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Role of Krishi Vigyan Kendra (KVK) In Fisheries Extension

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Evolution and mandate of KVK

The Krishi Vigyan Kendras (KVK) in the country was established in 1974 with the first one at Pondicherry subsequent to the detailed discussions and studies followed by the recommendation of the Education Commission (1964-66), Govt. of India. The initial objective was to establish specialized institutions to provide vocational education in agriculture and allied fields at the pre and post matriculate levels to cater the training needs of a large number of boys and girls coming from rural areas. Thus Krishi Vigyan Kendras (Agricultural Science Centres) were established as innovative institutions for imparting vocational training to the practicing farmers, school dropouts and field level extension functionaries. During each plan period, performance of KVKs was reviewed and more and more KVKs were established in the country successively. On the occasion of the independence Day Speech on 15th August, 2005, the Hon'ble Prime Minister of India announced that by the end of 2007 there should be one KVK in each of the rural districts of the country. Subsequently there are 634 KVKs established in the country till date. The mandates of KVKs are:

(1) Organizing frontline demonstrations (FLD) to establish production potential of various crops and enterprises on the farmers fields, (2) Conducting on-farm testing (OFT) to identify the location specificity of agricultural technologies under various farming systems, (3) Organizing need based training of farmers to update their knowledge and skills in modern agricultural technologies related to technology assessment, refinement and demonstration, and training of extension personnel to orient them in the frontier areas of technology development, (4) Creating awareness about improved technologies to larger masses through appropriate extension programmes, (5) Production and supply of good quality seeds and planting materials, livestock, poultry and fisheries breeds and products and various bio-products to the farming community and (6) work as resource and knowledge

centre of agricultural technology for supporting initiatives of public, private and voluntary sector for improving the agricultural economy of the district.

Though the concept of KVK was initiated as a training and extension organization, present mandates indicate that **KVK is not merely an extension organization**. It should be clearly understood that technology transfer is not a primary function of KVKs whereas Technology transfer is the responsibility of State departments. The KVKs on the other hand will assess and refine (if needed) the newly released technologies, demonstrate the proven ones and train farmers and extension functionaries on the same. The KVK technology demonstrations are called Frontline as it happens for the first time in an area, whereas field departments conduct field demonstrations on large scale.

Fisheries Extension

Fisheries Extension brings to the fishermen, fish farmers, and fish processors that form of educational assistance best suited to their needs. A more detailed definition of fisheries extension is: a system which assists people in the fish and fishing industry, through educational procedures, in improving fishing, fish farming and fish processing methods, increasing production efficiency and income, and improving their socio-economic conditions.

KVK (Ernakulam) of CMFRI

Krishi Vigyan Kendra (Ernakulam) is the oldest KVK in Kerala and one among the 12 second oldest in the country. This KVK started functioning in 1976 after 2 years of commencement of first KVK in the country at Pondichery. KVK (Ernakulam) since its inception was under the administrative control of Central Marine Fisheries Research Institute. Hence this KVK worked mostly on the popularization of fisheries technologies and trained number of fishermen from all the maritime states. Its location at Narakkal village in Vypene island also facilitated fisheries and aquaculture as its centre of activities. However in recent times, the mandates of KVKs expanded and presently KVK aims at the overall development of the district in agriculture and allied sectors. The Kendra has linkages with all the line departments in the district in addition to contacts with most of the Agricultural Universities and all the ICAR Institutes in the country. Since inception this KVK has organized more than 670 training programmes having duration of 1 to 30 days, covering more than 13,000 villagers including farmers, fishermen, farm labours and rural youth including women. The Trainers' Training Centre has organized around 150 training programmes on different topics related to coastal aquaculture for service extension personnel/entrepreneurs from all over the maritime states. This KVK has played a key role in standardizing the shrimp farming and popularizing it all along the coastal areas of the country.

Major contributions of this KVK in the field of Fisheries and Aquaculture

1. **Introduced and popularized intensive shrimp farming in coastal areas in the country.**

KVK with the technical support of Central Institute for Brackish Water Aquaculture (CIBA) and CMFRI introduced and popularized intensive farming of *P. monodon* in coastal areas wherein traditional farming had been carrying out. All Scientific shrimp farming created a revolution in the brackish water aquaculture sector. As a result of the successful demonstrations, agencies like ADAK, BFFDA, etc., formulated several schemes for the scale up of the programme for the benefit of the fish farmers.

2. **Popularized the Mud crab farming and fattening in Kerala**

Mud crab, *Scylla serrate* is a good candidate species for brackish water aquaculture. KVK took initiative to demonstrate the Mud crab, *Scylla serrate* in abandoned brackish water bodies using supplementary feeds. The programme received good response among farmers. Kerala fisheries department has taken up the programme and included in the fisheries development programmes of the state. Presently, district fish farmer's development agency of Kerala fisheries Department provid subsidies for mud crab farming through "*Malsya Samridhi*" programme.

Mud crabs of genus Scylla, also known as green crabs or mangroove crabs constitute an important secondary crop in the traditional prawn or fish culture systems in the Asian countries. Crab fattening is essentially a holding operation during which post-moult or water crabs are kept for a short period of 20 days until they 'flesh out' or immature female crabs are held until their gonads develop and fill the mantle cavity. It has high demand and price in the export market. KVK demonstrated fattening of Mud crab, *Scylla serrate* in open as well as cage systems. Low value water crabs procured from the market and caught from wild were used for fattening process. Thereafter, many brackish water fish farmers initiated the fattening programme in the state.

3. **Introduced and demonstrated Asian Seabass farming in Kerala**

Asian seabass (or barramundi), Lates calcarifer, is a large predatory fish found in coastal, estuarine and freshwater environments in the Indo-Pacific region. It is traded in plate size (300 – 500g whole) and as a fillet or large whole fish (approximately 2kg). Seabass flesh has a reputation of having premium edible properties as it is tender, white, firm, mild tasking with boneless fillets. Asian seabass is a fast growing species making it a popular species for aquaculture.

Techniques for its culture were first developed in Thailand in the early 1970s. During the 80s and 90s, seabass aquaculture expanded to China, India, Indonesia, Malaysia, the Philippines, Singapore Taiwan, Vietnam and Australia. More recently, countries such as the USA, the Netherlands, the UK and Israel have embraced seabass farming with supporting active research into improving culture techniques. KVK demonstrated pond farming of Asian Seabass (*Lates calcarifer*) in Ernakulam district. Nursery reared fingerlings

were used for the demonstration. The programme got impressive attention amoung the farmers. Many farmers initiated Asian Seabass culture in ponds as well as cages in the district.

4. **Popularized Green Mussel farming in open water as a group venture in Kerala**

The mussels are bivalve molluscs typically inhabiting the littoral to shallow sub-littoral zones of the coastal areas. The soft tissue of bivalves is enclosed in a shell consisting of two valves joined at one edge by a flexible ligament called the hinge. Mussels are found attached to the hard surfaces in the littoral and sublittoral zones by secreting long fine silky threads called byssus threads. Being sedentary, they can tolerate short periods of exposure to extreme temperatures, salinities, desiccation and relatively high levels of turbidity. The two species of mussels with good potential for culture in India are the green mussel, Perna viridis and the brown mussel Perna indica. KVK demonstrated farming of Green Mussel (*Perna virids*) in back waters of the district. Rack culture using locally available bamboo poles was good successful model for the district. Women and Men SHG groups were associated in the programme.

Recent success stories of KVK (Ernakulam) of CMFRI in fisheries and Aquaculture

1. **Transformation of a traditional fish farmer into a successful Aquapreneur**

Mr Ambrose Thommassery is a 61-year-old traditional fisherman hailing from Kumbalanghi in Kochi. Kumbalanghi is known for its scenic beauty of backwaters, which attracts many tourists. There are a number of brackish water ponds in this area, one of which is owned by Ambrose. It's a 0.8 acre pond having water exchange naturally due to tidal fluctuations. Traditional prawn culture existed in the area during 1980's and farmers turned to intensive culture during 1st half of the 1990's. Later on, with the incidence of White Spot Syndrome Viral (WSSV) attack, the glory of prawn farming started receding. This left a large number of productive brackish water ponds (16,213 ha) in and around Kochi barren (5126 ha). Some traditional farmers like Ambrose who did not have any other livelihood option opted for traditional prawn filtration, wherein the prawn larvae which enters the field during high tide gets trapped. It is then allowed to grow there without any external feed. This process takes up to 6 months and Ambrose gets a profit of Rs. 10,000 from the 0.8 acre pond. In addition, he goes for fishing using traditional gears to sustain his family of four.

Mullet (*Mugil cephalus*) called Thirutha in Malayalam is a delicious brackish water fish popular in Kerala. The native mullet price varies from Rs. 350 -500 per kilogram. There are traditional mullet farms in Kochi, whereas the survival percentage would be as low as 10-30 per cent due to lack of scientific care in the initial stages. The greatest difficulty in its farming is getting of the seeds. Hatchery method of seed production is not yet successful and hence only option is to collect seeds from wild. There are traditional fishermen experienced in catching seedlings from wild.

KVK demonstrated scientific mullet farming at Mr. Ambrose's farm. The whole pond was de-watered, the weed fishes were removed and the complete drying of the pond ensured for 3 days. Lime was applied @2 kg/cent for sterilization and to induce algal blooming. The pond was then filled with water by allowing natural in flow. It was then kept undisturbed for 7 days to ensure algal blooming. Quality control of seeds by ensuring healthy and damage free seeds collected from wild using cast net and its transportation in oxygen filled packets were ensured. 4ft×4ft× 4ft Happa nets made of velon screen with bird repellent nets were erected in the pond using bamboo poles. In order to ensure proper water exchange and removal of faecal matter and feed waste, happa bottom was kept at a height of 1 feet from the pond bottom. Total of 6 happas were installed at a distance of 2 ft. The mullet seeds of 0.8 to 1.5 cm length and 150 to 250 mg weight were stocked at a density of 250 Nos. per happa amounting 1500 in total. In order to compensate the transportation stress, 30 minute acclimatization time was given for the seeds before they were deposited in the cages. Spot feeding with 500 micron size slow-sinking formulated pellet feed with 55 per cent protein and 12 per cent fat was started after 8 hours. This feed continued for 10 days @ 5 times a day. 700 micron size pellet feed having same protein and fat content was administered for further 30 days. This feeding pattern was then changed successively to 1 mm formulated feed having 48 per cent protein and 8 per cent fat for another 10 days. The feeding interval reduced to 3 times a day. During this process, happa nets were washed once in 7 days to ensure proper water exchange. With this 50 day intensive care, all the seeds reached average of 7 cm length and 6 gm weight. The survival percentage during this intensive care period was 90.

The seeds were then released into the pond for grow-out culture. The feeding interval was reduced to 2 times a day with the same feed for another 1 month. Further the fishes were weaned to 2 mm floating pellet feed with 35 per cent protein and 6 per cent fat. The tidal fluctuations were harnessed to the fullest extend to ensure proper water exchange in the pond. In addition, pumping also was done during low natural exchange. Once the fishes reached 250 gms, weaning was done to 3 mm feed having 28 per cent protein and 5 per cent fat and feeding further reduced to 2 times a day. The culture continued for further 10 months. The fishes reached average length of 35 cm and weight of 520 gms. Final survival percentage was 80.

The whole planning was done in such a way that the fish can be harvested on the next day of Onam - a famous festival in Kerala, when this fish gets maximum price. Since it was festive season, the marketing strategy was formed in such a way that the fish was sold live from the farm, avoiding intermediaries. The total expenditure including seed cost, feed, pond cleaning and other miscellaneous expenditure was Rs 44,500. A total of 500 kg fish was harvested and sold @ 500/- per kilogramme fetching a total income of Rs 2.5 lakhs. Ambrose and his friends learned the technique of farming and marketing. A group of farmers are getting ready for scientific mullet farming for next season at Kumbalangi by raising their own funds. Ambrose has already kept Rs 50,000/- as bank fixed deposit as an investment for the next season. KVK also got encouragement to replicate similar models elsewhere in the coastal regions of Ernakulam District, where many brackish water bodies are lying unutilized.

2. Paddy-shrimp-fin fish integrated culture in Pokkaly fields to rejuvenate the farming system.

Pokkali farming is a typical farming system in which paddy and shrimp cultures are alternatively done in the same field. The biomass residues of the paddy crop forms the feed for the shrimps and the residues of the shrimp culture forms the fertiliser for the paddy. The Pokkali fields are spread in about 5000 ha area in Ernakulam, Alappuzha, parts of Kottayam and Thrissur districts of Kerala. The paddy culture is generally done during June to October (120 days maturity period) followed by shrimp farming during November to April. The Pokkali farming is purely organic and the paddy and prawn possess good taste since there is no chemical inputs are used. During the year 2009, Pokkali farming system received Geographical Indication (GI) certificate and an approved logo for its products. The pokkali farming community also received Plant Genome Community saviour Award during 2010-2011.

Typical Pokkali fields would have an area ranging from 2 to 30 acres. Each pokkali field is confined within bunds. There will be one sluice gate for water movement to and from the field. The area inside the field adjacent to the sluice gate is called *Sluice pit (Thoombukuzhi)* which accounts to an area of 5% of total area of the field. This has an average depth of 2 to 3 m. There will be a main drainage channel having approximately 4 to 6 m width and 1 to 3m depth orienting along the major dimension of the field and spreading upstream from the sluice pit. There will be many sub channels draining water from the other parts of the field to the main drainage. These sub channels may be of shallow depth. Paddy would be planted in the field as well as in these sub channels. It is important to note that the sluice pit and the main channel will be filled with water at all phases of pokkali cultivation and is suitable for fish culture.

Since Pokkali farming is climate dependent, constant attention is required at each phase of the paddy/shrimp cultivation. Even then, the production is unpredictable. Large amount of labour is required for pokkali land preparation, bund forming, planting, harvesting, transportation, whereas no specialized equipment or machinery is available for pokkali fields to replace human labour. Labour in Kerala is scarce and costly. The pollution from the nearby industries also contaminating the pokkali fields. Quality and taste of the pokkali paddy are its attractions, whereas there is no premium market for the pokkali paddy products. Hence area under paddy farming in pokkali system is getting declined. The loss in paddy is generally compensated by shrimp farming, whereas due to the widespread attack of White spot syndrome (WSS) viral infection to the shrimps, this farming also turned un-profitable. Due to these reasons, most of the pokkali lands turn in to barren.

In this circumstance only the KVK (Ernakulam) of CMFRI suggested a new method of integrating cage culture of fin fish with Pokkali farming system. The un-utilized sluice pit and channels in Pokkali fields can be utilized for this purpose and hence this new method would in no way disturb the traditional Pokkali farming system. Mr. Saibil a young farmer from Ezhikkara readily agreed for this new experiment in his Pokkali field, which is funded by the National Initiative on Climate Resilient Agriculture (NICRA). The KVK team trained him in Pond preparation, cat walk construction, cage construction, nursery rearing, fish

transportation, feeding, cage maintenance, etc., in well advance to the implementation of the programme. The sluice pits and channels were de-silted and cleaned to ensure minimum 2m water depth in the site. Catwalks were constructed in the field to facilitate feeding and other management works in happas and cages. Happas of different dimensions (4mm, 6mm) were fabricated depending on the depth of the field. Small cages (2m X 2m X 1.3m) were fabricated using HDPE nets having different dimensions and thickness for the grow-out culture of target fishes. These small cages were placed in the field using PVC material as floats, sinkers and top cover. 90mm PVC pipes were used for fabricating the floats, 32mm sand filled PVC were used for making sinkers and 40mm PVC with HDPE nets were used for fabricating the top cover.

Nursery reared Mullet (*Mugil cephalus) and* Pearlspot *(Etroplus Suratensis)* were stocked in cages during 1st week of September. The initial stocking density of mullet was 250 nos. per cage and that of Pearlspot was 500 nos. per cage. They were fed using floating formulated pellet feeds of different size (2mm,3,mm,4mm) during dawn and dusk. Cages were cleaned fortnightly and nets were changed once in two months period. Thinning out was done depending on the growth rate. The culture continued for 8 months. The mullet attained average size of 400 gm with survival of 60 per cent and Pearlspot 180 gm with a survival of 90 per cent.

The fixed cost required for the cage culture in 1 ha pokkali fields is INR88,200/-. Since the assets can be used for 5 years, the fixed cost per year would be INR17,640/-. The operational cost per year is INR90,000/-. The gross income per year would be INR1,90,000/- and the profit per year would be INR83,000/-. The present profit from paddy alone is only INR 15,000/- and that from paddy-shrimp field is INR50,000/-. In order to revive pokkali farming, this new method which fetch the farmer additional income of INR83000/- per ha need to be promoted. The initial investment can be provided on loan to the farmers through financial institutions. KVK and CMFRI can provide technical assistance to the farmers.

3. Introduced and popularized small scale cage farming in Kerala

Inland fishery resources in the eastern parts of the Ernakulam district which falls under the Western Ghats region are getting depleted day by day due to severe reclamation of water resources, quarry operations and lack of strategic interventions by the research and development agencies. The foothill regions of the Western Ghats region, lying in the Ernakulam district area, holds 776 large granite quarries which include both abandoned and functioning ones. The abandoned quarries are ideal places for aquaculture ventures though no strategic approach has been developed to utilize the large volume of potential fresh water resource which can contribute to fish enhancement and livelihood security in the region. To optimally utilize these abandoned resources for large scale fish production, a model was developed and implemented in Kothamangalam area with the participation of inland fish farmers. Kothamangalam, known as the Gateway of high range region, possesses 96 granite quarries of which most of them are abandoned. A cage aquaculture model was initiated since harvesting, predation and feeding are the main problems for doing any aquaculture activity in granite quarries due to its depth. A granite quarry of 50 cent area was selected as the site for implementing the programme. The selected quarry has 15m water depth and year round water availability. Small floating cages were fabricated and

erected in the granite quarry for the high density culture programme. High values fish species such as Pearl spot (*Etroplus suratensis*) and fast growing Tilapia (*Tilapia nilotica*) were selected as candidate species. From the action research programme it is clear that the high density fish culture programme is the one of the best methodology for fish stock enhancement as well as to ensure livelihood security of the inland community of the district. Now more farmers in the district are attracted by the initiative and have started to use their own quarries for fish culture ventures. If the programme is visualized in a broader ecological and commercial perspective, optimum utilization of abandoned aquatic commons in future will get more momentum in the country.

4. **KVK supply Pearlspot seeds and popularized farming**

Pearl spot (Etroplus suratensis), popularly called as Karimeen is an indigenous fish extensively found along the east and south-west coasts of Peninsular India. Pearl spot is the one of the prime high value euryhaline candidate fish species presently using for brackish water and fresh water fish farming ventures in Kerala. Recently Kerala government has declared Pearl spot as "State Fish of Kerala" and the state has celebrated the year 2010-2011 as the "The Year of Karimeen" for creating awareness about the conservation need and commercial production potential in Kerala. The present annual production of 2,000 MT is found to be insufficient to meet the ever increasing demands for "Kerala Karimeen" in the country, whereas the price of this fish ranges from Rs.250-350/- per kilogram in the domestic market. It is estimated that annual production of 10,000 MT would be required to meet the present requirement. This situation mobilized the farmers to initiate Pearl spot culture using wild caught seeds in different parts of the state.

At present the seeds (fry's/fingerlings) required for the culture in backyard ponds, tanks, artisanal cages etc. are collected from the wild. Over exploitation of indigenous Pearl spot seeds from wild resulted in the depletion of standing stock in recent times. Hence there is enormous potential for the production and supply of this seed. Institutions having skill and experience in imparting training on the Pearl spot production technology is less in the State. It is estimated that per year requirement of Pearl spot seeds in Kerala is as high as 40 million, whereas the present availability is only 8 million. Low fecundity and parental care of this fish are the major constraints in its large scale seed production.

Krishi Vigyan Kendra (Ernakulam) maintain a brood stock at its campus at Narakkal, which contains approximately 2000 pairs of Pearl spot fish which is one of the largest collections in the country. This stock has potential in producing 1.2 million seeds per year. Method of egg collection and seed production in hatchery conditions were standardized. This KVK has standardized two methods for seed production. One is accelerated seed production in the ponds where in favorable environment is created for the fish to egg and rear the larvae. This is done by ensuring water quality, selective removal of weed fish and providing egg depositing surfaces in ponds. Second method involves extended hatchery technique wherein the egg deposits are carefully transferred to a tank and parental aeration is simulated using a blower. The water quality and salinity are precisely adjusted. The hatched out larvae are fed using *Artemia* nauplii till 3days and

thereafter formulated pellet feed. In addition, pilot scale farming of Pearl spot in cages were also initiated by this KVK.

In order to further increase the seed production, KVK started satellite seed production centers at farmers fields also.

5. Fresh water carp seed production in Public-Private-Partnership mode

Fresh water Aquaculture is getting a good momentum in the country due to the ever increasing demand for fish as essential protein source. Among the different categories of fresh water fishes being used for culture, carps stood in the prime position. Requirement of carp seeds for the farming in Kerala is presently met from the nearby states especially from Andrapradesh. It is estimated that 40 million carp seeds are being sourced by the different private retailers and hatchery persons in Kerala. In this backdrop, Ernakulam Krishi Vigyan Kendra established a "Portable Chinese Carp Hatchery" unit at Kothamangalam farmer field. This is model was developed by Central Institute of Freshwater Aquaculture (CIFA) , Kausalyanga, Bhubaneswar-751002, Odisha. This facility can be used for fresh water fish seed production following the induced breeding technique. Seed production of all type of carp fishes such as Catla, Rohu, Mrigal, Koi carp, common carp, etc., can be carried out in such units. Total cost for the Portable type Carp hatchery is around INR 1 lakh. Portable Chinese Carp Hatchery is combinations of different type of specialized tanks such as brood stock holding tank, hatching tanks with water circulating and artificial showering facility.

As part of the front line demonstration programme of KVK one unit of Portable carp hatchery unit was installed during June 2012 in a farmers field near Kothamangalam. This location had several several small ponds with several types of carp brood fishes. First breeding trial was conducted using commercial grade synthetic hormone. Catla and Koi carp were used as candidate fish for breeding in the hatchery. One female two male combination were used for breeding. One pair produced 2 lakhs eggs. The eggs were transferred to hatching tanks for hatching. Freshly hatched fry's were collected stocked in freshly prepared nursery pond. The fry's were stocked in nursery ponds and reared sixty days and the fry's were become marketable size of INR 2.00. One batch breeding and nursery rearing work can earn generate INR 36,000. This whole process of breeding and hatching generally took less than ten days. Hence this unit can repeatedly use for multiple breeding and hatching purposes. Minimum five to seven times breeding can carry out using this unit during the post monsoon periods from June to September.

The farmer, Mr.Thakadiyel Joseph is selling the carp seeds in his trade name and also under the label of KVK.

6. KVK created successful entrepreneur on sea food production

KVK's comprehensive Entrepreneurship development programme conducted on *Production and marketing of fish products* was aimed at capacity building of rural youth in setting up of small scale sea food processing industries. Holistic approach including scientific practices, market study, production, labelling, branding, test marketing, knowledge on financial assistance, *etc.* help the trainees to start an enterprise of their own. As part of this training, KVK also facilitated trainees to obtain license from Food Safety and Standards Authority (FSSI). Such training programme during 2012-13 resulted in initiation

of a small scale fish processing unit by Mr Sujish Kumar at Narakkal. This industry is marketing fish pickle under the brand name *Malayalee foods*. With this success, KVK has converted all its trainings into Entrepreneurship development mode as mere training classes alone will not help to initiate an enterprise including farming.

7. **KVK conducted National training on Recent advances in Aquaculture for popularization through KVKs**

KVK conducted National training programme during 15th to 20th July 2013 at CMFRI, Kochi. The programme was inaugurated by Dr.V.Kripa, Director i/c on 15th July. Total 19 fisheries subject matter specialists from the states of Jammu and Kashmir, Gujarat, Maharashtra, Karnataka, Andhra Pradesh, Tamil Nadu, Pondicherry, Goa, Kerala and Lakshadweep participated in the programme. Theory classes on modern tools in Fisheries/Aquaculture, Disease Management, Molluscan culture, Crustacean farming, Small scale high density fish culture, Fishery Post- harvest technologies, Marine and fresh water ornamental fisheries, Brackish water fin fish farming, Marine Sea cage culture, shrimp and prawn farming were covered in the training. The trainees visited Marine ornamental hatchery at CMFRI, Kochi. A practical session on Feed design and formulation was also covered.

The trainees were taken to Mandapam Regional Centre of CMFRI near Rameshwaram for two days. Practical sessions on live feed culture, hatchery management techniques, ornamental hatchery management, sea cage farming, brood stock development and induced spawning, disease management in hatchery and Re-circulatory aquaculture system was conducted. The trainees also visited sea weed culture farm and marine ornamental units maintained by farmers/entrepreneurs at Mandapam, Tamil Nadu.

All the trainees interacted with Dr.Syda Rao, Director, CMFRI on 20th July at CMFRI, Kochi. The training concluded with a validictory function and certificate distribution.

Conclusion:

Research organizations develop technologies for the masses and based on this, KVK develop location specific technology modules for a group of farmers. KVK demonstrate the technologies in farmer's fields to establish its production potential, which is further taken up in massive scale by the extension departments. There are new varieties of crops, new breeds of animals and fish released by the research organizations. These may not be available for the farmers in sufficient quantities. Here comes the role of KVKs using its own facility for seed production or through public-private partnership in satellite seed production/breeding units. Getting updates for farmers and development officials through training programmes refresh their knowledge and this important function is also being done by the KVKs. KVK is the knowledge and resource centre of all agricultural technologies in district level which is the only organization in the country where farmer get the services of all agricultural-animal husbandry-fisheries professionals under one umbrella.

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