how has not been available in the Pacific Islands region until now.

Currently, farmers use on-farm mixed feeds made of loose ingredients or locally manufactured, commercial sinking tilapia pellets. Although sinking feed is available and has good formulations, current feeding practices result in feed being lost at the bottom of the pond. There is, therefore, a need to develop new feeding strategies to improve feeding efficiency. During the training, five improved feed formulations, using locally available ingredients, were developed. Ingredients included milled byproducts such as rice meal, mill mix, pea meal, copra meal and broken rice, as well as tuna-based fish meal available from local manufacturers, and imported wheat flour and soya bean meal. This will allow farmers to have a choice of ingredients to use, based on cost and availability.

Farmer and MoF staff can now use the new machinery to manufacture small batches of 400–800 kg of feed per day for research and on-farm use. MoF can produce the five trial diets and undertake growth and survival trials in their ponds. Specialised broodstock diets can be formulated to improve hatchery conditioning and production from existing breeders. Improvement in feed practices and feed storage was another key highlight of the workshop. The use of low-cost feed dispersal mechanisms, such as bag feeders and auto-feeders, can improve the utilisation of commercial and on-farm mixed feed. Mr Seru Batibasaga, MoF Fisheries Officer, is currently developing a protocol that will enable farmers, under his guidance, to book and use

the machinery. Based on an average of nine days per month allocated for feed manufacture, around 40–80 t of feed can be produced monthly. This theoretically can result in 20–40 t of fish being produced by farmers. In fact, as farms grow to produce more, farmers will probably need to work with larger commercial feed producers, rather than struggle to obtain small quantities of feed from NRS, and organise their transportation, storage and processing.

The training also included a visit to Pacific Feed Ltd, which provided insights into commercial feed manufacturing processes, along with costs and constraints faced by suppliers to obtain high-quality ingredients at reasonable prices. It is important to note that in many Pacific Island countries, there are no commercial fish feed manufacturers and, hence, it is difficult for fish farmers to access a regular supply of commercial (sinking or floating) feed. Where ingredients are available at reasonable costs, strengthening the capacity of local feed manufacturers will help develop the fish aquaculture industry.

### For more information:

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Dr Albert Tacon, world-renowned tilapia feed expert (first row, second from left) and workshop participants. (Image: SPC)