



kvk ernakulam newsletter

NO. 13 APRIL 2013-MARCH 2014



Shri. Shibu from Kumbalangi, Ernakulam, KVK's partner farmer certifies CADALMIN™ brand fruit fly trap completely replaced chemical sprays in his vegetable field.



Soviet chinchilla rabbit kits from one of KVK's satellite breeding units near Kalamassery, Ernakulam.

FISH FARM

Actor Sreenivasan inaugurated it Cage fish harvest in festive m

DC CORRESPONDENT
KOCHI, APRIL 8

It turned out to be like a scene from one of his comic movies but actor Sreenivasan was unfazed. The harvesting of cage fish farming at the Pokkali fields of Kadamakkudy near Varapuzha turned 'dramatic' when the wooden platform on which Sreenivasan and others were standing after it became crowded. The accident gave anxious moments for a while but nothing untoward happened except for some officials from the agriculture department falling into the water.



Actor Sreenivasan inaugurates harvesting of the cage fish farming at Kadamakkudi pokkali field near Kochi on Tuesday.

Later it became a comedy feast for television channels to lap up and air.

propagator of organic farming actively participated in the harvesting programme and it was a good catch. The Krishi

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MANDATES



The overall mandate of the KVK is to develop and disseminate location specific technological modules at district level through Technology Assessment, Refinement and Demonstration and to act as Knowledge and Resource Centre for agriculture and its allied activities. The specific activities to carry out this mandate are:

- Conducting on-farm testing to identify the location specificity of agricultural technologies under various farming systems
- Organizing frontline demonstrations to establish production potential of various crops and enterprises on the farmers fields
- 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.
- Creating awareness about improved technologies to larger masses through appropriate extension programmes.
- 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.
- 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.



Krishi Vigyan Kendra (KVK, Ernakulam) of Central Marine Fisheries Research Institute has a long history of 38 years in serving the farming community. This KVK is the oldest in Kerala and the second oldest in the country. It was instrumental in spreading commercial prawn culture ventures along the east and west coasts of India in the 1980s. In recent times, its mandates were broadened and presently the KVK deals with all aspects of Agriculture, including Fisheries and Animal Husbandry towards overall development of Agriculture in Ernakulam district.

The flagship programmes of this KVK are Fisheries and Urban Horticulture. With strong scientific backup from its host institute-CMFRI, this KVK demonstrated and popularised a number of recent Aquaculture technologies in the district. Cage culture in granite quarries, package for pokkali fields, scientific mullet farming, fresh water carp seed production, and karimeen seed production facility are some of these. In Urban Horticulture, the KVK is popularising the concept of Family Farming for sustainable vegetable production in homesteads. Horizontal planting bags are being popularized by KVK for efficient vegetable cultivation. A number of organic fertilizers, bio pesticides and hormones are available with KVK for supply to the farmers for safe-to-eat vegetable production. KVK has also developed a protocol for precision vegetable farming and the technology is being demonstrated in the field this year.

KVK has come up with the innovative concept of Satellite Production Centres across the district, wherein progressive farmers and SHG groups are associated for production of seeds, seedlings, fish fingerlings, rabbit kits, organic fertilizers, other organic inputs etc. One of such unit has been commenced at Edakkattuvayal, Ernakulam, in collaboration with District Kudumbhashree mission - one of the largest women-empowering projects in the country, for the production of Vegetable Top Up, a micronutrient mix for vegetable crops. KVK's interventions in rejuvenating pokkali farming - a unique paddy-shrimp integrated organic farming system, in Ernakulam district, with funding from National Initiative on Climate Resilient Agriculture, is getting national attention. In addition, 8 success stories of farmers who were supported by the KVK at various levels were documented last year.

Besides acting as a knowledge and resource centre for all agricultural technologies in Ernakulam district, the KVK conducts a number of frontline demonstrations of recent agricultural technologies in farmers fields. These demonstrations help in percolating the technologies down to the grass roots level. Similarly, farmer participatory on farm research in their own fields help in establishing location specificity of technologies.

The objective of this Newsletter is to spread information about the programmes of this KVK during 2013-14 with a view to invite fruitful future collaborations from peer institutions, line departments, research organizations and most importantly, farmers, to work together in the coming years for the betterment of Agriculture in the district.

With best wishes



(A.Gopalakrishnan)
Director

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*With best compliments
from....*

Director
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Success stories

Cage culture of fin fish created income from abandoned granite quarries

Mr Shaji Varghees, Kottanakkottil, Varapetty owns 1.3 ha land where he cultivates rubber, coconut, arecanut, pineapple, banana and vegetables. The average income of the farmer was INR 3.0 lakhs per year. He has an unutilized 50 cent granite quarry with 15m water depth and year round water availability. He hardly earns INR 5,000/- per year from this quarry. Difficulty in harvesting of the fish from deep water and lack of knowledge in scientific farming were the main issues faced by him. Small floating cages were fabricated by KVK and erected in the granite quarry for the high density culture. High value fish species Pearl spot (*Etroplus suratensis*) and fast growing Tilapia (*Tilapia nilotica*) were selected as candidate species. KVK supplied good quality seeds and technical guidance. A survival rate of 90 per cent was ensured in the culture. The investment per one season of 12 months was INR 30,000/- and net income of INR 67,000/- was realized from three cages. He became KVK's torch bearer in this technology and more farmers in the district are attracted by the initiative and have started to use vacant granite quarries for fish culture ventures.

Integration of fin fish culture with Paddy&Shrimp in Pokkali fields doubled the income.

A package was developed for pokkali fields by KVK with funding from National Initiative



Shri. Saigal, KVK's Pokkali farming partner being felicitated by Dr. S. Ayyappan, Director General, ICAR

on Climate Resilient Agriculture (NICRA) to increase the income from unit area in Pokkali fields by integrating high value finfish farming in cages. Mr. Saibil AR, Anjil House, Ezhikara, Ernakulam a young farmer readily agreed for this new experiment in his Pokkali field. The KVK team trained him in scientific cage culture. Nursery reared Mullet (*Mugil cephalus*) and Pearlsport (*Etroplus Suratensis*) were stocked in cages and fed using floating formulated pellet



Mr. shaji with his cage culture unit in granite quarries

feeds. The fixed cost per year for the cage culture in Saibil's 1 ha pokkali fields was INR 17,640/-. The operational cost per year was INR 90,000/-. The gross income per year he got was INR 1,90,000/- and the profit per year was INR 83,000/-. Mr.Saibil was getting a profit of just INR 15,000 from paddy crop alone and INR 50,000 only from combined paddy and shrimp cultivation from his 1 ha field before KVK's intervention. As a token of appreciation, Director General ICAR felicitated Mr. Saigal on 12th May 2013 at Mandapam Regional station of CMFRI

KVK's Participatory seed production converted vegetable farmer into an entrepreneur

Mr. Murugan, Karthika, East Desom, the partner farmer in KVK's participatory seed production had an income of INR 1.0 lakh per ha from his 1.5 ha vegetable farm near Aluva. The main issue he faced was fluctuations in the price of vegetables and issues in marketing. He agreed for the participatory vegetable seed production of KVK due to the buyback arrangement at a fixed price for the seeds. Murugan started participatory seed production of Bhindi in 0.1 ha land and Cowpea in 0.2 ha land. The training imparted by KVK and his experience of 35 years in vegetable farming made him a successful



Mr. Murukan, partner farmer and KVK experts in seed production farm

seed producer and the buy back arrangement for fixed price increased confidence level of him. Within a period of 6 months, he produced 30 kg of bhindi seeds of Arka Anamika variety and 40 Kg cowpea seeds of Anaswara variety having good demand in the district. KVK purchased and treated the seeds and supplied in 5 and 10g sized packets through its outlet. With this arrangement, Murugan could earn additional INR 23,000 per ha than his vegetable farming where market fluctuation is a great issue.

KVK's marketing intervention in Nutmeg resulted additional profit for farmers

The nutmeg farmers from Kothamangalam used to sell their nuts and mace produce in dried form. There will be 30% reduction in weight while drying and a labour component is also involved. Sun drying becomes difficult during the peak yielding period as it coincides with South West Monsoon. KVK conducted a Nutmeg Buyer Seller meet at Kothamangalam and subsequently M/s Pepper India



KVK facilitated nutmeg commodity interest group engaged in minimal processing

Corporation started collecting raw nutmeg from farmers. A collection centre was started at Kothamangalam Municipal Park facilitated by KVK. The arrangement lead to a benefit of INR

25 lakhs for farmers over a turnover of INR 80 lakhs during a period of 2 years. Subsequently KVK facilitated a nutmeg commodity interest group and they started a minimal processing unit with 15 women employed in de-shelling the dried nutmeg on contact with M/s Peper India Corporation.

Traditional farmer turned fish breeder cum seed trader

Requirement of carp seeds for the farming in Kerala is presently met from the nearby states, mainly from Andrapradesh and Tamilnadu. In this context, KVK demonstrated a fish seed production model using Portable carp hatchery (PCH) developed by Central Institute for



Mr. Joseph selling seeds produced at KVK's satellite seed production unit

Freshwater Aquaculture (CIFA) at Mr. Joseph Thakadiyil's farm in Kothamangalam. He was a traditional aqua farmer mainly doing small scale fresh water fish culture in small ponds. Due to lack of scientific practices, this venture was not profitable and slowly the ponds became abandoned. KVK formulated a package of practice for the small scale fish seed production using PCH system. KVK provided hands on training on installation and operation of the unit, induced breeding techniques, hatching technique, pond preparation technique, nursery rearing technique, feeding and other management techniques.

He took initiatives and investment for the renovation of abandoned ponds for brood stock development and for carrying the nursery rearing as guided by the KVK team. Breeding trials were successfully conducted using commercial grade synthetic hormones. *Catla catla*, *Labeo rohita* and *Cyprinus carpio* were bred in the portable carp hatchery system. Produced fish seeds were reared for two months in nursery ponds till marketable size using formulated and farm made low cost feeds. The produced carp seeds were sold to the farmers. Mr. Joseph is now getting an income of INR 1.2 lakhs per year from fish seed production.

Traditional fisherman turned sea food entrepreneur

Mr. Sukumaran aged 50 was a traditional fisherman doing prawn fishing and selling the catch daily in nearby markets for his livelihood. Most of these prawn are purchased by middleman for making dried prawn which



Mr. Sukumaran's KAYAL CHEMMEEN brand products in a leading supermarket at Kochi

have more demand in market. In order to avoid middle men and to earn more income, KVK facilitated Sukumaran to start a dry prawn unit using electric drier. In order to further increase the profit Mr. Sukumaran was given training on manufacturing ready to cook dried prawn, prawn chutney powder and roasted prawn. KVK team also facilitated him to get Food Safety and Standards Authority of India (FSSAI) registration and a Small scale industry (SSI) registration. A brand name-KAYAL CHEMMEEN was given to his products. The primary and secondary packaging were designed by KVK team in an attractive way. Subsequently he started the production and marketing of these products. The products are being marketed through supermarkets and shops at Ernakulam. Presently he is an employer of five women labours at his production unit and getting a monthly income of INR 42,000/-

Traditional fisherman turned Aquapreneur

Shri.Ambrose Thommissery was a traditional fisherman till October 2012. He earned hardly INR 20,000/- per annum from his 0.80 acre brackish water pond coupled with fishing in local water bodies. He was striving to manage his family of four. KVK intervened and trained him in scientific Mullet (*Mugil cephalus*) fish farming in his pond. The fish reached average length of 35 cm and weight of 520 gm with

80% survival rate whereas the conventional farmers get a survival percent of 10-30 only. Live caught fish were marketed at farm gate itself. It was a great success due to high domestic demand for the live farm fresh fish. This process also avoided the intervention of middle men and fetched maximum price higher than the prevailed retail market price. The total expenditure was INR 44,500/- . A total of 500 kg fish was harvested and sold at the rate of INR 500/- per Kg fetching a total income of INR 2.5 lakhs. Following the success of the demonstration, other traditional farmers in the locale have come forward for replicating scientific mullet farming programme during the next season using own funds. Shri. Ambrose has already kept aside INR 50,000/- for continuing the farming in the next season.

KVK Trainee turned Mushroom farmer cum Entrepreneur

A.R .Sreekumar, young farmer from Perumbavoor, Ernakulam who attended KVK's training on Mushroom Cultivation during April, 2012 became a successful Mushroom farmer cum Entrepreneur. The unit produces 10 kg mushroom daily using fresh rubber saw dust as substrate. Fresh saw dust is abundantly available in the local area. He is also producing mushroom spawn. Sreekumar is the lead mushroom farmer in Perumbavoor. Keeping this as a model unit, KVK is trying to establish similar units and groups in the district.

Shri. Ambrose Thommissery at his mullet farm



Findings of On farm testing (OFT) programmes

1. Precautionary spray of botanical pesticide Nanma developed by Central Tuber Crops Research Institute (CTCRI), Thiruvananthapuram is effective in controlling banana pseudostem weevil.
2. Palak varieties All green and harith shobha are suitable for growing in Ernakulam. Average yield of All green is 1.3 MT/ha and Harith shobha is 1.6 MT/ha.
3. Tomato variety Arka Samrat developed by Indian Institute of Horticultural Research (IIHR), Bengaluru is a disease resistant variety suitable for Ernakulam climate. The yield of Arka samrat is 30 MT/ha.
4. Application of Plant Growth Promoting Rhizobacterium (PGPR) mix I, a consortium of microbes which provides nutrients to soil developed by Kerala agricultural university is effective in organic farming of cowpea. The yield of cowpea variety Anaswara increased by 25 per cent upon application of PGPR mix I.
5. Application of PGPR mix II, a consortium of microbes against pests and diseases in plants developed by Kerala agricultural university reduced disease incidence in cowpea by 15 per cent. Cowpea ranks second among high pesticide residue vegetables available in market.
6. Growing earth worms in situ is the better option comparing to Daincha or Cowpea growing in coconut basin for augmenting soil organic matter content.
7. Cage culture of pearlspot in brackish water by feeding formulated floating pellet feed is a suitable alternative for traditional Shrimp farms which are running loss due to WSSV disease. Square type floating cages of 5 year durability cost INR 4500 and a net income of INR 7110/- can be assured from one cage in 9 months.
8. Cage fish culture in granite quarries solves the issue of difficulty in harvesting due to water depth. *Thilapia nilotica*, *Etroplus suratensis* and *Pangasius sutchi* were found suitable for cage farming in granite quarries. However water quality in each quarry need to be studied before introducing fish. Granite quarries near to ginger drying yards may not be suitable due to high chemical residues in water.
9. Improved pokkali variety VTL-8 yielded 3.75 MT/ha comparing to local pokkali paddy variety (1.5MT/ha).
10. Commercial probiotic administration in goat kids resulted no incidence of diarrhea and related mortality. Probiotic administration accelerated body weight gain in goats to the tune of 600-900 gm at fortnightly intervals.
11. Neem cake & Groundnut cake mixture is a best organic fertilizer, which contains 12.5% N, 2.5% P and 2.7% K. It has pest repellent properties also.
12. Rain shelter farming can ensure local production of vegetables in rainy season also. Vegetable farming in rain shelters increase yield by 2.5 times.
13. Sweet corn variety-Madhuri released by IARI, New Delhi is suited for Ernakulam conditions. It gives 7 MT fresh cobs per ha. The crop duration is 70-80 days.
14. The yard long bean variety Arka mangala released by IIHR, Bengaluru can be grown in Ernakulam with a yield of 8 MT/ha. The crop duration is 3-4 months. Farmers says its taste is excellent.

Technologies popularized through Frontline demonstration (FLD) programmes

Bypass fat supplementation for high yielding cows.

This technology resulted increase in milk yield by 22% and milk fat increased from 3.3 % to 4.2%. In addition, bypass fat supplementation lowered incidence of ketosis occurring due to energy deficit.

Fresh water seed production in farmer's field using Portable carp hatchery.

The initial investment is INR1.5 lakhs and net annual income is INR 1.2 lakhs for a unit producing 1.2 lakh no. of fingerlings in an year.

Family farming of organic vegetables in roof tops in urban clusters.

KVK trained urban families on organic farming of vegetables, supplied quality vegetable seedlings and set up more than 350 roof top gardens in Ernakulam.

Revised deworming schedule in calves.

This new schedule prevented spread of toxocarasis and 80% of treated calves indicated recovery.

Scientific farming of Japanese Quail.

Egg yield increased by 21 per cent and mortality reduced by 50%.

Scientific farming and kit production of Soviet chinchilla rabbits.

The feed conversion ratio in this breed is 3 to 3.2. A systematic schedule for scientific breeding developed and farmers were trained on this.

Weed control in vegetables using plastic mulching.

This technology saved labour by 35 per cent. In addition, the reflective property increased photosynthetic efficiency and thereby the production increased.

Cultivation of sugar baby water melon in summer paddy fallows.

Sugar baby gave yield of 40-45 MT/ha and fetched additional income of INR 45,000/ha in 4 months from fallow paddy lands.

Athulya poultry in cage system for urban households.

The egg yield is 300 /bird/year. Though the egg production cost is high (INR 3.50/egg), the unit is suitable for rearing poultry in limited space in urban areas towards home produced quality eggs.

Effective microorganism (EM) solution for odour control in poultry and animal houses.

EM solution is effective in odour control in poultry and animal housing. In addition, the litter and droppings are composted in short time.

System of Rice Intensification (SRI) method of paddy cultivation.

SRI method resulted 27 per cent additional production. Cost of cultivation is INR 23000/ha only comparing to INR 35000/ha in conventional farming

Scientific farming of Mullet in brackish water.

Systematic farming of mullet yielded 2.4 lakhs net income from 1 acre pond.

Fish-prawn-paddy integrated culture in Pokkali fields.

Pokkali paddy alone gives income of 0.25 lakhs/ha and paddy cum prawn culture gives income of INR 0.5 lakhs/ha. New method of integrating cage fish culture resulted additional income of 0.80 lakhs/ha.

Foliar spraying of micronutrient mix in Nendran banana.

Micronutrient mix for banana developed by Indian Institute of Horticultural Research resulted increase in yield by 18-20%.

Foliar spraying of micronutrient mix in vegetables.

Micronutrient mix for vegetables developed by Indian Institute of Horticultural Research resulted increase in yield by 15%. Low infestation of fungal diseases was also observed. Incidence of flower & pin size fruit drop reduced.

Short duration tapioca variety- Vellayani harswa.

It is a KAU developed early maturing and high yielding tapioca variety. It matures in 5-6 months in comparison to 8 to 10 months in case of local varieties. Its cooking quality is excellent and KVK's farmers certifies that the variety is less susceptible to viral disease.

KVK Products

KVK Purchased technologies from IIHR, Bangalore

KVK purchased three technologies for commercial production from Indian Institute of Horticultural Research, Bangalore. The technologies are Banana micronutrient mix, Vegetable micronutrient mix and bio pesticide



IIHR Director handing over technology of vegetable special to KVK

formulation from Neem/Pongamia oil. The technology transfer was done by Dr.A.S.Sidhu, Director, IIHR on 16-05-2013 at Bengaluru. Shri. Shoji Joy Edison, Dr. Vijendra Kumar Meena and Mrs. Sreeletha.P received the technologies on behalf of KVK.

KVK's Vegetable Top Up is getting popular in Kerala

KVK received bulk orders from Department of Agriculture, Govt. of Kerala for its micronutrient mix Vegetable Top Up. The consignment is



Vegetable top up

KVK documented farmers innovations in Ernakulam district.

KVK documented 13 farmers innovations from Ernakulam district as part of the Kerala state planning board funded project on *Identification and mapping of farmer's innovations in Agriculture*. Total of twenty farmers presented 48 innovations before a multi disciplinary screening committee meeting held on 29th July 2013 at CMFRI, Kochi and 13 innovations were selected by the team, based on various criteria specified by the Planning board. Shri. Sachidanandan from Aduvassery who invented a nutmeg seed decorticator was selected as the best farmer innovator.



Nutmeg seed decorticator - The best innovation

meant for distributing to all 14 districts of Kerala. Vegetable Top Up contain secondary elements like Magnesium, Calcium, and micronutrients like Zinc, Boron, Iron, Copper, Manganese and Molybdenum. The sprays of vegetable top up at critical growing stages enhances the yield in vegetables by 15-20%.

KVK product Organo Excel launched

Muvattupuzha M.L.A, Shri.Joseph Vazhakkam launched KVK's organic fertilizer cum insect repellent formulation- Organo excel on



Shri.Joseph Vazhakkam M.L.A. releasing KVK product-Organo Excel.

2nd December 2013 at Muvattupuzha. The formulation contains Neem cake and Ground nut cake. Organo Excel, which is a rich source of NPK improves soil aeration, water holding capacity, accelerates activity of beneficial micro organisms, enhances root development and accelerates growth in plants. It possess insect repellent action also.

KVK launched Fish amino acid in convenient packing

KVK initiated production and marketing of Fish amino acid in the trade name Amino Plus in 200 ml bottles. It's a unique organic nutrient made from sea fish for improving health and productivity of crops. Fish Amino Acid acts as a plant growth promoter and improves the immune support system in plants. When applied as foliar spray, it helps to increase



Fish amino acid ready for sale

chlorophyll concentration in plants and makes the crops lush green. Fish Amino Acid can also be incorporated directly to the soil which helps in improving the soil microflora, which in turn facilitates assimilation of nutrients. It also induces synthesis of flower and fruit related hormones, increase the pollen germination, improves quality and shelf life of fruits & vegetables and helps in proper ripening and uniform colouring in fruits. It is also found effective against mites and white flies. Most importantly, Fish amino acid rebuilds soil fertility, gives excellent plant growth with increased yields. Fish amino acid spray also helps to reduce the sucking pest population, especially the rice and cowpea bugs.

KVK launched fruit fly trap

Farmers in Kerala are helpless as fruit flies lay their eggs on the flowers and immature



Fruit fly trap ready for sale

fruits and the hatched larvae damages their precious vegetables. The insecticide sprays leave residues and create health issues. Hence KVK designed an eco-friendly fruit fly trap using coconut shells. Farmers have to put fruits and jaggery mix in the coconut shell to attract fruit flies. A small quantity of chemical supplied in the kit need to be mixed with this to make a bait in the coconut shell. This fruit fly trap can dramatically reduce the amounts of pesticides being used. Although the trap contains very small amount of chemicals, they are never directly in contact with vegetables and there is no danger of drift when compared with sprays. Fruit fly trap is more useful for kitchen gardens.

KVK supplied quality vegetable seedlings

There is a shift from seeds to seedlings in recent times. KVK produced and supplied 27,000 number of vegetable seedlings last year. Protray grown seedlings in coir pith compost medium were available round the year. Good quality seedlings of cool season vegetables Cauliflower and Cabbage were supplied in addition to



Seedlings ready for sale in KVK seedling production unit

seedlings of cowpea, tomato, brinjal, okra, bittergourd and chilli.

KVK commenced Satellite Production Centres (SPCs) in collaboration with Kudumbashree mission

KVK collaborated with Kudumbashree mission in creating entrepreneurship among women self help groups in Ernakulam by creating KVK's Satellite Production Centres (SPCs) across the district. In this connection, K.B.Valsalakumari IAS, Executive Director, Kerala State Kudumbashree Mission visited KVK

District Monthly Technology Advisory (MTA) service

Agricultural Technology Management Agency (ATMA) in collaboration with KVK has organized 9 Monthly Technology Advisory meetings during the report period. The Agricultural/fishery/veterinary extension officers in the district interact with KVK scientists and selected experts during monthly MTA meetings and the field problems for the next month identified and solutions recommended in each meeting. Subsequently, month specific technology advice in print form circulated among farmers of the district through various offices. The monthly technology advice specific for each month is also available in KVK website.





First lot of vegetable top up produced at KVKs satellite production centre being taken over by Shoji Joy Edison, SMS

on 27th October 2013 along with Ernakulam district Kudumbashree officials. Subsequently, KVK's Satellite micronutrient production centre started functioning at Edakkattuvayal, Ernakulam district. Janani joint liability group of Kudumbashree produce KVK's vegetable micronutrient mixture-Vegetable Top Up under the technical supervision of KVK officials. Similar SPCs would be opened up by KVK in coming years.



K.B.Valsalakumari IAS, Executive Director Kerala State Kudumbashree Mission at KVK



Events

Cage Fish Culture In Pokkaly Fields: Harvest Festival Inaugurated By Shri. Srinivasan

The harvest festival of the cage fish farming in Pokkali fields demonstrated by Krishi Vigyan Kendra (Ernakulam) of CMFRI was inaugurated by Shri.Sreenivasan, Actor, Director cum Farmer at Kadamakkudy Pokkaly fields on 8th April. The demonstration farming conducted by KVK was with the funding from National Initiative on Climate Resilient Agriculture (NICRA), an Indian Council of Agricultural Research (ICAR) funded project. KVK Programme coordinator Dr.Shinoj Subramannian, MBTD Head, Dr.K.K.Vijayan, Fisheries subject matter specialist Dr.Vikas P.A, Sr. Scientist Dr.Vipin Kumar, pokkaly farmers, public representatives and local residents participated in the programme.

“The Pokkaly farming system is a matter of pride to whole Keralites and the pokkaly farmers need to be respected as they are producing purely organic rice and fish even in this time where farming is being done by applying chemicals and growth hormones to



Shri. Srinivasan, KVK and CMFRI officials and partner farmer with the harvest

augment production and profit”, said Shri. Sreenivasan. The activities of KVK and CMFRI promoting organic farming and safe-to-eat food production need to be continued, he added.

Subsequent to the success of this programme, the KVK (Ernakulam) of CMFRI is planning to intervene in all the issues that pokkaly farming faces today. In this connection, it is planned to introduce suitable machinery for pokkaly field preparation and paddy harvesting in the coming years.

KVKs Demonstration of Onion Cultivation in Ernakulam Resulted above National Average Productivity

There is a general concept that onion cannot be cultivated in Kerala conditions and the only way is to purchase from market. It’s wrong! You can now start onion cultivation in homesteads, kitchen gardens and also in roof tops. 2.5



handful of onion harvested during a harvest mela in Ernakulam

quintals of onion harvested from just 5 cents at Vennala, Kochi in a demonstration programme of KVK, which corresponds to a productivity of 12.5 MT/ ha. It is promising to note that this figure is higher than the national average onion productivity of 11.8 MT/ ha. Weight of the individual bulbs of the variety Agrifound dark

red ranged from 80-120 grams.

In order to popularize this achievement, a harvest mela was conducted at the field of the partner farmer Mr. Ragesh, Kollamthundiyl house, Vennala on 1st April 2014. Mr. A.R.Padmadas, Councillor, Kochi corporation inaugurated the programme. Shri. Shoji Joy Edison, Subject Matter Specialist-Horticulture of KVK delivered a lecture on How to cultivate onion in Kerala. Mr. Shyju Kudiyirippil, an organic farming activist, number of men and women farmers and residents of the area participated.

Harvest mela of Paddy-Shrimp-Fish integrated farming conducted

The harvest mela of Paddy-Shrimp-Fish integrated farming demonstrations in Pokkali fields conducted on 10th April 2013 at Ezhikkara Vadakkumbhagam Padasekharam. The demonstrations were conducted as part of National Initiative on Climate Resilient Agriculture (NICRA) Project. The harvest mela inaugurated by Shri B. Ramachandran, Additional District Magistrate (ADM) Ernakulam in the presence of Dr.G.Syada Rao, Director, Central Marine Fisheries Research Institute and Dr.P.U.Zakkariah, Principal Investigator of the NICRA project.

Pokkali fish harvest mela
inaugurated by ADM (Ernakulam)

Entrepreneurship development programmes (EDP) conducted

KVK has conducted three entrepreneurship development programme during 2013-14. One day programme on Value Added products from Nutmeg rind, conducted at Samskara, Kothamangalam on 24th May 2013 was attended by 80 prospective entrepreneurs. The method of manufacturing Jam, Squash and Wine from Nutmeg rind on industrial level was demonstrated. There was a session on food safety and standards authority of India (fssi) registration, trade mark protection, labeling, packing and marketing. The programme was inaugurated by Sri. V.V Kurian, Standing Committee Chairman of Kothamangalam Municipality. Similarly, another EDP on Mushroom cultivation was conducted at Thevara campus on 26.04.2013 where in 30 prospective entrepreneurs attended.



Entrepreneurship development programme on
nutmeg rind value addition



Technology meet cum exhibition conducted

KVK in collaboration with Ernakulam district Agricultural Technology Management Agency (ATMA) conducted technology meet cum exhibition at EEC market place, Muvattupuzha during 1st December to 8th December 2013. Seeds of non traditional crops like maize, palak and daincha, Arka samrat tomato seedlings, KVK products-Panchagavya, Amino plus, Neem-de-Pest, Enriched neem cake, Neem oil, Organo excel, Pheromone trap for fruit fly, Fruit fly trap and Vegetable top up, Organic pesticide-NANMA, MENMA and SHREYA of CTCRI, Bio control agents viz., Trichoderma, Pseudomonas, Beauveria, Azospirillum PGPR mix I & II, Metarhizium from State bio control lab and Kerala agricultural university,

Probiotics & Bypass fat supplementation of Indian Immunologicals Ltd. were the products introduced to farmers during the meet.

Technologies like Open precision farming, High density banana cultivation, Daincha to improve soil fertility, Onion cultivation, Seedless water melon, Maize (cholam) cultivation, Milk replacer for calves, Farming of Kadaknath (karinkozhi), Scientific Rabbit breeding, Cage culture in granite quarries, Karimeen farming, Rejuvenation of pokkali fields, Scientific Thirutha (mullet) farming and Portable carp hatchery were introduced to farmers. Economics in quail farming was worked out and displayed. The process of developing a micro-sea food entrepreneur was also depicted.

Publications viz., Pocket booklet on Organic & bioagent farming Inputs, leaflets on Public



KVK-ATMA Technology meet

KVK's SAC member became State womens commission member

Dr. Lissy Jose from Kothamangalam, member of the Scientific Advisory Committee (SAC) of this KVK, assumed charge as Hon'ble member of State women's commission. Dr Lissy, who is actively involved in planning and implementing various farmer oriented programmes of this KVK said that the new position would help her in guiding KVK in chalking out women friendly agricultural programmes in the district.





Shri. Shaik Pareeth IAS, District Collector
visiting KVK stall

private partnership in Karimeen seed and rabbit kit production, Karimeen farming, Rejuvenation of Pokkali fields, Cage farming in granite quarries and Mechanisation in Paddy cultivation were distributed to farmers.

Live demonstrations on Karimeen, Kadaknath poultry, Paddy mat nursery and Poultry feed were also done. There was an innovative Farmer's corner where Nutmeg decorticator developed by a farmer and documented by KVK was exhibited. KVK's sea food entrepreneur displayed and sold his products in Entrepreneurs corner.

Exposure visits to KVK

Fifty three farmers from Perumpadappu and Thavanur Block of Malappuram District, Kerala visited KVK on 4th January 2014. The farmer's



Training programme on Mushroom cultivation

visit was facilitated by Malappuram district Agricultural Technology Management Agency (ATMA). Dr. P.A Vikas, SMS (Fisheries) delivered a lecture on Prospects of aquaculture and activities of Ernakulam KVK. The farmers visited pearl spot brood stock ponds and seed packing facility. A briefing on prospectus of Pompano culture was also done.

Sixteen fisheries officials from Maldives who were attending Customized training on Mariculture for Maldivian officials organized by Central Marine Fisheries Research Institute (CMFRI) and Commonwealth Secretariate visited KVK on 28th November 2013. Dr. P.A Vikas trained the group on overall activities and ongoing programmes of KVK in Aquaculture and Fisheries. Dr. Imelda Joseph, Principal scientist & Coordinator of the training programme delivered the introductory remarks.



ATMA Farmers from Malappuram at Pearlsport brood stock ponds in Narakkal campus

KVK conducted training to fisheries officials of Kerala

Sub Inspectors of Fisheries from Dept. of fisheries, Govt. of Kerala attended one day field training on Prospects and recent trends in Aquaculture at KVK on 23rd November 2013. The trainees were deputed from NIFAM-Kerala fisheries department training centre, Kadungallur.



The fisheries department trainees at KVK

KVK demonstrated mechanized paddy transplanting

Mechanized paddy transplanting using 8 row transplanter was demonstrated in a 5 acre paddy field at kurichilakkode Ekkuzhi



Shri. Saju Paul MLA inaugurating paddy transplanter demonstration

padasekharam near Kodanadu on 3rd October 2013. The programme conducted with the support of Kodanadu Padasekhara samiti was inaugurated by Shri. Saju Paul MLA while the Koovappady Panchayath President Shri. P.Y Paulose chaired the function. Shri. Babu Joseph (standing committee chairman (Development) of the district Panchayath) was the guest of honour. Dr.Shinoj Subramannian, Programme Co-ordinator/Sr. Scientist of the Kendra detailed the importance of paddy mechanization and similar technology demonstration programmes of KVK. Shri. Pushparaj Anjelo, subject matter specialist of the KVK trained the farmers on mat nursery preparation in an earlier occasion.

KVK demonstrated Paddy combine harvester

KVK conducted demonstration of paddy combine harvester as part of its Farmers Field School Programme (FFS) on 12th December 2013 in a 3 acre mookkumkuzhy padasekharam at Oonjappara near Kothamangalam. Kothamangalam block panchayath president Advt. K I Jacob inaugurated the programme in the presence of Keerampara grama panchayath president Smt. Lissy Valsan. The demonstration was done under the guidance of Subject



Kothamangalam Block-panchayath president Shri.K.I.Jacob inaugurating the paddy combine harvester demo programme

matter specialist Shri. Pushparaj Anjelo and Programme Co-ordinator/Sr. Scientist, Dr. Shinoj Subramannian.

The combine harvester covered an area of 1 acre in 1 hour. One operator and one assistant only are required for the machine. It gives straw arranged in rows in the field for easy collection and bundling manually. There is no damage for the straw in the demonstrated harvester whereas in some other models straw gets crushed and spread in the field. In such case a straw bailer would be required for collecting it from field.

KVK participated Krishi Vasant, 2014 at Nagpur

KVK set up exhibition stall in the Krishi Vasant, 2014 agricultural exhibition at Nagpur during 9-13 February 2014-. The mega event was organised as a large congregation of farmers



KVK exhibition stall at Krishi Vasant 2014 at Nagpur

and other stake-holders from the entire country to celebrate farmers' great contribution to our economy. The mela was a joint effort of the Government of India and Government of Maharashtra with Confederation of Indian Industries as a strategic partner. The event was organized at Central Institute of Cotton Research of ICAR, Nagpur. Farmers from all parts of India visited the KVK Stall.

KVK demonstrated Power weeder in paddy fields

As part of its Farmers Field School (FFS) programme, KVK demonstrated use of Power weeders at Kothamangalam on October 11th 2013. Kothamangalam block panchayath president Shri. K I Jacob inaugurated the programme in the presence of Keerampara grama panchayath president Smt. Lissy Valsan.



Kothamangalam Block-panchayath president Shri.K.I.Jacob inaugurating the Paddy weeder demo programme

KVK shifted back to Narakkal campus

The KVK administrative office, sales counter and soil testing laboratory which were temporarily functioning at the residential campus of Central Marine Fisheries Research Institute, Kasthurba Nagar got shifted back to its campus at Arattuvazhy beach near Narakkal in Vypeen with effect from 07th February 2014.



Subject matter expert Pushparaj Anjelo and Programme Co-ordinator/Sr. Scientist, Dr. Shinoj Subramannian participated. The demonstration was conducted by the members of Pulari Thozhil Sena of Kodumbu grama Panchayath, Palakkad. There was an interactive session between this thozhil sena members and local farmers which gave the local farmers confidence on mechanized paddy farming.

KVK conducted Mullet (Thirutha) Harvest Mela

Coastal areas of the Ernakulam district are bestowed with plenty of brackish water resources. Most of them are abandoned or unutilized for any income generating activities. Lack of candidate fish species and species specific technologies are the main issues which block the utilization of these resources for good income generating activity such as Aquaculture. In this back drop KVK demonstrated Scientific Mullet (Thirutha) farming at Mr Ambrose Thommassery's farm at Kumbalangi near Ernakulam and organized harvest Mela on 17th September 2013. The mela was inaugurated by Kumbalangi Panchayat President, Smt. Usha Pradeep. The ceremony was presided over by Dr. Shinoj Subramannian Programme Coordinator/Senior Scientist. The Panchayath ward member Mr. Jude was present on the occasion. Subject matter Specialist, Dr. Vikas P A outlined the technical aspects

of scientific fish farming and explained the interventions made in the demonstration plot.

KVK provides technology backstopping to Men's self help group

Friends Men self Help Group from Sreemoolanagaram, Ernakulam of Kerala is a group of eight number of young men who is active into various enterprises like accounting, driving, painting, masonry works, patch working, etc. for employment and livelihood security. The educational level of the members ranges from 10th class to Bachelors degree. They are into a new venture of fresh water fish farming. KVK is providing technology backstopping to this group towards developing sustainable farming models in entrepreneurship mode by involving rural youth towards self employment in the district. The programme launched on 13th March 2014 with one day training for the members on Fresh water fish culture.

KVK organized farmer-Scientist interaction on climate change

KVK Organized and facilitated Farmer interface with the Scientists team from National Academy of Agricultural Research Management (NAARM). The team as part of National Initiative on Climate Resilient Agriculture (NICRA) project evaluated information from various stakeholders on different aspects of climate



Kumbalangi Panchyath President Mrs Usha Pradeep inaugurating the harvest function

change, its impact on fisheries and adaptation as well as mitigation strategies followed. The programmes were organized at Nayarambalam, Kadamakkudy and Kothamangalam during 18th and 19th September 2013.

KVK demonstrated mechanized paddy transplanting.

As part of KVKs Farmers Field School (FFS) programme 2013-14, a demonstration of mechanized paddy transplanting conducted at Keerampara near Kothamangalam on 24th August 2013. The programme was inaugurated by Kothamangalam MLA, Shri. T.U Kuruvila. Dr.Shinoj Subramannian, Programme coordinator/Sr. Scientist presided over the function. Dr.Shaji James, professor, Kerala Agri. University and Smt.Anu Ray Mathew, Asst.



Shri. T.U.Kuruvila MLA inaugurating the mechanized paddy transplanting

Engineer (Agri), Ernakulam lead the classes. On a previous occasion, the mat nursery for mechanized transplanting was prepared under the supervision of Shri. Pushparaj Angelo, SMS, KVK and the land preparation using KAU puddler was demonstrated by Shri.Dhalin, D, Asst.professor, KVK (Wynadu) of Kerala Agricultural University.

Programme for the students

KVK Conducted one day training on Modern approaches in Aquaculture for VHSE Aquaculture students from Govt. Vocational higher Secondary School, Narakkal on 29th October 2013. Conducted six days training on Fish processing Technology for 59 students from VHSE,Narakkal from 18.10.2013 to 25.10.13.



On the job training for VHSE students (Fisheries)

KVK introduced NIANP technology in Ernakulam

National Institute of Animal Nutrition and Physiology (NIANP), ICAR, Aduvodi, Bengaluru has developed a technology for making silage from pineapple fruit residue. The silage has a shelf life of 8 months. It is a good source of energy for dairy cattle and the nutritive value is better than that of green fodder. The silage can be mixed with concentrate feed and fed to cattle. It can also be mixed with other feed ingredients and fed as total mixed ration.

Ernakulam district is known for vast area under pineapple cultivation. There are many small and medium scale processing industries functioning at Vazhakkulam near Muvattupuzha in the district. This technology is a good option for the processing industries to dispose waste and also to get additional revenue. KVK introduced this technology during its technology meet conducted at Muvattupuzha in December 2013.



National/State level programmes

KVK organized National level officer's training programme on Aquaculture

KVK organized a National training programme on Recent Advances in Aquaculture for popularization through KVKs for fisheries SMSs during 15th to 20th July 2013 at CMFRI, Kochi with funding from HRD cell of CMFRI. The programme was inaugurated by Dr.V.Kripa, Director i/c, CMFRI on 15th July 2013. Total of 19 Subject matter specialists from KVKs of Gujarat, Lakshadweep, Andhra Pradesh, Tamil nadu, Kerala, Jammu & Kashmir participated in the programme. The trainees were taken to Mandapam Regional Centre of CMFRI during the course of training. Dr.G.Gopakumar, Scientist-in-Charge and Head (Mariculture) facilitated theory and practical classes on Mariculture during the visit. The programme concluded on 20th July 2013 with certificate distribution done by Dr.G.Syda Rao, Director, CMFRI. Dr.P.C. Thomas, Si/c HRD cell and Division heads were present during the occasion.

KVK conducted state level workshop in Aquaculture

KVK conducted one day State level workshop on Breeding and seed production of fresh water carp fish at Kothamangalam on 30th August 2013. The programme was funded by HRD cell of CMFRI. Kothamangalam M.L.A Chev.T.U.Kuruville, inaugurated the programme and Dr. ShinojSubramannian, Programme coordinator/Sr.Scientist gave a talk on Entrepreneurship development programme of KVK in carp seed production using portable carp hatchery. During the programme, the MLA has also done selling of the first lot of carp seeds produced by KVK in collaboration with St.Joseph Fish Farm, Karingazha in PPP mode. Dr.V.S. Basheer, Senior Scientist, National Bureau of Fish Genetic Resources, Kochi lead the class on Breeding and Seed Production of Fresh Water Fishes. Dr.Vikas P.A. Subject matter specialist, KVK demonstrated the portable carp hatchery. Shri. Joseph Thakadiyel, the farmer turned entrepreneur shared his experiences.



Trainees of the national training programme on board to visit marine cage culture sites



Kothamangalam MLA Sri. TU Kuruville inaugurating the state level workshop



Shri.T.U.Kuruville MLA selling the first lot of carp-seeds produced by KVK in PPP-mode.



Trainees of the national training programme along with Director at CMFRI



Highlights of KVK-Farmer Partnership Programmes



Method demonstration of panchagavya



Off campus training programme



Farming partner - on farm testing in nutmeg



Method demonstration - preparation of Azospirillum culture at farmers field



On farm testing - Field data collection



Portable carp hatchery installed in a farmers field



Field demonstration of Puddler



Training in mat nursery preparation

Visitors

Deputy Director General (Fisheries), ICAR visited KVK

Dr. B. Meenakumari, Deputy Director General (Fisheries), ICAR visited KVK campus Narakkal on 29-10-2013 along with

Dr.A.Gopalakrishnan, Director, Central Marine Fisheries Research Institute (CMFRI). She interacted with the VHSE Aquaculture students from Govt. Vocational higher Secondary School, Narakkal who were undergoing a training programme on Modern approaches in Aquaculture at the campus. She has become a trainer for few minutes and briefed the student trainees on the opportunities in higher education in fisheries. The students were excited to see the DDG who came on a surprise visit to the campus. Later on she held a meeting with KVK officials.



Dr.B.Meenakumari,DDG(Fisheries) interacting with student trainees at KVK campus-Narakkal

Mass Media Extension



Radio Programmes

1. A talk of Dr. Vikas, P.A. SMS (Fisheries) on *Opportunities of Fisheries and Aquaculture sector in Ernakulam* was broadcasted on 19th September 2013 by AIR Kochi
2. A talk of Dr. Vikas, P.A. SMS (Fisheries) on *Koodumalsyakrishi* was broadcasted on 6th July 2013 by AIR Trichur.
3. A documentary on *activities of KVK (Ernakulam) of CMFRI* broadcasted by AIR Kochi on 30th August 2013.
4. A talk of Dr. Shinoj Subramannian, Programme Coordinator/Sr. Scientist on *Activities of KVK (Ernakulam) of CMFRI* broadcasted on 5th September 2013 by AIR Kochi.
5. Dr. Vikas P.A Subject Matter Specialist (Fisheries) delivered a radio talk on *Fresh water fish culture* at AIR trichur in Vayalumveedum Programme on 25th January 2014.
6. Shoji Joy Edison, SMS Horticulture delivered a live phone in programme on "*Prospects of onion cultivation in Kerala*" to 94.3 club FM on 12th November 2013.



Television Programmes

1. Live phone-in programme with Dr. Shinoj Subramannian, Programme coordinator was telecasted by Doordarshan (Malayalam) on 2nd August 2013.
2. Documentary on *KVK's cage culture interventions* telecasted on 3rd June 2013.
3. Documentary on *KVK's Scientific rabbit breeding, Milk replacer for calves and Scientific vegetable seedling production* telecasted on 31st October 2013.
4. Documentary on *Paddy-shrimp-fin fish integrated farming in pokkali fields, Power weeder in paddy fields, Open precision farming, Organic products of KVK Ernakulam* telecasted on 07th November 2013.
5. Documentary on *Pearlspot seed production technology, Scientific Mullet farming, Carp seed production in portable carp hatchery* telecasted on 21.11.2013





Publications

All publications can be downloaded from KVK website

A. Booklets

1. Shoji Joy Edison and F Pushparaj Anjelo.2013. Jaiva/sookshmaanu valangal, Jaiva/sookshmaanu keedanaashinikal, jaiva/sookshmaanu valarcha thwara-gangal – Oru parichayam (Ed. Shinoj Subramannian), Agricultural Technology Management Agency Ernakulam.
2. Shinoj Subramannian, F.Pushparaj Anjelo and Shoji Joy Edison. 2014. Nadan vithinangalude registrationum karshakarude anubandha avakasangalum, (Ed.) Shinoj Subramannian, Krishi Vigyan Kendra, Ernakulam.

B. Leaflets

1. P.A.Vikas and P.U. Zhacharia 2013. Pokkali Punarujjeevanathinu Puthiya Krishireethi, KVK series- 1/2013, Krishi Vigyan Kendra (Ernakulam).
2. P.A.Vikas. 2013. Paramadakalile Koodumalsyakrishi, Agricultural Technology Management Agency (ATMA), Ernakulam.
3. P.A.Vikas. 2013. Karimeenkrisi, Agricultural Technology Management Agency (ATMA), Ernakulam.

4. Shinoj subramannian, F. Pushparaj Anjelo and Anu Ray Mathew.2013. Nelkrishiyile Yanthravalkaranam, Agricultural Technology Management Agency (ATMA), Ernakulam.
5. Smita Sivadasan and F.Pushparaj Anjelo.2013. Kannukalokalkku Probiotikum Bypass kozhup-pum, Agricultural Technology Management Agency (ATMA), Ernakulam.
6. Smita sivadasan, Vikas P.A. and F.Pushparaj Anjelo.2013. Karshaka pankalitha samrambhangaal, Agricultural Technology Management Agency (ATMA), Ernakulam.
7. Shoji Joy Edison. 2014. Vegetable Topup, KVK series-1/2014, Krishi Vigyan Kendra (Ernakulam).

C. Popular articles

1. K.Smita Sivadasan.2013. Eni kidangalkum kuppipalu (Milk replacer). Keralakarshakan Volume 58 No.12
2. K.Smita Sivadasan.2013. Vegam valaran probiotics. Karshakasree, Volume 19, No.7
3. K.Smita Sivadasan.2013. Anayasam aadayam (Quail farming). Karshakasree, Volume 19, No.8

4. P.A.Vikas. 2013. KoodukalmeeninuVeedukal, (Cages: Home for the fishes) Karshakasree, February 2013. Book 19. Issue 2. PP 74-75
5. P.A.Vikas & Shinoj Subramannaian. 2013. Paraspara poorakam pokkali krishi. (Mutual benefiting Pokali Farming) Karshakasree, September 2013. Book 19. Issue 2. PP 44-45
6. P.A.Vikas & Shinoj Subramannaian. 2013. Pokkali padathum Kuttile Matsyakrishi. (Cage fish farming in Pokkali fields) Karshakasree, September 2013. PP 74-75
7. P.A.Vikas & Shinoj Subramannaian. 2013. Thirutha Valarthanumund Shastram. (Scientific Mullet farming), Kerala Karshakan, November 2013. Book 59. Issue 4. PP 34-35
8. P.A. Vikas. 2013.Carp Mal-syakrishi Reethikalum Sadhyathakalum. (Carp farming prospects and methods). Kerala Karshakan, July. 2013.. PP 56-57
9. F. Pushparaj Anjelo, Shoji Joy Edison.2013. Mettupalayathe Parambaragatha Kariveppukrishi. Karshakan, Volume 21 No.06.
10. Shoji Joy Edison. 2013. che-nayude manjaalipperuma, Karshakashree, 19(5)

D. Training manuals

1. Shinoj Subramannian, F. Pushparaj Anjelo (Ed.) 2013. Recent advances in aquaculture for popularization through KVKs, KVK Training manual.

E. Conference proceedings

1. K.Smita Sivadasan.2013. Kadaknath- Nadan Kozhikale Rani. Sovenier 'Smarnika'12' of Mahatma Nature and Animal Conservation society, Kottayam, January 2013.
2. Vikas, P.A. and Shinoj Subramannian.2014. Transforming a traditional fisherman into successful aquapreneur. Souvenir of International conference on Management of Agri business and Entrepreneurship development jointly organized by Technocrats Institute of Technology-MBA and Central Institute of Agricultural Engineering, Bhopal, Jan.6th -7th.
3. Vikas, P.A. and Shinoj Subramannian.2014. Transforming a traditional fisherman into successful aquapreneur. Souvenir of International conference on Management of Agri business and Entrepreneurship development jointly organized by Technocrats Institute of Technology-MBA and Central Institute of Agricultural Engineering, Bhopal, Jan.6th -7th.
4. Shinoj Subramannian, P.Sreeletha, F.Pushparaj Anjelo, and P.A.Vikas.2014. Innovative programme for creating entrepreneurs: Success stories in sea food micro enterprises. Souvenir of International conference on Management of Agri business and Entrepreneurship development jointly organized by Technocrats Institute of Technology-MBA and Central Institute of Agricultural Engineering, Bhopal, Jan.6th -7th.
5. Vikas P.A., Shinoj Subramannian and F.Pushparaj Anjelo.2014. Fresh water seed production: Transformation of a farmer to a breeder cum entrepreneur. Souvenir of International conference on Management of Agri business and Entrepreneurship development jointly organized by Technocrats Institute of Technology-MBA and Central Institute of Agricultural Engineering, Bhopal, Jan.6th -7th.
6. Vikas P.A., Shinoj Subramannian, John Bose, G.Syda Rao, Zakkariah, P.U.2014. Package for enhancing the income from Pokkali farming-A successful agribusiness model. Souvenir of International conference on Management of Agri business and Entrepreneurship development jointly organized by Technocrats Institute of Technology-MBA and Central Institute of Agricultural Engineering, Bhopal, Jan.6th -7th.
7. Vikas P.A, F. Pushparaj Anjelo and ShinojSubramannian. 2014. Ornamental fish rearing in shallo ponds: A farmers successful practice. Ornamentals Kerala 2014, 26-27 January 2014, BRO 8, pp 29
8. Shoji Joy Edison.2013. Jaathiyude krishi reethikal, In: Panam kaykkum jaathimaram-A compendium prepared as part of state level SHM sponsored seminar on Nutmeg production and marketing December 17-18, 2013, KVK Thrissur.
9. Shoji Joy Edison.2013. Kochukudi Jose mathew (a write up on kochukudi variety of nutmeg developed by Jose Mathew) . In: Panam kaykkum jaathimaram-A compendium prepared as part of state level SHM sponsored seminar on Nutmeg production and marketing December 17-18, 2013, KVK Thrissur.

Programme participation

1. Dr. Vikas P.A, Subject Matter Specialist (Fisheries) participated in Zonal Level sensitization workshop on Foot and Mouth Disease and its management on 1st February, 2014, organized by IVRI Regional Station, Hebbal, Bengaluru
2. Dr. Vikas P.A Subject Matter Specialist (Fisheries) Participated in Training on Environmental Impact assessment organized by Cochin Municipal Corporation and SCMS at SCMS Cochin school of business campus, Aluva, Ernakulam during February 21st and 22nd 2014.
3. Dr. Vikas P.A attended CMFRI SAARC international work shop "Status of good practices and lessons learnt in aquaculture in the SAARC region" CMFRI, Cochin 5-7 June 2013.
4. Dr. P.A Vikas, attended 21 days winter school ICT-oriented Strategic extension for responsible fisheries management (05th -25th November 2013) organized by SEETD, CMFRI
5. P. Sreeletha, SMS (Home Science) attended 2 days training on Technology for Neem soap preparation during May 2013 at IIHR, Bangalore.
6. Shoji Joy Edison SMS (Horticulture) attended 2 days training on "Technology transfer of vegetable micronutrient mixture" during May, 2013 at IIHR Bengaluru.
7. P. Sreeletha, SMS (Home Science) attended 21 days Entrepreneurship development programme during November-December 2013 at MSME, Ettumanur.
8. Dr.Vijendra Kumar Meena SMS (Agronomy) attended 2 days training on "Technology transfer of banana micronutrient mixture" during May, 2013 at IIHR Bengaluru.

Personalia



Dr.G.Syda Rao Retires

Dr.G.Syda Rao, Director CMFRI, the host institute of KVK (Ernakulam) retired from service on superannuation on 31.07.2013. Appointed in the first batch of Agricultural Research Service on 6.1.1977, Dr. G. Syda Rao, one of the renowned marine fisheries scientists in India assumed the charge as Director, CMFRI on 8th July, 2008. Under his stewardship during 2008-'13, KVK has attained unprecedented heights and visibility. He filled all the vacant positions in the KVK in scientific and technical cadre which was lying vacant for many years. He made the KVK farmer friendly by initiating a sales counter, demonstration units and office at Thevara campus. This has largely helped improving the visibility of KVK among public.



Dr. A. Gopalakrishnan joined as Director CMFRI

Dr. A. Gopalakrishnan has taken charge as the Director of CMFRI on 31st July, 2013. His area of specialization includes Genetic stock identification of fishes using DNA markers; DNA barcoding of the fishes using DNA markers; Development of protocol for cryopreservation of milt of indigenous fishes for conservation; Captive breeding of indigenous fishes, Fish reproduction and fish genetic stock identification. He has several National and International scientific papers to his credit. He got several Awards for his outstanding contributions in the field of cryopreservation of fish gametes. Asian Fisheries Society (AFS) Merit Award in 2011; NBFGR Best Scientist Award in 2008-09, Dr. V. G. Jhingran Swaran Padak, 1992 (Team Member) by the Nature Conservators, Senior Scientist Award, 1992 by NATCON and Fellow of National Academy of Agricultural Sciences are among them



P.A. Vikas, Subject Matter Specialist conferred doctoral degree

KVK's fisheries subject matter specialist P.A. Vikas conferred doctoral degree in Bioscience from Mangalore University. Dr. Vikas worked on "Genetic and Biochemical evaluation of Brine shrimp, Artemia from the hypersaline habitats of Indian subcontinent" under the guidance of Dr.P.C. Thomas, Principal Scientist and SIC, HRD Cell of CMFRI. Subsequently on 13th October 2013, Puthuma Men self help group of Kombodinjammakkal, Thrissur felicitated Dr. Vikas for his achievement. A memento was presented by Chelakkara MLA Shri. K. Radhakrishnan (former

speaker of Kerala Legislative Assembly) in the presence of Irinjalakuda MLA Shri. Thomas Unniyadan and Kaipamangalam MLA Shri. V. S. Sunil Kumar.



Vijendra Kumar Meena, Subject Matter Specialist conferred doctoral degree

KVK's Agronomy/ Soil science subject matter specialist Vijendra Kumar Meena conferred doctoral degree in Agronomy from Maharana Pratap University of Agriculture and Technology, Udaipur Rajasthan. Dr. Meena worked on "Productivity and Quality of Cluster bean (Cyamopsis tetragonoloba L.taub) varieties as Influenced by Growth Regulator" under the guidance of Dr. M.K.Kausik Professor, Agronomy.

Help desk opened up in KVK for registering farmer's varieties and creating awareness on farmer's rights



സസ്യ ഇനങ്ങളുടെയും കർഷക അവകാശങ്ങളുടെയും സംരക്ഷണ അതോറിറ്റി
കൃഷിമന്ത്രാലയം, ഭാരത സർക്കാർ



നാടൻ വിത്തിനങ്ങളുടെ രജിസ്ട്രേഷനും കർഷകരുടെ അനുബന്ധ അവകാശങ്ങളും

There are many indigenous seed varieties of different crops and other economically important plants that are conserved by farmers, farmer communities, tribals etc. over generations. There is no protection or ownership for these varieties and those who conserve it do not get any benefit from their noble act of conserving the precious genetic resources. There is a provision under Protection of plant varieties and farmers rights Act 2001 to register such varieties with the Protection of plant varieties and farmers rights authority (PPV&FRA) under Ministry of Agriculture, Govt. of India. There is a procedure for registration of varieties and subsequently farmers are entitled for certain rights like benefit sharing, royalty, recognition and rewards for their conservation efforts etc. The authority has entrusted this KVK to create awareness on the provisions of the above mentioned act and associated farmer's rights in Ernakulam district. Awareness programmes were conducted for farmers and field extension officers through interactions and also by distributing booklets and posters containing provisions of the Act. A help desk has also been opened at KVK to facilitate farmers, farmer communities and tribals in registering their varieties. The contact numbers are: 9400257798, 9746469404.



കൃഷി വിജ്ഞാന കേന്ദ്രം (എറണാകുളം)
കേന്ദ്ര സമുദ്ര തത്വ ഗവേഷണ സ്ഥാപനം (CMFRI)
ഭവനീയ കാർഷിക ഗവേഷണ കൗൺസിൽ (ICAR)
തൊന്യക്കൽ പോസ്റ്റ്, കൊച്ചി 682 505, കേരളം



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Programmes for 2014-15

During 2014-15, KVK is planning to conduct 6 On farm testing programmes and 16 Frontline demonstration programmes in Ernakulam district. [Farmers interested in participating in specific programmes can express their interest to KVK.](#)

Table 1. List of On Farm Testing Programmes

Sl. No.	Title
1	Testing the suitability Silver Pompano (<i>Trachinotus blochii</i>) culture in brackish water
2	Comparison of the performance of grow bags and closed flat bed planting bags in the yield of vegetables
3	Performance comparison of high yielding papaya varieties in Ernakulam
4	Testing the suitability of trichoderma and pseudomonas in controlling fruit rot disease in nutmeg
5	Testing New Generation pesticides towards reduced residues in cowpea from commercial farms.
6	Comparison of low weight power tillers and garden tractors for land preparation in Pokkali paddy fields.

Table 2. List of Frontline demonstration programmes

Sl. No.	Title
1	Application of PGPR mix I and II in the growth and yield of cowpea
2	Demonstration of Integrated Pest Disease and Nutrient Management in nutmeg
3	Demonstration of open precision farming in vegetables
4	Demonstration of SRI method of paddy cultivation
5	Demonstration of liming and soil test based nutrient application
6	Demonstration of precision farming in high density planting of Banana
7	Demonstration of IPDNM in coconut
8	Integrated Crop Management in paddy
9	Demonstrating the seed production technology of ginger variety Varadha
10	Demonstrating the potential of beuveria bassiana and pseudomonas in controlling pests and diseases in cucurbits.
11	Demonstrating metarhizium anisopliae in controlling weevils, beetle and root grubs in banana.
12	Culture of indigenous fish Varal (<i>Channa striatus</i>) in fresh water systems associated with paddy fields
13	High density Cage culture of fin fishes in fresh water bodies
14	Demonstrating the purebred rabbit kit production technology
15	Demonstration of integrated farming system
16	Entrepreneurship development Programme (EDP) in Sea food processing

CMFRI Technologies

Hatchery production and farming of Cobia, *Rachycentron canadum*

Cobias are marine fish species having fast growth rate, adaptably for captive breeding, low cost of production, good quality meat and high market demand. Cobia was bred for the first time in India at CMFRI during February, 2010. The technology has been disseminated to the fish farmers in East Godavari districts of Andhra Pradesh, and presently being demonstrated to several needy farmers on demonstration basis. This path-breaking technology will benefit the fishermen and will contribute towards the blue revolution



Cobia - Broodstock maintained at MRC of CMFRI

of India. Trials on sea cage farming carried out Mandapam showed that the fishes reached a weight of more than 2.5kg in 6 months and 7.3 kg in one year. The species can be grown in low salinity and experiments revealed that upto 15ppt from the highest salinity in the sea: the growth and survival is comparable to those that grow in sea water. These results point out the possibility of developing a lucrative Cobia aquaculture enterprise in the country.

Breeding of Silver Pompano, *Trachinotus blochii*

Silver pompano, has fast growth rate and high market demand. Central Marine Fisheries Research Institute developed broodstock, done



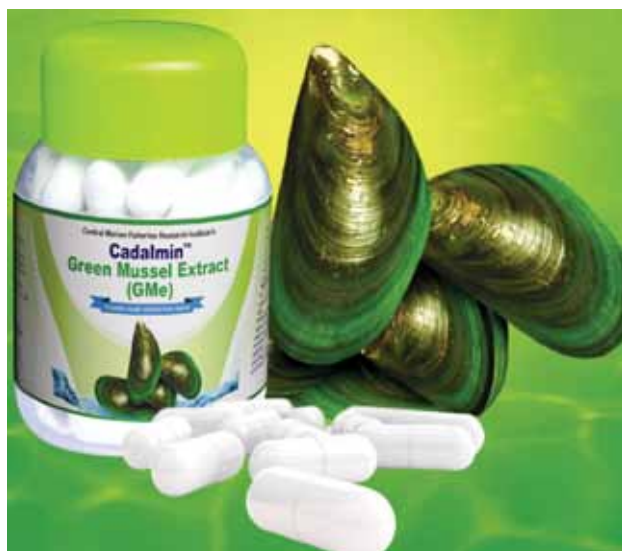
view of harvested Pompano

induced breeding and larval production.

The farming of pompano can be successfully carried out in ponds, tanks and floating sea cages. The species is able to acclimatize and grow well even at a lower salinity of about 10 ppt. Silver pompano looks and tastes like silver pomfrets and fetches a farm gate price of about Rs 200/kg.

Green Mussel extract to Combat Joint Pain and Arthritis

Cadalmin™ brand Green Mussel extract (Cadalmi™ GMe) contains 100% natural marine bioactive anti-inflammatory ingredients extracted from green mussel *Perna viridis*. The



Green Mussel Extract (GMe)

product is effective to combat chronic joint pain, arthritis/inflammatory diseases. It is an effective green alternative to synthetic non-steroidal anti-inflammatory drugs and other products available in the market. Consuming Cadalmin™ GMe will avoid side effects of synthetic non-steroidal anti-inflammatory drugs. Cadalmin™ GMe is an indigenous product, and is cost effective.

Anti-Arthritic Vegetarian product- Cadalmin™ Green Algal extract

Cadalmin™ Green Algal extract (Cadalmin™ GAe) provides a unique blend of pure natural bioactive anti-inflammatory ingredients extracted from seaweeds by an eco friendly technology to combat inflammatory pain and arthritis. Seaweeds possess valuable compounds that can offer relief to arthritis and associated joint pain. An intensive research in this area led them to perfect a patented anti-arthritic and pure vegetarian nutraceutical Cadalmin™ GAe from these valuable resources.



Green Algal extract (GAe)

Formulated Feed for Marine Ornamental Fishes VARNA

CMFRI developed an optimized method to produce feed for marine ornamental fishes. Presently, formulated feed for marine ornamentals is not indigenously produced, and the demand is met through imports with a price tag in the range of Rs. 4000 per kg. CMFRI



Varna - Marine Ornamental Fish Feed

has developed and launched a sequel of dry formulated feeds named Cadalmin™ Varna as an import substitute. These feeds are sold in 50 g pouches and containers i.e., INR 400 per kg.

Marine fish cage

Central Marine Fisheries Research Institute is the pioneer to initiate open sea cage culture for domestic and export oriented open sea marine fish farming in all the Maritime states with the involvement of fishermen community. The open sea cages are used for cultivating marine fishes, and may be used in domestic and export oriented marine sea farming in cages. The size of the cage was optimized at 6 m diameter and demonstrated the culture of finfishes and shellfish at different locations. The system is eco-friendly without any human intervention, and a higher survival of above 75% was achieved and sustained.

Open sea cage farming is a promising venture which offers the fishers a chance for optimally utilizing the existing water resources. By integrating the cage culture system into the aquatic ecosystem, the carrying capacity per unit area is optimized because the free flow or current brings in fresh supply of water and removes metabolic wastes and excess feed. Thus economically speaking, cage culture is a low impact farming practice with high economic returns.

Sea cage farm at Mandapam
Regional centre of CMFRI





KVK's demonstration of paddy combine harvester progressing at Oonjappara near Kothamangalam.



Shri. Saigal, KVK's young partner farmer in his cage fish farm at Ezhikkara near Ernakulam.



Shri.Sukumaran, KVK's seafood entrepreneur and his wife launching their products in the KVK-ATMA technology meet.



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