The Nutritious Pond Project

Newsletter #3, July 2016

Recent Activities

Since April, the project moved forward:

- During a multi-stakeholders' workshop Can Tho University College of Aquaculture and Fisheries (CAF) and Wageningen University (WUR) conducted a *Rapid Appraisal of Aquaculture Innovation Systems* to explore constraints and enablers to innovate in the shrimp aquaculture sector in Vietnam

- Immediately following the workshop, the team composed of CAF students, and supervised by WUR and CAF researchers, facilitated the initiation of the Nutritious Pond Innovation Platform. The platform provided an arena to discuss and organise the field trials

- Field trials started in late June at extensive and semi-intensive shrimp farms. Trials in intensive and supper intensive systems will be launched in late July 2016 at Viet Uc farm

- From the fundamental research component of the project, Devi and Kabir continued to explore the results of their first experiments while also beginning the next experiments. Tinh who is now settled at Can Tho University is now setting up his first experiments

Rapid Appraisal of Aquaculture Innovation Systems (RAAIS)

The RAAIS is an integrated approach to understand complex agriculture/aquaculture problems that look at constraints and enablers of innovation from a multi-dimensional (biophysical, economic, institutional, socio-cultural, political) and multi-level perspective[1] . Previously used in agriculture, it is the first time this approach is being applied in the aquaculture sector.

Within the Nutritious Pond project, the RAAIS is aimed at identifying and analysing constraints and opportunities to develop new production systems for sustainable intensification of shrimp aquaculture in the Mekong Delta. The workshop gathered extensive and intensive farmers, NGO representatives, representatives of certification bodies, extension services from Soc Trang and Bac Lieu provinces, researchers from RIA 2 and Can Tho University (College of Aquaculture and Fisheries and Social Sciences), as well as private sector representatives from Vemedim, Skretting and Viet Uc. In total 23 participants joined the 1-day workshop

Working in groups and in the plenary session, the participants identified the main constraints to sustainable intensification of shrimp farming. Discussions between the different groups led to the identification of the following constraints:

- Lack of quality control (post larvae, chemicals and additives) enforcement was one of the most important issues identified by the participants:
- Sustainable intensification can be achieved only if an efficient disease-management plan is developed and efficiently implemented, with special attention to regulating waste water discharge
- Farmers' awareness of good practices and pond management is currently too low to achieve sustainable intensification, leading to the use of banned products. One issue identified was the presence of numerous and contradicting sources of knowledge for small-scale farmers leading to unsustainable practices
- Coordination along the value chain was found weak and should be improved to facilitate information about market prices and support integration of smallholders with processing companies and to improve the quality of the products for the export market
- Finally, developing production systems resilient to current and future climate variability are necessary to reach sustainable intensification

[1]See for further details Schut et al. 2015. RAAIS: Rapid Appraisal of Agricultural Innovation Systems (Part I). A diagnostic tool for integrated analysis of complex problems and innovation capacity. Agric. Syst. 132, 1-11.


Once constraints where identified and analysed, the workshop participants identified opportunities to remove them in order to achieve sustainable intensification of shrimp farming.

The RAAIS workshop was followed by a series of in-depth interviews with different stakeholders of the sector. Olivier and Khoa met with farmers, local extension services, processing factory manager, NGOs project manager and other private sector representative throughout the Mekong Delta to further discuss the findings of the workshop.

Data collected during the RAAIS will be analysed in the coming weeks and analysis and findings summarized in a report

Innovation Platform initiation

Back to back with the RAAIS workshop, CTU CAF and WUR initiated the Innovation Platform around the Nutritious Pond System. The same participants as in the RAAIS joined the platform's launch. During this workshop, the participants expressed interest and shared the vision they have for the project.

Nutritious Pond Innovation Platform Vision

"The Innovation Platform will support the development of the Nutritious Pond system and foster exchange and cooperation between the different stakeholders. The Nutritious Pond system will use less inputs and chemicals, reduce dependency on fish meal and fish oil, lower environmental pollution and increase farmers' profit margin without lowering productivity. It will allow a sustainable production of high quality products and create a more resilient pond environment with shrimp less prone to disease. The Innovation Platform will provide robust evidence of effectiveness of new technology that will lead to new regulation and policy and spread the technology."

The participants also discussed their role and interest in the project and how they can contribute to the platform. For example, the Aquaculture Division at the provincial level is interested in technology that can be adopted by extensive farmers and offered their support in facilitating field trials and, later on, the diffusion of new technology.

Finally, the different stakeholders' groups defined their requirement regarding the Nutritious Pond System and identified key indicators to evaluate the performance of the trials. The requirements ranged from specific storage characteristics for the carbohydrate for farmers, technical requirements such as no additional aeration system or its capacity to be adapted to different production systems (private sector) and requirements regarding productivity and economic return compared to the current systems. The different requirements were later translated into quantitative and qualitative indicators that will be used to assess the trials.

Field Trials

By the end of June 2016, farmers were ready to stock PLs provided by Viet Uc and start farm experiments. In total 2 extensive ponds were stocked with 9 PL/m^2 while 3 rice-shrimp ponds were stocked at 30 PL/m^2. The farmers applied both conventional pelleted feed provided by Skretting and carbohydrate powder composed of rice bran and cassava. In those trials the amount of pelleted feed was reduce to 75% of the recommended amount. The carbohydrate powder is supposed to boost the pond's natural productivity thus providing feed to the shrimp. We will compare (from economy and productivity points of view) the trials' ponds to 'control 'ponds' where famers apply their routine practices.

The trails are supposed to last around 110 days (expected harvest in early October). Both Skretting and Can Tho University will support the farmers with technical advice and monitoring of water quality's parameters and growth.
In addition, Viet Uc will start experimeningt using the Nutritious Pond system in August 2016, stocking 2 ponds at 200 PL/m^2 and 2 ponds at 400 PL/m^2. The results of these experiments are expected in November/ early December and will be compared to their existing practices

Research Actvities

Tran Huu Tinh, Vietnam

Tinh is now setting up is first experiments at Can Tho University. He will look at the effects of carbohydrate addition on microbial activity and algae production, water quality and performance of shrimp culture.

The experimental design includes 3 different feed loads and 3 different C/N ratio to be tested in a controlled environments (tanks) on P. vannamei stocked at 120 PL/m3.

Each of the 9 treatments will count 3 replications and the expected grow out period is 8 weeks. The experiment will inform how nutrient's richness influences the contribution of bioflocs to water quality maintenance, shrimp production and nutrient's efficiency.

Planned Activities

- Pond trials in intensive and super intensive systems to start by late July, early August

- End of August 2016, mid-term evaluation meeting in Can Tho, with the project partners

- Preliminary research results from Devi, Kabir and Tinh available by October/November

Contact

Marc Verdegem, *Aquaculture and Fisheries Group*
Wageningen University, The Netherlands
marc.verdegem@wur.nl

Olivier Joffre, *Knowledge, Technology and Innovation Group*
Wageningen University, The Netherlands
olivier.joffre@wur.nl