

Factsheet final findings Applied Research Fund Call 3



Developing and promoting efficient fish feeds to enable emergence of catfish breeding in Benin (ProfishBenin)

Summary

The introduction of low-cost and efficient fish feed in the Benin fish farming system is expected to reduce the cost of fish production and consequently allows resource-poor people to access affordable sources of good nutrients, in particular protein. The project develops and promotes affordable, nutritive, floating, and easy to use fish feeds based on locally available feed ingredients in Benin. This applied research project is carried out in an interdisciplinary setting that addresses the: (i) characterization of local feed ingredients, (ii) formulation and functionalization of nutritionally-dense fish feeds, (iii) assessment of the socio-economic factors influencing the success of the products and (iv) technology transfer to stakeholders. Capacity building is ascertained in six research projects of MSc students. Socio-economic studies and dissemination activities are ongoing.

Research findings

29 samples of feed ingredients were characterized based on their nutritional value and cost. Next, 13 feed formulas were developed using the local feed ingredients. Various sources of starch were tested to confer adequate floatability of the granules. Cassava flour exhibited the most promising characteristics. Fish feeds with sufficient floatability and nutritional composition were formulated, with the characteristics similar to a commercial imported fish feed. Equipment of adequate size was purchased for pilot production. Extrusion and fermentation of ingredients improved the floatability of the granules. Results from the bioefficacy study show that the Profish 2 and 3 formulas performed better than the imported feed, since their protein efficiency ratios were 2.57 and 2.51, respectively, against 2.43 for the control. Growth of fish larvae is also promising under Profish feeding.

Outcomes achieved

Farmers included in the test of the new fish feeds show great interest in the new product developed. They expressed their willingness to be included in the dissemination activities. Others established regular contact with researchers to use the new technology. A local company expressed to be willing to invest in a fish feed factory using the developed formula of the Profish project.

Project messages to

A) Actors from private sector:

- Uptaking of the fish feed products developed within this project by private sector stakeholders will contribute to make their business profitable while increasing the access of affordable sources of good nutrients to resource-poor people.

B) Civil society and practitioners' organizations:

- The developed formulas together with the detailed characteristics of feed ingredients of Benin, including their cost and availability per agroecological zone, offer a new perspective for the success of aquaculture development in Benin, since the extruder used a locally

developed product. Practitioners are invited to build on this innovation to spread fish feed production technique throughout the country.

C) Policy makers:

- The fish feed formulas developed in this project together with the locally developed extruder offers a new opportunity to fish farmers in Benin by making the fish breeding business profitable. Providing incentive for scaling up the dissemination of this innovation towards fish farmers will accelerate the development of the sector and save currency for the country.

Knowledge products

- MSc report on the nutritional profile of feed ingredients in Benin
- MSc report on fish feed formulation
- MSc report on technical performance of a locally developed extruder
- MSc report on factors affecting floatability of fish feed formulas
- MSc report on bioefficacy of Profish formulas on Clarias and Tilapia growth

Knowledge networks

During the project, networks have been created for mutual exchange of experience and knowledge for a better accomplishment of the project objectives. For example, a restricted group (Fish Pond Calavi) was created in Facebook and dedicated to the project. Such networks are useful to facilitate the dissemination of project results and to build up actors' capacity.

Knowledge co-creation

Various means of communication were used for networking within the consortium. These include Skype meetings with Wageningen partners abroad and regular phone calls as well as the WhatsApp network. There are regular exchanges over email about research activities between the consortium members. The launching workshop was prepared and organised by the consortium in Cotonou on January 2018. Two follow up meetings and five steering committee meetings were organized. There was also a progress report validation meeting. A secretariat has been set up in order to ensure regular reporting. Several field missions have taken place.

Consortium Partners

- [AquaDeD-NGO](#) (Benin)
- University of Abomey-Calavi – Faculty of Agronomics Sciences (Benin)
- Benin Federation of Fish Farmers – FENAPIB (Benin)
- [Wageningen University and Research – Food Quality and Design](#) (Netherlands)

Contact person

Ibrahim Imorou Toko
tokoshola@gmail.com

Project website

[F&BKP Research Project page](#)