Vietnam' Ministry of Agriculture and Rural Development (MARD)

SuPa

Koninkrijk der Nederlanden

Ministry of Economic Affairs, Agriculture & Innovation (EL&I) NL/VRF10/WSSD/1

Newsletter 4

Improving waste management for Pangasius culture in the Mekong Delta in Vietnam

SuPa aims to improve the sustainability, i.e. reduce environmental impact of the catfish sector.

SuPa is funded by contributing companies/institutions (See logos page 2), and through the Public Private Partnership Fisheries of Netherland's EL&I and Vietnamese' MARD.

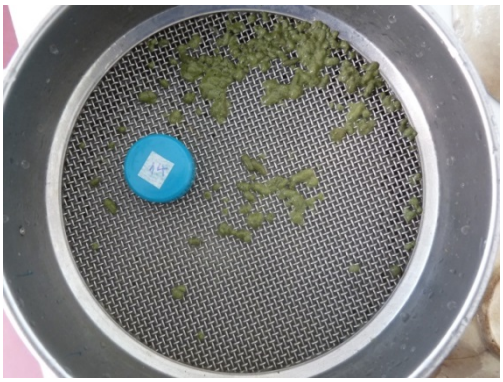
SuPa does research on improved feed (R-1) and water management (R-2) to safeguard fish health, and to maintain or improve yield and product quality. After the pilot and on-farm tests of the first result areas, researchers will analyze the mitigation of the environmental impact and the cost-benefit ratio (R-3). Thereafter the partners will prepare extension material (R-4).

SuPa's 3rd progress meeting, 10-12-2013

At the 3rd progress meeting held in Ho Chi Minh City, the scientists presented the research results which are summarized in this newsletter. Partners agreed, among others, on procedures for patenting the technologies and on an approach to establish contacts with the EU-funded SUPA. The latter two actions aim to protect the intellectual property rights of our work. The Dutch government funding for the SuPa project will be extended, without extra budget until end 2014.

Progress of R-1 on improving feed

The scientific team completed the experiments needed to determine characteristics of a feed that results in solid faeces. The present diets of pangasius result in faeces dissolving as a cloud in the water and dissolved nutrients are pumped in the river. Pelleted faeces can be recovered from the pond and nutrients recycled. In her last experiments Ms. Le Cam Tu observed for the first time faecal pellets from pangasius (Photo, right). The study provides the feed industry an extra criteria for making good pangasius feed.



Progress of R-2, reduce waste and improve water quality:

After the approval of the 2nd SuPa progress meeting, scientists of RIA-2 and AFI designed, together with a consultant, a pilot Recirculation Aquaculture System (RAS) in a 200 m^3 pond. The design uses air pumps and a central bio-filter (Photo, below). The sediment captured below the bio-filter is transferred to a three- step sedimentation tank (Photo, page 1)) from where the clean water is recycled to the pond.

The pond was stocked with 26,500 fingerlings of 16 gr on average. The fish reached an average weight of more than 700 gr within 190 days, using feed with at first 34% and later 28% protein. Each month, Nguyen Nhut sampled 30 fish to estimate the growth.

Compared with the conventional ponds monitored last year, the preliminary results were promising:

- Survival and average growth were higher;
- Water used per kg fish growth was reduced by over 90%;
- Discharge of N and P were 12 and 25% only;
- Feed use was much lower, and most of the energy cost was compensated for by the lower use of chemicals.

Harvest was delayed because of the fish having off-flavour. The next research phase will test strategies to prevent off-flavour. Starting the 4th month the sludge was removed regularly to prevent ammonia levels becoming too high. Tests for the recycling of this concentrated sediment started.

Vinh Hoan company will build a RAS of 0.5 ha at the end of 2013. The system will have two grow-out ponds and one sedimentation tank. First harvest is scheduled for September 2014. The R-1 team will design a feed for the on-farm pilot RAS to test the overall system performance by R-1, R-2 and R-3 scientists.

R-3, economic feasibility: The data collection for the baseline is completed. Before the R-2 pilot ends in December, Ms Ngoc will collect information on the perception of the RAS from a sample of small- and large-scale farmers, and from experts. The small-scale farmers are selected from the ones she interviewed for the base-line data in the 1st trimester of 2013.

R-3, environmental impact: The PhD student from Ghent University, Ms Trang, is preparing the comparative environmental impact assessment of both RAS and feed with the conventional system.

R-4, Dissemination: The making of the video to disseminate SuPa's results has started. The images and interviews taken on the experiments of R-1 and R-2 were shown and commented at the 3rd progress meeting. Two Vietnamese TV stations have already accepted to broadcast it.

Project partners and contributing parties

Wageningen University (WU), Aquaculture &Fisheries (AFI), project leader: Verreth Johan (director), Bosma Roel (manager), Verdegem Marc (aquaculture systems), Schrama Johan (fish nutrition);

WUR outside WU/AFI: Willem vander Pijl (WU/LEI: value chain), Meuwissen Miranda (WU/BEC: farm economy);

EU partners: Jo Dewulf (Ghent University, Belgium: Life Cycle Assessments);

Vietnamese partners: FITES, Nguyen Tu Cuong (local coordination and contact with MARD), Research Institute for Aquaculture No2 - RIA-2, Nguyen Van Hao, Nguyen Nhut (R-2); Can Tho University, College of Aquaculture & Fisheries, Nguyen Thanh Phuong, Tran Thi Hien, Le Cam Tu (R-1).

Contributing companies: Vinh Hoan (Nguyen Ngo Vi Tam),Queens Products BV (Harry Hogendoorn), Marine Harvest (Depestele Geert), Provimi-Vietnam (Hang Dao Thi Thu), De Heus (Salden Nic).

More information on-line: http://www.wageningenur.nl/en/Expertise-Services/Chair-groups/Animal-Sciences/Aquaculture-and-Fisheries/Research/Projects/Show/SuPa.html