CIBA –NAU Collaborative Research Project

RESEARCH ACCOMPLISHMENTS

Collaborative project on Brackishwater Aquaculture

A Memorandum of understanding was signed on 22nd July 2009 between Central Institute of Brackishwater Aquaculture, Chennai and Navsari Agricultural University, Navsari in order to develop location specific culture technologies for brackishwater aquaculture in Gujarat.

The brief description of the outputs generated through the collaborative project as as follows:

1. **A model brackishwater farm** comprising four ponds of 0.16 ha each with two reservoirs (0.14 ha each) and one effluent treatment pond (0.03 ha) were constructed with all the biosecurity measures like five stage filtration of intake water, bird fencing, crab fencing, dog fencing *etc*.
2. **A full survey of brackishwater aquaculture practices** and the constraints faced by the aqua-farmers of Gujarat
3. The research trials and demonstrations carried out under the collaborative at the Coastal Soil Salinity Research Station, Danti-Umbharat are summarized as hereunder.

1. SPECIES DIVERSIFICATION AND DEMONSTRATIONS AT FARMERS' FIELD

1.1. BANANA SHRIMP

Three crops of banana shrimp culture during different seasons were taken at Danti farm, NAU and the standardized technology was successfully demonstrated at farmer's field (3 demonstrations).

1.2. ASIAN SEABASS

Two culture trials at Danti farm have shown the potential of seabass as candidate species for diversification in aquaculture.

1.3. PEARL SPOT

Through pond and cage culture trials at Danti farm the species have shown the potential to be cultured at high stocking densities in floating cages and under saline water conditions also.

1.4. MILKFISH

Monoculture of milkfish was carried out at Danti farm as well as successfully demonstrated in five farmer's pond in Surat district. Also, every year, as per the farmer's request, nearly 50,000 – 60000 milkfish fish seed were distributed to the farmers.

1.5. SEABASS NURSERY REARING TECHNOLOGY

Seabass nursery rearing technology was demonstrated successfully at farmer's pond, Onjal village, Navsari district using hapa.

1.6. COBIA CULTURE

Seeds of Cobia fish are stocked at farmer's pond, Onjal village, Navsari district and the culture is under progress.

2. POND MICROBIOLOGY AND DYNAMICS

The study suggests the role of microbial processes in maintaining healthy pond environment.

3. PROBIOTICS STUDY

Experimental trial study on reduced probiotics usage and the pond microbiology study as revealed that there is an ample scope of reduction in usage of probiotics in different *L. vannamei* culture systems thus reducing the cost of production.

4. MINERALS STUDY

The field level study showed that there is ample scope of optimizing mineral inputs in *L. vannamei* culture. Analysis of the minerals in source waters from different shrimp farming sites is under study.

5. IMMUNOSTIMULANT TRAIL AND DEMONSTRATIONS

The immuno-stimulant was experimented at Danti farm and demonstrated at farmers' field covering 355 ha shrimp farming area (26 demonstrations). The technology is commercialized by CIBA to Rajshree Biosolutions, Coimbatoire. Tamil Nadu on exclusive basis.

6. POND SOIL AND WATER MANAGEMENT

6.1. Soil profiling and characterization

About 128 cores were collected from four ponds with the fabricated core soil sampler. The samples were analyzed for basic physico-chemical parameters and minerals/metals.

6.2. Analysis of abiotic parameters of soil and water in shrimp and fish culture

Abiotic parameters were analyzed fortnightly under different farming systems and correlated with other production parameters.

7. ICT TOOLS

Information needs in shrimp culture, fish culture, cage farming, women development programmes, government schemes for women and tribal community, aquaculture/fisheries databases and extension materials/programmes were identified.

8. BAGASSE TECHNOLOGY

Experimental trials on bagasse technology were taken at Danti farm, NAU and were successfully demonstrated at farmers' field (2 demonstrations).

9. WHITE SPOT SYNDROME VIRUS GENOTYPING

Genotyping of WSSV isolates based on RU patterns of VNTRs suggest that, some distinct genotypes of the virus are circulating in Gujarat and are distinct from the isolates reported from southern part of India.

10. HALOPHYTE CULTIVATION

10.1. Identification of halophyte for coastal areas

Salicornia brachiata is found to be suitable for cultivation under salt affected soil conditions. A Package practices were developed for farming of *Salicornia brachiata.*

10.2. Use of shrimp discharge water for halophyte cultivation

Through use of aquaculture shrimp pond discharge water nutrients requirement of the crop can be satisfied to some extent thus saving on fertilizer inputs and there is no adverse effect on soil quality.

11. TRANSFER OF TECHNOLOGY

11.1.	Seminars/Workshops/Interaction meet	18
11.2.	Trainings	07
11.3.	Farmers' days	06
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12. LABORATORY DIAGNOSTIC SERVICES TO FARMERS

Diagnostic services were provided to the farmers in the aquaculture diagnostic laboratory established under the project. The facility is used by the farmers from nearby and far off places regularly. In last four years (2011-15), total 7017 samples have been analyzed (1722 soil samples, 3598 water samples, 1330 microbial and 236 PCR samples for WSSV disease)

13. REVENUE GENERATED

(i) Laboratory diagnostic services – Rs. 2,55,949.00 (Year 2012-2015)

(ii) Aqua-farm produced from Danti (Umbharat) – Rs. 21 lakh

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