



AGRONICA

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FOCUS : FISHERY SECTOR

Centre for Agri-Management, Department of Business Administration, Utkal University



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Agriculture to Agribusiness:

The Centre for Agri-management (CAM) is successfully functioning under the Department of Business Administration, Utkal University, Bhubaneswar since 2006.

The Centre is first of its kind in Eastern India. The Centre is engaged in academic, research and consulting activities in the field of agriculture and allied sectors, and is catering to various organizations in both private and govt sectors.

Apart from the regular course work, The Centre also organizes thematic seminars round the year which brings in various stakeholders in Agriculture under one roof for generating and sharing ideas for the development of Agri & Allied sectors in the state. The Centre recently concluded a one day National Seminar on "Agribusiness Potential of Odisha" under the "Agri4Odisha" theme.

Govt of India has launched BGREI (Bringing Green Revolution to Eastern India) to tap the agricultural potential of Eastern Indian states which have been traditionally following the rice based cropping system. Despite the fact that these states have plenty of natural resources and requisite manpower, they have somehow not been able to compete with the states like Punjab, Haryana or Andhra Pradesh in terms of productivity and were left out in the race in the first Green revolution that took place earlier. Govt hopes that with the special effort under RKVY the missed opportunities can be harnessed now. It will be definitely possible if all the stake holders which comprises of the Central Govt, State Govts, Farmers, Research and extension organizations and non govt bodies come together with a common goal of achieving the desired output. As Agriculture is transforming itself into Agribusiness across the globe we cannot afford to stay behind. It is imperative for us to bring together all the discussed stake holders and also the corporate sector to bring about the change. We at Centre for Agri-Management, Utkal University strive to bring in excellence not only in agribusiness education but we have been fairly active in creating a platform where all the stakeholders will have a plenty of space to contribute towards development of agriculture and agribusiness.



Editorial

Sustainable livelihood of the small and marginal farmers of Odisha is now the concern of the state Government. The Present average monthly house hold income of around Rs.7,000 needs to be doubled through enhanced income and employment by providing climate resilience agriculture and allied activities to the small and marginal farmers.. Among the allied sectors, aquaculture is the sunshine sector. Since last 5 decades it is credited with contribution of about 6 % to-wards sustained economic growth . The sector has moved from small scale backyard farming in sixties to an organised and commercialised farming.. The growth of the sector has been driven by adoption of modern technologies and innovations..The state has the liability of about 80% marginal and small farmers whose sustainable livelihood is its the responsibility .. The fishery sector can come to the rescue .As evinced from field survey one acre of fishery can generate 3 units of employment and net income of Rs.1,00000 per annum.. As per demonstration In Living laboratory of the Agri business management in the University campus about 600 kg of Rohu and Katla are produced within a period of 6 months in 1200 square feet pond generating an amount of Rs.10,000 with one unit of employment.It bis suggested that In small scale the small farmers can take up Rahu,Catla and Telapia fish production to supplement family income.. Also for self employment they can take up Fish feed hatchery,Fresh water prawn culture,.and Ornamental fish culture. Marketing of fish is not a problem as the traders lift the production from the harvesting site. The cost benefit ratio comes to about 2.00. The fishery policy aims at creating 15,000 hectre water area for inland fish production in inland districts .The policy also declares a slew of subsidies for fish production from the pond preparation till marketing of fish. Subsidies are 20% for construction of water pond ,25% for inputs i.e fish seed ,feedfertilizer and manure and seedlings .25% for integrated farming with poultry,piggery,fresh water prawn,duckery and 30% for infrastructure development. The aquaculture enterprises offer a profitability of 50 to 80 % over working capital expenditure. By taking into consideration of fixed capital, the payback period is about 3-5 years. A freshwater carp ponds of 1 ha produces 6 tons of fish at a cost of Rs 3.6 lakh with a return is Rs 7.2 lakhs. . The preference of the consumers always is for locally live fish.Also the family consumption relieves marketing problem to some extent.. . With the average land holding of 1.0 ha, aquaculture has emerged as highly profitable and cash rich crop for farmers. The fishes can be harvested at any period of time to meet the cash need of the farm family. It , contributes significantly to the livelihood security of the poor households..



SCOPE FOR FISHERY IN ODISHA

In the context of growing demand for fish and availability of technology there is a huge scope for development of freshwater fisheries in Odisha.. At present, Government have taken up a mission to double the inland fish production from 2.63 lakh MT to 5.30 lakh MT tons by 2022.and to increase export to Rs.20,000 crores. The total fish production is of now 6.08 lakh MTs and export is around Rs.2204.78 crores. The Department proposes to take up massive horizontal expansion of culture areas and to enhance productivity from 2.00 tonnes to 5.00 tonnes/ ha. To achieve the target Government have come up with 'Odisha Fisheries Policy, 2015. With vast aquatic resources , the fisheries of Freshwater, Marine & Brackish water offer enormous scope to generate employment and income to promote sustainable livelihood in rural areas...

OPPORTUNITIES FOR FARMERS AND ENTREPRENEURS IN THE NEXT 13-15 YEARS AS BELOW

Enterprises	Present Level	Potential Level	Additional number of entrepreneurs required
Fish production (Lakh t)	3.3	8.0	50,000
Seed hatchery	126	200	200
Seed production (Million fry)	1350	2500	3500
Feed production (lakh t)	0.30	5.0	100
Trader and seller	1500	3000	1500
Technical services	200	500	300
Total			55,600

At least 50,000 entrepreneurs are required to fulfil demand for the fish production in Odisha. This shall be achieved within a period of 13-15 years which would roughly lead to 4000 to 5000 entrepreneurs per year.

Prof. Benudhar Bhuyan
(Advisor)
Centre For Agri-Management

FUNDS TO PROMOTE CAGE FISH FARMING IN HIRAKUD

The Fishery department has provided input assistance to primary Fishermen's Cooperative Societies (PFCSs) of Sambalpur, Jharsuguda and Bargarh districts to start cage fish farming in the Hirakud Dam Reservoir (HDR) through 50 cages.

These five PFCS are Mahanadi and Mohammadpur in Sambalpur district, Banrepat and Chourasi in Jharsuguda District and Tamdei PFCS in Bargarh District..

The fishery department came forward with financial assistance to these five co-operative societies to enable them to overcome the financial constraints to undertake fishing... To resolve the financial crisis the office of the Deputy Director Fisheries of , Sambalpur zone, had written to s higher authorities to provide input assistance worth Rs. 7.5 lakh under Rastriya Krishi Vikas Yojna to each of these PFCS to start cage fish farming in HDR.

Deputy Director of Fisheries, Sambalpur zone, Pabitra Kumar Behra said the Fisheries Department has already allocated to the tune of Rs. 37.5 lakh, for these five PFCSs. He also informed that they have already provided Rs. 7.5 lakh worth input assistance to Mohammadpur PFCS which released fingerlings to the cages recently after availing the fund. The other PFCS would be provided assistance shortly, as he said.

Behera further informed that the fisheries department has entered into an agreement with each of PFCS to carry out the cage fish farming for five years.

A Varanasi based cage manufacturer installed 50 cages in the HDR in December last year. The cage is enclosed on all sides with mesh netting made from synthetic material. The size of each cage is of five meters length, five meters width and four meters depth.

Apart from installation of 10 cages for each PFCS, floating storage sheds have also been installed at an estimated cost of about Rs. 25 lakh for each of PFCS.

Behera said fingerlings of fast-growing fish varieties like pangasius, tilapia, koi, amur carp and chital will be released into the cages. Around 3,000 fingerlings will be released into each cage and one cage will produce about 30 quintal of fish within eight months. Each PFCS will produce about 300 quintal of fish from the 10 cages and earn a net income of Rs. 15 lakh within period of eight months, he added.

Mr. Santanu Raj
(Faculty)
Centre For Agri-Management



CIFA DEVELOPS APPS TO AID FISH FARMING, GROW BIZ

The ICAR – Central institute of Fresh Water Aquaculture (Cifa) here has developed two Smartphone application to make farmers aware about fish farming and help them start their entrepreneurial journey as well as assist them in growing their business with the help of technology. The first app IndAqua, has been developed to help beginners know about fish farming and its method besides enlightening them on the ways to develop business. The other app, Treat My Fish, is for experienced farmers and is meant to help them in case they face problems, such as prevalence of disease in a fish. “ A farmer can take a photograph of an ailing fish and upload the same on the Treat My Fish app. Following this, our scientist will analyze and help the farmers with medicine and offer help to avoid the repeat. The IndApp is there to help budding entrepreneurs in the field of freshwater fish farming.” ICAR- Cifa action director Bindu R Pillai said. Pillai also said that scientist at Cifa are in the process of coming up with resilient species of popular fish “ Jayanti Rohu, which was a developed version of the fish, has now been further improved and made more disease resilient.

Mr. Santanu Raj
(Faculty)
Centre For Agri-Management

USE OF ‘BIO FLOC TECHNOLOGY’ (BFT) IN AQUACULTURE

BFT is considered as the blue revolution as nutrients used in the process can be recycled and reused continuously .Zero water exchange is done in this technology which makes it suitable for the places with water and feed scarcity. Bio floc technology is a process which primarily converts faecal and toxic substance of fish i.e. Nitrate, Ammonia and Nitrite to protein cells.

Need of bio floc technology in Aquaculture

A total of 25 to 30% of the total feed provided to the fish pond is actually consumed. The rest of the feed gets deposited at the surface of the pond generating Ammonia and Nitrates. This degrades the ecosystem of the pond and hence makes the fish population susceptible to diseases which causes lower production.

BFT will further help in cutting down the expenses spent on fish feed. The pond water during the fish production becomes toxic due to continuous application of medicines and feed, which degrades the surrounding soil quality through leaching.

BFT helps in maintaining the quality of water in aquaculture which is degraded due to traditional ways of fish farming. The C:N ratio is maintained in this technique which is much helpful for the ammonia assimilation process.

How does it work?

It primary requires heterotrophic bacteria in order to convert the accumulated ammonia into protein cells by the process of ammonia assimilation. Heterotrophic bacteria used for ammonia assimilation are Bacillus subtilis, Bacillus licheniformis.

The protein cells act a good feed for the fish population. The whole process of BFT requires lesser space, water, feed and expenses as compared to the traditional ways of fish farming. It provides more profit with least hazardous effect on environment.

Biplab Keshari Jena
(2nd Year Student)
Centre For Agri-Management



LOW COST FISH MEAL

Healthy feed is necessary for growth of all the organisms. Recently people are craving for fresh water fish in daily diet. Hence there is a need to enhance the nutrition aspect of fish meal. The people involved in pisciculture are in search of low-cost fish meal to generate more profit. Therefore, we need to produce least cost diet having optimum nutritional ingredients as well as it should be ecofriendly.

Fish is highly nutritive and rich source of animal protein. To fulfill the increasing demand, we need improvement of fisheries and achieve maximum yield from available resources of fresh water, it is necessary to provide artificial healthy feed. Generally, fish requires a good amount of protein along with vitamins and minerals for growth, but commonly used fish feed lack these basic ingredients. So, replacement of this fish feed by naturally available cheaper ingredients of plant origin can boost the healthy fish production and also it may solve the problem of availability of low-cost quality fish meal.

As per the digestibility of the fish, proteins, amino acids and energy sources are taken into primary consideration for fish meal formulation. For other raw materials plant by products can be utilized for manufacturing of fish meal. For commercial culture of fish, the formulation of low cost balanced diet using locally available agro industry byproducts is needed. Recently fish meal has become the most expensive protein ingredient in aquaculture feeds. So instead of purchasing fish meal at a higher price, they can prepare fish meals by themselves with available ingredients.

Feed formulation and preparation is the process of combining feed ingredients to form a mixture that will meet the specific goals and objectives of the production. While formulating the feed we must take into considerations such as price, availability of ingredients used anti – nutritional factors and palatability of mixtures. The main ingredient should be Soybean meal, milk powder, corn flour, eggs, cod liver oil, vitamin mixture containing vitamin B complex and E, agar powder, garlic paste, pepper powder and cumin powder.

Determination of palatability of feed ingredient was an important criterion in the evaluation of that ingredient for fish. Because of natural ingredients it has been accepted well and easily consumed by the fishes. This solves the problem of high expenditure on fish feed as well as production of quality fish.

Amit Kumar Patnaik
(2nd Year Student)
Centre For Agri-Management

FARM TO FORK THROUGH BLOCK CHAIN

Due to rapid advancements in technology and the dynamic international business environment, supply chains are evolving into “supply chain networks,” a more integrated form of supply chain that has arisen due to widespread technologies, such as the Internet.

While other technology options exist to help manage supply chains, blockchain provides another arrow in the quiver, one that can bring together different parties that have not directly established trusted relationships with one another through the transparency it provides and its tamper-evident nature.

Blockchain is a way to digitise data and share information across a complex supply chain network in a secure and trusted manner. It can monitor food safety procedures throughout the growth and processing of products.

Walmart has collaborated with IBM on the use of blockchain technology to enhance global food traceability since 2017.

Walmart unveiled its pilot project using blockchain technology among the shrimp farmers in Andhra Pradesh. Shrimp is India’s largest agricultural export with the US as its largest market, taking a 46% share of total shrimp exports by value in 2018. Walmart has worked closely with Andhra Pradesh-based seafood processor Sandhya Aqua and US-based supplier Stanley Pearlman Enterprises to add the shrimp supply chain to the blockchain-enabled IBM Food Trust. The technology will help the retailer to trace the shrimp that is sourced from the state to select Sam’s Club locations in the US.

The introduction of blockchain in the shrimp supply chain could help improve the quality of information on the product for compliance purposes and for sharing with consumers, providing added traceability beginning at the farm and extending throughout the transportation process. It could also monitor food safety procedures throughout the growth and processing of the shrimp. Blockchain could thus add a level of visibility to bring extra peace of mind and value to overseas customers and reinforce India’s status as a trusted source of sea food

Payal Priyadarshini Narendra
(2nd Year Student)
Centre For Agri-Management





This newsletter is sent to you by Centre for Agri-Management, Utkal University, Bhubaneswar. This is quarterly newsletter and our endeavor is to update the readers on recent developments in Agriculture and Agribusiness sectors.

We solicit your valuable suggestions to help us to improve further newsletter

Articles and News Items are invited on areas related to Agriculture and Agribusiness.

- Editors

Published By:
Centre For Agri-Management,
Department of Business Administration,
Utkal University, Vani Vihar
Bhubaneswar-751004
Phone (0674)-2567035,9437184266
Email: academic@camutkal.org

