Transformation of Fish Culture through Transfer of Technology

Category: Fisheries

Most Significant achievement/Success story type: **Demonstration and Extension**

A Project titled “Establishment of Regional Fisheries Research and Extension Centre for fisheries technology transfer and improvement of fish production” at Barur, Krishnagiri District was sanctioned under RKVY 2014-15 at an outlay of Rs.1.21 Crore.

Problems identified:

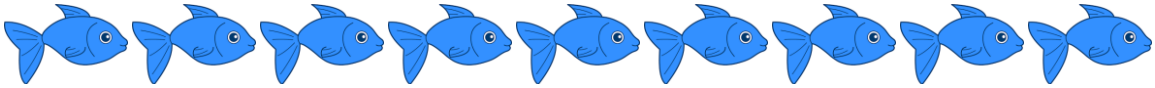
a. Lack of scientific knowledge on fish culture among the farmers
b. No model farms to teach fish culture in this region
c. Low levels of fish fingerling supply to the farmers-The fish fingerlings of Carps are sourced by the farmers from the nearby State Andhra Pradesh. The seed farms located in the district could satisfy only 25% of the fingerling requirements.
d. The ponds in **Krishnagiri area** have water only for limited period of 5-6 months in a year and one crop of fish needs to be taken up within this period

Opportunities

a. The Farmers of this area are interested in captive culture of Tilapia
b. There is heavy requirement for carp fish seeds.
c. More number of shallow water bodies amenable for fish culture

The Way out:

- The Tamil Nadu Fisheries University, under National Agriculture Development programme proposed to find a solution to the problems faced



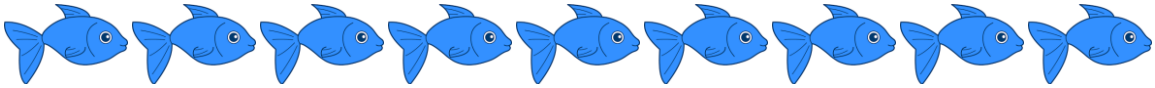
by the farmers by creating necessary infrastructure for scientific seed/fingerling production of Genetically Improved Farmed Tilapia (GIF Tilapia), Carp and other native species of Fish in Barur, Krishnagiri district.

- Genetic upgradation of tilapia and carp for the benefit of aquaculture development and farmers livelihood improvement in the region is the basis for the proposal.
- Through a series of trainings, carrying forward the technological breakthrough in Tilapia and Carp culture for the benefit of farmers

Initiatives taken:

Tamil Nadu Fisheries University, which is keen to take the technology to farmers and work with them closely to mitigate their problems, proposed to establish a Regional Fisheries Research and Extension Centre for fisheries technology transfer and improvement of fish production" at Barur, Krishnagiri at an outlay of Rs.1.21 Crore. It was proposed to create necessary infrastructure for producing the fingerlings/seeds of Tilapia, Carp and other native fish and to create training infrastructure to train maximum number of farmers. The technology for all male tilapia production using sex-reversal which had been perfected at the laboratory level needed to be taken to the field for inland fish production and improve the revenue of fish farmers of Krishnagiri and Dharmapuri districts. After sanction of funds the following activities were taken up.

- Hatcheries and Brood Stock ponds have been created in an area of 1.00 Ha.
- Nursery and rearing ponds have been created in an area of 1.50 Ha.
- A Chinese hatchery unit and breeding tanks have been created.



- To educate the farmers in scientific fish farming, a series of training programs were conducted in which 123 farmers have been benefitted
- In addition to this, the scientists and staff of this Centre have so far made 41 direct farm visits to provide technical guidance on the construction of ponds for fish culture.
- The constraints faced by the farmers like lack of fingerlings, technical guidance, marketing were addressed and fingerlings were supplied to the farmers.
- Technical guidance is continuously provided through trainings, farm visits, mobile phone and internet facilities.

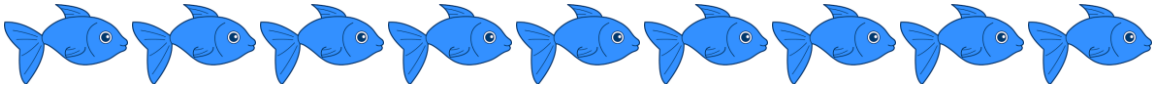
Key Result:

Within One Year of its establishment, the Centre has been instrumental in helping 25 farmers to establish their fish farms. In total, 12.5 Ha area has been additionally brought into fish culture. This has resulted in additional production of 31MT of inland fish production. The benefits of Scientific fish culture is quite visible and the success has started to spread and the farmers from as far as Namakkal and Coimbatore districts are enrolling here for undergoing trainings and source their seeds from this Centre.

Detailed Economic Analysis of Fish Culture by Farmer Shri.Shankar

Capital Cost

Items	(in rupees)
Land	200000
Pond excavation	35000
Pipe lines	5000
Well	100000
Pumps and motors	50000
Nets	30000
Others(coracle -feed purpose)	2500
Total	**412500**



Fixed Cost

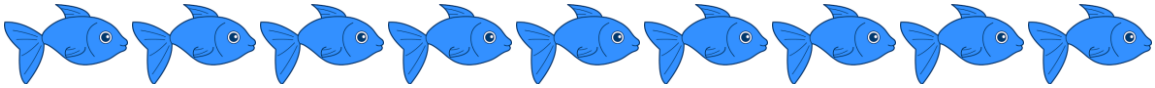
Items	(in rupees)
Depreciation for capital items (5%)	
Motors	2500
Net	1500
Well	5000
Interest on fixed capital (10%)	41250
Repair and maintenance	5000
Salary to permanent staff	35000
Watch and ward	20000
Total	**110250**

Variable Cost (per crop)

Items	(in rupees)
Pond preparation Liming	1800
Desilting, ploughing, levelling	10000
Organic manures (cow dung)	1000
Inorganic manure ($kmno_4$)	3500
Seed	20000
Feeding	24750
Labour wages	2800
Harvesting charges	3200
Transport cost	3000
Sampling	1000
Total	**71050**

Yield and returns

Items	(in rupees)
Whole sale (2900kg @Rs-80/kg)	232000
Local sale (250kg @ Rs-100/kg)	25000
Total (gross returns)	257000
Total cost (TFC + TVC)	181300
Net returns (GR – TC)	**75700**
BCR (GR / TC)	**1:1.41**

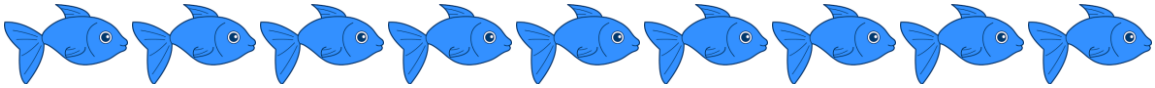


Impact:

- The farmers have begun to implement scientific technologies in stocking, fertilization, and feeding and disease management.
- The farmers gained knowledge on the biology of fish, their culture technology and feeding.
- Their attitude towards fish farming has changed positively
- Through training and demonstration, farmers attained skill in feed preparation, water quality management and pond preparation.
- Through this project, 25 farmers have established their own fish farms and gained 30 % additional income in addition to revenue from regular farming activities like agriculture and animal husbandry.
- Many farmers feel that these technologies should be taken to farmers of other parts of the State also wherever shallow water bodies are available.
- This project has created an impact to such an extent that fish culture which was once an allied activity has turned into the main activity and agriculture the secondary for many farmers.

Lessons Learned:

Successful implementation of any project requires that the process followed should be a consultative one and all the stakeholders must be taken into confidence. Particularly, farmers, who are the ultimate beneficiaries needed to be convinced in the first place. The local public who feared that the fish culture will spoil their agricultural land and ecosystem had to be convinced through farmers meetings. Awareness meetings conducted on the benefits of scientific methods of fish culture and the role of the project in the improvement of employment and economic status of the farmers in this region had very good response and interested farmers came forward to be the trainees under the programme. Initially, the process of adoption of new technology / scientific method of fish farming was indeed slow. However, hope was there in the form



of the successful farmers who acted as the torch bearers and vouched for the success. This has made many farmers realize the benefits and this has evoked voluntary response.

This Centre, based on the survey made in the area has started to work on identification of locally available low cost feed for fish culture as the feed component constitutes much of the variable cost.

If this training is scaled up, more number of farmers will be encouraged to take up fish culture in inland water bodies and the burden on marine fisheries will ease out during the lean periods.

Quotes from those who tasted Success:

1. Name : Mr.S. Mariappan

Address: No. 1/157, Keelaveedhi,Barur, Pochampalli taluk, Krishnagiri district- 635201

I am Mariappan, and I belong to an agriculture based family. I have been involved in agriculture since my childhood. I was exposed to fish farming through fisheries training. I was able to get hold of a coconut plantation of size 3 acres and 60 cent with ponds at a minimal lease amount. A newspaper article on the success story of a farmer who obtained a profit of Rs.20000 from a 6 cent pond also inspired me to improve the ponds. The Regional Research centre, Barur was established in 2014. I attended a training programme there and also obtained technical guidance from the scientists at the farm. I also visited the model farm established under NADP inside the centre which helped me to carry out fish farming in scientific ways. I developed two fish ponds with a dimension of 125 ft x150 ft x 6 ft .Both the ponds were applied with a basal organic fertilizer dose of cowdung and one of the ponds was stocked with 5000 seeds of Catla, Rohu, mirror carp and grass carp of 1-1.5 inches size purchased for Rs.2200 from fish seed farms. The other pond was stocked with 5000 tilapia seeds purchased

from the Barur centre for Rs.1000. The seeds were fed with conventional feed comprising of rice bran, ground nut oil cake, cotton seed cake and fish meal for three months. Within three months, the seeds grew to a size of 5-6 inches. A profit of Rs.15000 was obtained from the sale of fingerlings to the Barur Lake at a rate of Rs.6 per seed in a period of 4 months. The remaining fingerlings were grown for a period of another five months when it reached a size of 750g – 1 Kg. Totally 1175 Kg of fishes were sold in the local market at a rate of Rs.95/Kg for carps and Rs.45/Kg for tilapia to obtain net profit of Rs.82375. In a period of one year, a total net profit of Rs.97375 per acre was obtained. In addition, I have a satisfaction that I am able to provide employment for two basic labourers. Presently I am engaged in monosex tilapia culture only.

"Catch me if you can" –  ***"Hey! You are being reared only to be caught"***

2. Name : P.Shankar
Name of the Farm : Pachai Amman Farm
Address : Pannandur
Farm total area : 2 acre
Water spread area : 1.5 acre

I have been engaged in fish farming for the past five years. Due to erratic rainfall and failure of monsoon, I took up this allied activity. But due to the traditional practices that I followed and the struggle to get the fish farm according to the season from nearby States, I ended up with meager profit and even incurred losses some times. But after undergoing training at the Regional Research Centre, Barur I wanted to give scientific fish farming a shot and there has been no looking back. My success has given me the confidence that I have now started to advice other fish farmers in the area to go for scientific fish culture methods.

Shankar feels "I feed them adequately but they in turn benefit me abundantly"

The Hatchery – "Come in as Eggs and I will send you out as Hatchlings"

See Boys! Fishes do take care of their off springs- Mamma's kids safely inside her mouth

Additional Information:

1. List of Project partners who supported the work

a. State Fisheries Department – Creating linkage with farmers

b. Revenue Department - Providing a part of the land

c. Public Works Department – Providing water resources for the ponds

d. National Fisheries Development Board – Funding support for further trainings

2. Link to supporting materials

a. You tube Link to Video clip of the RFREC, Barur

https://youtu.be/voeyVZ5PmUQ

b. Web Link to Power point Presentation on Tilapia Culture

http://www.powershow.com/view/115325-MjhmM/TILAPIA_CULTURE_powerpoint_ppt_presentation

http://www.tawdeva.in/Nadp_photo.html

திலோப்பியா மீன் வளர்ப்பு இலவச பயிற்சி

போச்சம்பள்ளி, மே 31: போச்சம்பள்ளி அருகே உள்ள தமிழ்நாடு மீன்வளர்ப் பல்கலைக்கழக ஆராய்ச்சி மையத்தில், ஜூன் 2ம் தேதி திலோப்பியா மீன் வளர்ப்பு குறித்த இலவச பயிற்சி வழங்கப்படுகிறது.

இதுகுறித்து திலேப்பியா ஆராய்ச்சி மைய தலைவர் தெம்பரம் கூறியதாவது: போச்சம்பள்ளி வட்டம், புங்காம்பட்டி கிராமத்தில் வரும் 2 தேதி தமிழ்நாடு மீன்வளர்ப் பல்கலைக்கழகத்தின் கீழ், திலேப்பியா மீன் ஆராய்ச்சி மையம் செயல்பட்டு வருகிறது. இந்த மையத்தில் மீன் வளர்ப்பை அதிகரிக்கும் நோக்குடன் திலேப்பியா மீன் வளர்ப்பு தொழிற்நுட்பத்தினை அறிமுகபடுத்தும் விதமாக கிருஷ்ணகிரி, தருமபுரி மற்றும் அதன் சுற்றுவட்டார பகுதிகளை சேர்ந்த மீன் பண்ணையாளர்களுக்கு அறிவியல் சார்ந்த முறையில் திலேப்பியா மீன் வளர்ப்பு குறித்த, ஒரு நாள் இலவச பயிற்சி முகாம் நடைபெறுகிறது. இந்த பயிற்சி முகாமிற்கு கட்டணம் செலுத்த வேண்டியதில்லை. பயிற்சி காலை 10 மணி முதல், மாலை 5 மணி வரை நடைபெறும். மீன் வளர்ப்பில் விருப்பம் உள்ளவர்கள், பண்ணையாளர்கள் உடனடியாக தங்களது பெயர்களை 04341-254321 என்ற தொலைபேசி எண்ணில் தொடர்பு கொண்டு முன்பதிவு செய்து கொள்ளலாம் என்று அவர் தெரிவித்தார்.

http://epaper.dinakaran.com/index.php?rt=print/printActio

Tilapia Fish Culture- Free Training

Pochampalli, May 31: The Tamil Nadu Fisheries University Research Centre near Pochampalli offers a free training on Tilapia Fish Culture on 2nd June.

Dr. Chidambaram, Head of the Research Centre said “The Regional Research Centre of Tamil Nadu Fisheries University is situated in Pungampatti Village of Pochampalli Taluk. This Centre with an aim to encourage fish culture and to introduce Tilapia fish culture technology, proposes to give free trainings of one day duration on Scientific Tilapia Fish Culture to the fish farmers of Krishnagiri and Dharmapuri districts. The training will be from 10 am to 5 pm. Those who are interested in fish culture and those who are already engaged in fish culture may register their names by contacting the number 04341-254321

TNFU Newsletter

TAMIL NADU FISHERIES UNIVERSITY

Vol. 02 Issue 11 - 01 Rs. 2.00 July - September 2015

Agricultural Scientific Society briefed the importance of developing E content in Tamil. Mr. Tamil Paruthi, State Coordinator, Tamil Virtual Academy highlighted the importance of Tamil globally.

The University Officers Dr.Sugumar, Dean, FCRI, Thoothukudi ,Dr.Senthilathiban, Director, Fisheries Staff Training Institute, Dr.Karal Marx, Dean, Faculty of Basic Sciences ,Dr. D.Sukumar, Director, CeFiMaPP offered felicitations. Dr.V. Rani, Asst. Prof. proposed the vote of thanks. The teaching faculty and graduate students of the University, numbering over 100 had participated in the workshop and involved in the preparation of technical terms and explanatory notes during the Three - days workshop.

Republic day celebrations

Nagapattinam campus :

The 67th Republic Day was celebrated with gaiety and pomp at the TNFU head quarters on 26.01.2016. Prof. Baskaran Manimaran, Vice – Chancellor hoisted the national flag and delivered the Republic Day address. He called upon the staff and students of the university to strive their best for the development of the university so as to enable it to make dedicated contribution for the development of the country.

Thoothukudi campus :

The 67th Republic Day was celebrated in a grand manner at the FC&RI, Thoothukudi on 26th January. Dr.G.Sugumar, Dean unfurled the National Flag and delivered the Republic Day address. He also presented awards to selected staff for their outstanding performance.

Training on Tilapia and Carp Farming

An NADP-sponsored training programme on "Tilapia and carp farming" was conducted by the Tilapia Research Centre, Barur on 09.02.2016. A total of 25 farmers attended the programme. The training programme was inaugurated by the Dr. M. Karthikeyan, Deputy Director of Fisheries, Dharmapuri region, and he also released a pamphlet on "Health benefits of tilapia for human beings". Dr.P.Chidambaram, Associate Professor and Head of the centre conducted this programme.

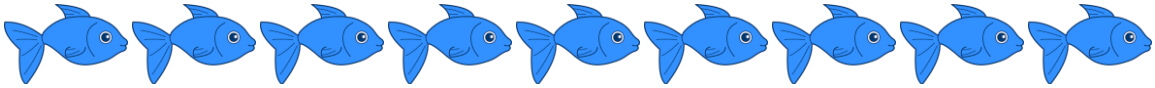
Training on Statistical Data Collection Methods

A training programme on "Statistical Data Collection Methods" funded by the State Fisheries Department, Chennai under FIMSUL - II, a world bank funded programme, was conducted at the F.C.& R.I., Thoothukudi from 08.02.2016 to 12.02.2016. Mr. R. Amal Xavier, Joint Director of Fisheries inaugurated the programme. Dr.G. Sugumar, Dean of the College delivered the presidential address and released the training manual on "Fisheries Statistical Data Collection".

A total of 28 participants from Tamil Nadu State Fisheries Department attended the training programme. Dr. P. Jawahar, Professor, Department of Fisheries Biology and Resource Management was the co-ordinator of this programme.

Faculty Development Programme

A "Faculty Development Training Programme" for the newly recruited faculty of TNFU, organized by the Fisheries Staff Training Institute(FSTI) , TNFU was conducted at the F.C.& R.I., Thoothukudi from 15.02.2016 to 19.02.2016. In the inaugural function, Dr.R.Senthiladeban, Director, FSTI welcomed the gathering. Dr.G.Sugumar, Dean, F.C.& R.I, Thoothukudi delivered the presidential address. Dr.G.Sanjeeviraj, Professor and Head



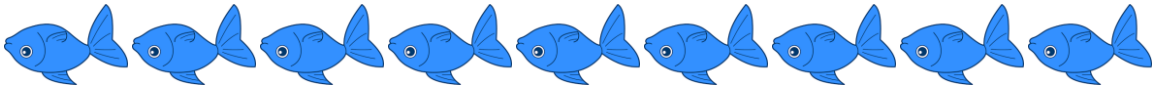
3. Contact Person:

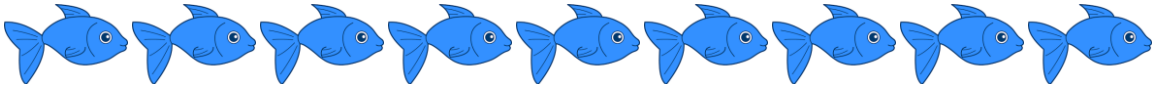
Dr. P.Chidambaram
Associate Professor and Head
Regional Fisheries Research and Extension Centre, Tamil Nadu Fisheries University, Barur
Office: 04341 254321; 9952236193
trcbarur2014@gmail.com

4. Some Interesting facts about Tilapia Fish Culture:

Nile Tilapia are stocked in the brood stock pond in the farm and eggs are collected from them. It is highly fascinating to see the female fish carrying some 200 to 300 eggs in their mouth. In the hatchery, the eggs are collected and incubated in jars with continuous water supply. All the seeds are converted to male by giving 17 α-methyl testosterone hormone impregnated feed for 21 days to get all male population. This is done to get maximum body weight as the male fish grow faster and gain around 300 gm body weight in 3 months. Research has shown that there is no residual effect of the hormone. It has been proved by the Radio Immuno Assay technique that there is no residual hormone and is safe for human consumption.

Unlike most other fish species, tilapia are able to consume minute phytoplankton that they filter out of the water. For this reason, expensive, commercial feeds are not necessary to achieve growth and nutrient-enriched water ("green water"), produced by the addition of animal manure as fertilizer, is sufficient to achieve a marketable fish.





10. Checklist

No.	Question to consider	Yes	No
1	Is the story interesting to the target audience of the project/activity report?	Yes	
2	Does the story explain what new insights the project brings? What is the main lesson learned from this story? Does the story describe a key insight on what works and what doesn't and something that future project could build on	Yes	
3	Does the story describe the outcomes the project produced and the people who are benefitting? What changes–in skills, knowledge, attitude, practice, or policy–has the project brought, and who is benefitting from these changes?	Yes	
4	Does the story make a compelling point that people will remember? Does the story show how the project makes a difference to improving livelihoods and lessening poverty?	Yes	
5	Does the story provide an interesting fact that people will remember? For example, how much yields increased, how many hectares of land could become more productive from this innovation or technology?	Yes	
6	Does the story explain what kind of impact this innovation or technology could have if scaled up?	Yes	
7	Does the story show which partners contributed and how?	Yes	
8	Does the story include quotes from Stakeholders or beneficiaries?	Yes	
9	Have I provided links to other media (journal articles, website news, newsletter, blogs, annual reports of other Programme/ project) that also feature this story?	Yes	
10	Have I provided the contact details of people who can provide more information?	Yes