



हर कदम, हर उमर
किसानों का हमसफर
असल कृषि अखण्डता यंत्रणा

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ICAR - KVK ERNAKULAM

Newsletter

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Agro inputs for farmers in KVK farm Store.



Farmer's produce for sale in KVK farm Shoppe.



ICAR-KRISHI VIGYAN KENDRA (ERNAKULAM)

ICAR-Central Marine Fisheries Research Institute
Dept. of Agricultural Research and Education, Ministry of Agriculture and Farmers Welfare Govt. of India
Aarattuvazhy beach, Narakkal Post, Kochi, Kerala-682 505



MANDATES

The overall mandate of 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 in farmer's fields
- Organizing need based training for 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 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.



DIRECTOR'S MESSAGE



The whole world is reeling under Covid pandemic since the start of 2020. Lockdowns and restrictions imposed to contain the pandemic have affected the livelihood of many and a major share of them are turning to Agriculture and allied sectors to sustain themselves and find a way out. The ICAR-Krishi Vigyan Kendra

(Ernakulam) of Central Marine Fisheries Research Institute (CMFRI) has come up with programmes to support such farming initiatives during these difficult times. The KVK has shifted all its training programmes to online mode using social media and multi location audio conference tools. The KVK also delivered seeds and planting materials including poultry and fish fingerlings at farmer's doorsteps during lockdown. In addition, assistance to farmers to market their produce stagnant during lockdown has also been taken up by KVK. Door delivery of ready-to-cook cut vegetables and fresh fish sourced directly from farmers was a great relief for farmers during lockdown. KVK also commenced a tie up with online food delivery platforms to supply farmer's produce online. KVK's sales counter that has been supplying quality agro inputs was re-located to main road side in CMFRI campus to make it easily accessible to public. The satellite production centres of KVK established in public-private partnership with farmers supply quality agro inputs while generating income to the partner farmers. New satellite production centres for tuber crop seedlings and satellite fruit grafts nursery were launched at Aluva and Kothamangalam during the last year. The Farm shoppe that has been supplying farmer's produce added more items to extend its marketing support services to a wide spectrum of farmers. Live fish marketing was also demonstrated with the objective of enhancing farmer's income. Amidst the pandemic, KVK also conducted various programmes for students to attract them to the field of Agriculture. The Farmer producer organizations (FPOs) registered and being nurtured by the KVK are also doing the best to support fellow farmers. The Pokkali farmer producer company Ltd., Pizhala has commenced supply of authentic Pokkali paddy seeds.

The objective of this newsletter is to spread information about various programmes undertaken by this KVK along with best performing technologies with a view to invite future collaborations from peer institutions, line departments and research organizations and, most importantly, the farmers to work together in the coming years. Let us all join hands to fight the pandemic and to support farming and farmers who are striving hard to feed the nation.

A. Gopalakrishnan
Director

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WITH BEST COMPLIMENTS FROM...

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BEST PRACTICES TO COMBAT COVID 19

DOOR DELIVERY OF FARM PRODUCE

CUT VEGETABLES

The KVK commenced daily door delivery of ready-to-cook cut vegetables to Kochi homes during lockdown. The cut vegetables in convenience packs designed to suit Kerala cuisine were sourced directly from farmers of Ernakulam district to primarily assist them to market farm produce during lockdown. This arrangement also helped housewives in the city to get quality vegetables without stepping out of

▼ Door delivery of ready-to cook cut vegetables



KVK TRAINING GOES ONLINE

The KVK shifted all its training programmes to online mode during Covid time. Facebook and multi location audio conference were the tools used. The KVK trained 120 farmers from Ernakulam district through multi location audio conference. The topics covered were *Pest & disease management in vegetables* (06th May 2020), *Pest and disease control measures & nutrient management in Banana* (29th May 2020), *Aquaculture practices* (06th June 2020), *Feed and fodder management* (24th June 2020) and *Pest and disease management in Paddy* (08th July 2020). The KVK conducted two training programmes using Facebook platform viz.,

▼ Facebook live training



Poultry farming on 12th April 2020 and *Fish farming* on 16th April 2020. Total of 9000 farmers benefitted. A YouTube channel was also launched.

their homes. The orders placed via WhatsApp every day were delivered next day morning. Average 60 packets were delivered daily during the whole lockdown period.

FRESH FISH

KVK also commenced fresh fish door delivery in Kochi homes to aid fish farmers to market their produce that were stagnant due to lockdown. Main fish landing centres and retail fish outlets were closed completely or partially due to the Corona pandemic. KVK's Self help group *Kadappuram fresh fish vitharana sangam* collected fish

▼ Fresh fish delivery at door steps



from farmers at farm gate, cleaned and supplied to the consumer homes. The farmers were able to get payment instantly at their farms. This mechanism commenced two days after the lock down, i.e on 27th March 2020 and the average daily supply was 510 kg worth 1.6 lakhs catering to 350 homes daily. KVK also commenced a tie up with online food delivery platform Swiggy for supplying farmers produce online.

DOOR DELIVERY OF SEEDS IN LOCKDOWN

In order to meet the demand of seeds during lock down, the KVK delivered 1300 numbers of poultry chicks and 15,000 numbers of Pearlsport seeds at farmer's doorsteps during April-May 2020.

▼ Pearlsport fish seed delivery at farmer's door steps



▼ Poultry chicks delivery at farmer's door steps



KVK DEMONSTRATED LIVE FISH MARKETING

- ▼ Dr. A Gopalakrishnan, Director CMFRI displaying live fish



The KVK demonstrated a live fish marketing model at CMFRI, Kochi to supply fish live to the consumers. Live fish marketing was demonstrated as a value addition to fish with the objective of enhancing farmer's income while supplying quality produce to consumers. The fascination of Kerala

- ▼ Live fish sale demonstrated to Prof. K.V. Thomas Ex Union minister for agriculture



fish consumers towards purchasing fish live could be harnessed to enhance income to farmers. Asian seabass, Pearlsport, Tilapia and Red snapper were the fish sold through this demonstration unit. The KVK developed a protocol to carefully harvest, transport and maintain fish live in the unit. The economics worked out and established that 30 per cent additional income could be achieved when fishes are sold live.

SALES MELAS CONDUCTED

KVK conducted sales melas for supplying poultry chicks during 22-23 December 2020 at CMFRI, Kochi. Properly vaccinated Kadaknath and Thalasseri chicks of 45-60 days were supplied. The day old chicks were sourced from Central poultry development organization (CPDO), Mumbai and Kerala veterinary and animal sciences university (KVASU).

- ▼ Poultry sales mela



KVK DEMONSTRATED GIANT TREVALLY FARMING

The KVK demonstrated growth performance of fish Giant trevally (*Caranxignobilis*) in brackish water cages at Ezhikkara, Ernakulam. The fingerlings of 5 cm size reached harvestable size of 650 gm in eight months. This is a promising candidate species for brackishwater farms. Seed availability is the main issue in scaling up Giant trevally farming.

- ▼ Partner farmer displaying harvested fish





FARM SHOPPE

THE SAFE FOOD STORE



CMFRI, Goshree road, Near high court junction, Kochi -18
Customer care: 8281488457

A KRISHI VIGYAN KENDRA ERNAKULAM INITIATIVE

Farmer's Products

KVK Certified Quality



Cut vegetables | Fresh fish | Eggs | Spices
Frozen raw jack fruit | Pokkali rice & products
Ready to eat jack fruit | Honey | Packed milk | Pulses
Rice | Vegetables oils | Marayoor jaggery
Idukki grown garlic | Dry prawns
Vattavada potatoes | Home made ghee and more...



**OPEN ON ALL
GOVERNMENT
WORKING
DAYS 09.30 am
to 07.00 pm**

NEW PRODUCTS LAUNCHED



Cinnamon from CoCo SPICE, Startup of ICAR-IISR, Kozhikode



Mushroom from Naturalist, Agri startup Perumbadappu, Kochi



Frozen jack fruits from Spized organics, Agri startup Kumali, Idukki



Coconut vinegar from Keralite foods, Coconut development board startup, Koonthalloor



Jack seeds from Spized organics, Agri startup Kumali, Idukki

PRODUCTS SUPPLIED IN 2020-21

Pulses 203 kg, Rice 950 kg, Rice products 175 kg, Edible oils 900 kg, Cut vegetables 1600 kg, Spices 200 kg, Dairy products 1250 kg, Jaggery 405 kg, Potato 72 kg, Poultry eggs 4500 numbers, Dry fish 150 kg and Live fish 1800 kg. Total turn over in 2020-21 was 18.0 lakhs.



CMFRI, Goshree road, Near high court junction, Kochi -18
Customer care: 8281757450

A KRISHI VIGYAN KENDRA ERNAKULAM INITIATIVE

Agrhi Inputs
QUALITY ASSURED

- ORGANIC GROWTH PROMOTERS | ORGANIC MANURES
- FLY TRAPS | MICROBIAL CONSORTIUMS | BIO PESTICIDES
- PLANTING MEDIA | DRIP IRRIGATION KIT | POULTRY FEED
- ORGANIC PEST REPELLENTS | FISH FEED | FISH SEEDS | POULTRY CHICKS
- VEGETABLE SEEDS & SEEDLINGS | PUBLICATIONS
- PLANTING MATERIALS | MICRO NUTRIENTS
- SOIL AMELIORANTS | PROBIOTICS



OPEN ON ALL GOVERNMENT WORKING DAYS 09.30 am to 07.00 pm



NEW PRODUCTS LAUNCHED



Dolomite, is a soil ameliorant that neutralizes soil acidity while enhancing soil Magnesium content. The micro nutrient



mixtures Arka Banana micro nutrient and Arka vegetable micro nutrient are the ones developed by ICAR-Indian Institute of Horticultural Research, Bengaluru. The micro-nutrient mixture specific to pepper is the one developed by ICAR-Indian Institute of Spices Research, Kozhikkode. The KVK's product BloomPlus is an



organic solution to enhance blooming in fish ponds. Grower and layer poultry feeds are produced by Kerala veterinary and animal sciences university. Amur carp seeds are from Fisheries research and information centre (inland) of Karnataka veterinary and animal sciences university, Bengaluru.



INPUTS SUPPLIED IN 2020-21

The KVK supplied 7.25 kg of vegetable seeds, 18,994 number of vegetable seedlings, 2901 number of fruit grafts, 16.5 kg Azolla, 105 seedlings in poly bag, 1557 number of tuber planting materials, 811 bush pepper saplings, 2689 kg Composting media, 3636 kg Organic manures, 270 litres Organic pest repellents, 781 litres Organic growth

enhancers, 44 liters Fish probiotics, 732 kg Fish feed, 34 mt Soil less planting media, 1,48,000 numbers Fish fingerlings, 2352 numbers Poultry chicks, 400 numbers Publications, 32 kg Micronutrient mixtures, 116 numbers Drip irrigation kits, 586 kg Biocontrol agents, 296 numbers Traps, 544 kg Soil ameliorant and 1831 numbers Growbags during 2020-21. Total turn over during 2020-21 was Rs. 39.3 lakhs.



FARM SERVICE CENTRE

MACHINERY RENTAL AND MORE

CMFRI, Goshree road, Near high court junction, Kochi -18
Customer care: 9562120666



A KRISHI VIGYAN KENDRA ERNAKULAM INITIATIVE

AGRO MACHINERY RENTAL SERVICES

50 HP TRACTOR WITH ROTOVATOR/ CAGE WHEEL/ LEVELLER/ CULTIVATOR/ BUND FORMER/ SHREDDER/ REVERSIBLE MB PLOUGH/DISC PLOUGH/POST HOLE DIGGER | 28 HP TRACTOR WITH ROTOVATOR/ CULTIVATOR | 12 HP POWER TILLER | BRUSH CUTTER POWER WEEDER/GARDEN TILLER | WATER PUMP PADDY TRANSPLANTER | MIST BLOWER ENGINE OPERATED EARTH AUGUR MOTORIZED SPRAYER | KNAPSACK SPRAYER HAND OPERATED SPRAYER | DIESEL SLURRY PUMP SOIL/MANURE MIXER MACHINE

SUPPLY AND INSTALLATION OF FISH CAGES
SUPPLY OF POULTRY SHELTERS
SETTING UP OF READY TO FARM AZOLLA UNITS
SUPPLY OF HYDROPONIC FODDER CHAMBERS
TURN-KEY BASIS INSTALLATION OF RAIN SHELTERS

ON FARM SERVICE WITH A TECHNOLOGY BACKSTOPPING



SERVICES 2020-21



Total of 1081 hours of farm machinery rental services were provided to farmers during the year 2020-21 and income of INR 6.72 lakhs generated.

NEW SERVICES LAUNCHED

Mechanized bed forming:

The KVK take up tractor operated bed forming jobs for crops Ginger, turmeric, tapioca, vegetables etc. using a tractor operated bed former that can cover one acre of well ploughed land in 1 hour. Beds of width 50 cm to 90 cm can be made by varying the machine working width.



Mat nursery preparation:

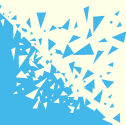
The KVK commenced paddy mat nursery preparation jobs in farmer's fields for mechanized transplanting. The paddy seeds of farmer's choice need to be provided. The KVK also take up mechanized transplanting.

Banana residue management:



The KVK commenced on-farm banana residue management services that includes shredding the stems using a tractor operated shredder and incorporating in soil by two rounds of ploughing.

TECHNOLOGY UPDATES



1. Giant trevally, popularly known as *Vatta* is a good candidate species for brackish water cage farming. It needs eight months rearing to reach marketable size of 700 gm.



2. The *Nitrifying bacteria consortium* to mitigate ammonia and *Photosynthetic bacteria consortium* to mitigate hydrogen sulphide developed by Cochin university of science and technology (CUSAT) are effective in improving water quality in fish ponds. Periodical application of these consortiums can considerably improve water quality. KVK supplies these products through Farm store.

3. Fattening of Milk fish fries for 45 days and supply of fingerlings is a potential enterprise in coastal areas where brackish water ponds having minimum 3 ppt salinity can be made available. The milk fish fingerlings are in good demand in Ernakulam.



4. Feeding of dairy cows with complete ration is beneficial where there is shortage of green fodder. This can also increase milk fat and reduce acidosis issue.



Table 1. Complete ration for dairy cows*

Ingredient	Content, %
Maize powder	10.7
Pineapple peels	05.3
Coconut cake	20.0
Cotton seed cake	11.0
Molasses mixed de-oiled rice bran (DORB)	25.5
Chopped paddy straw	22.0
Calcite powder	01.5
Salt	00.5
Palm oil	03.5

*source: Kerala veterinary and animal sciences university (KVASU)

5. Teat spraying and monitoring Somatic cell count at fortnightly intervals reduces incidence of mastitis and improve milk quality.

6. Sardine oil mixed at the rate of 1.5 per cent in layer poultry feed can enhance Omega 3 fatty acid content in eggs. Such eggs can be sold at premium price and branded as omega 3 enriched designer egg.



7. The vitamin-mineral mixture of Kerala veterinary and animal sciences university supplemented to pigs fed with food waste can increase body weight by 20 per cent.



8. Malabari goats and their crosses are most suitable for rearing in Ernakulam.

9. Bush pepper planted in pots can yield 250 gm black pepper in one year. The IISR-Bio-mix BP and trichoderma Biocap, the bio-agents developed by ICAR-Indian Institute of Spices Research can enhance rooting and prevent soil borne diseases in bush pepper.



10. Shredding of banana stems using tractor operated shredder and incorporating the residue in soil by ploughing with a tractor operated cultivator is a practical waste management strategy in harvested banana plantations.



11. Accumulation of invasive mussel species *Mytilus strigata* on fish cages can be prevented by stocking adult Pearlscale as bio fence. Pearlscale fishes 100 gm size need to be stocked at the rate of 5 fish per m³ inside the cage and also in between the inner and outer nets.



KVK BRANDED FARMER'S RICE

The KVK branded rice produced by Ernakulam farmers and commenced supply in packets of 5 kg through Farm shoppe. Objective is to demonstrate that retail marketing directly to consumer can bring additional income to farmers. The demonstration also indicated that consumers prefer farmer's rice for its quality.

▼ The branded rice of Ernakulam farmers



REGULAR SUPPLY OF PEARLSPOT SEEDS

KVK commenced supply of Pearl spot (Karimeen) seeds at Farm store on first Thursdays of every month against advance booking. The fingerlings acclimatised to both brackish water and fresh water conditions are available in two sizes of 3-4 cm and 5-6 cm. The seeds are supplied in oxygen filled packets.

▼ Packed fish seeds ready for supply



NUTRIGARDEN FOR NUTRITIONAL SECURITY

KVK implemented Nutrigarden programme at villages Karumalur and Alangad in Ernakulam district. Twenty five numbers of socially and economically backward families were selected and bench mark survey on nutrition status conducted. Lack of sufficient vegetable intake was identified as the key issue and subsequently a training programme was conducted on homestead vegetable farming and distributed inputs including seedlings. Constant technology backstopping provided and the intervention enhanced per capita vegetable consumption from 0.5 kg to 2.0 kg over a period of 5 months.



▲ Harvesting vegetables from nutrigarden

PROGRAMMES FOR STUDENTS

The KVK conducted Rural agricultural work experience programme (RAW) for B Sc (Agriculture) students of Dr. B.R. Ambedkar University, Agra and Rural fisheries work experience (RFWE) programme for BSc (Fisheries) students of College of fisheries, Dholi, Musafarpur, Bihar during November 2020 to January 2021.

▼ RAW students undergoing training on farm machinery



DIRECTOR, ATARI VISITED KVK PARTNER FARMER FIELDS

- ▼ Dr. V. Venkatasubramanian, Director, ATARI interacting with fish farmers



Dr. V. Venkatasubramanian, Director, Agricultural technology application research institute (ATARI), Bengaluru visited KVK's partner farmer fields in Ernakulam district on 25th February, 2021 and reviewed the progress of various projects. A meeting of farmers who are involved in rearing non-de-

- ▼ Dr. V. Venkatasubramanian visiting cattle farm near Malayattoor, Ernakulam



script cattle breeds also held at Malayattoor. It was decided to promote various cow products branded and marketed to enhance their income. Further a meeting of farmers who are doing pearlspot seed production held at Karumaloor. It was decided to scale up the production and strengthen the buy-back and seed supply arrangement through KVK farm store.

KVK-IFFCO COLLABORATION

The KVK associated with Indian farmers fertilizer cooperative (IFFCO) to demonstrate nano fertilizer in farmers fields of Ernakulam district. The IFFCO introduced Nitrogen, Zinc and Copper fertilizers as nano sprays to reduce fertilizer requirement to half of current usage by effectively delivering nutrients.

LIVE WEBCASTING OF HON'BLE PRIME MINISTER'S INTERACTION WITH FARMERS

The KVK live webcasted speech of Hon'ble Prime minister Shri Narendra Modi's interaction with farmers and release of PM Kisan Samman nidhi installment to 9 crore farmers on 25th December 2020.

- ▼ Live webcasting of Prime minister's interaction with farmers



FPO CORNER

POKKALI FARMER PRODUCER COMPANY COMMENCED PADDY SEED SUPPLY

The Pokkali farmer producer company Ltd., that was established by the KVK with financial support of NABARD has commenced its second business venture Pokkali paddy seed supply. Authentic Pokkali paddy seeds are collected from its shareholders, stored and supplied to the farmers. This business venture was commenced in the context of shortage of authentic pokkali paddy seeds in the district. The company could supply 7 MT of paddy seeds this year.

CELEBRATION OF IMPORTANT DAYS

INTERNATIONAL WOMEN'S DAY

KVK celebrated International women's day on 8th March 2021 by webcasting the national level inaugural programme and interaction of Hon'ble Prime minister, Shri Narendra Modi with women farmers. KVK's partner farmer Smt. Sulfath Moideen, who recently won Kerala state award for Terrace cultivation-2020 was honoured. Vegetable seedlings were distributed to the participants.

- ▼ Felicitation of award winning farmer Smt. Sulfath Moideen



SWACHHTA PAKHWADA

Swachhta Pakhwada activities were conducted by KVK from 16th to 31st December 2020. Cleaning of KVK campus and beach road done and plastic wastes and debris deposited during high tide were removed by KVK staff and farmers. Awareness class on cleanliness and importance of reducing usage of single use plastics conducted. Further, awareness programmes on importance of sanitation in various aspects of life were conducted in Karumaloor and Alangad villages.

- ▼ Cleaning drive during swachhta pakhwada



HINDI SAPTHAH

The KVK celebrated Hindi Sapthah from 8-14 September 2020. Hindi reading and writing competitions were conducted for staff. Shri. Shoji Joy Edison, SMS won first prize in reading competition and Dr. K. Smita Sivadasan, SMS in writing competition.

- ▼ Daily hindi word display board



Office rubber stamps, name boards and letter head were made in bilingual format by including Hindi. A display board also installed at Farm store to display daily Hindi words.

MAHILA KISAN DIWAS

The KVK celebrated Mahila Kisan Diwas-2020 on 15th October 2020. Online competition conducted on 3-minute talk on success stories from woman farmers/entrepreneurs. Smt. Raji George, Angamaly, Smt. Sulfath Moideen Edavanakkad & Smt. Shali Sasidharan, Thiruvankulam respectively won the 1st, 2nd & 3rd prizes. The winning success stories circulated to encourage women to come forward for initiating various enterprises in agriculture.

SATELLITE SEED PRODUCTION UNITS (SPCs)

KVK established 4 new satellite vegetable seedling production units in farmer's fields located at Thevara, Puthuvyppu, Cherai and Keezhmad. The seedlings produced at these units are purchased to KVK's Farm store. Each unit having production capacity of 15,000 number of seedlings per batch ensures average monthly income of Rs.3,750/- to partner farmers. A satellite tuber crop planting material production unit to multiply ICAR-CTCRI varieties was also commenced at Aluva. Elephant foot yam variety Sree athira and cassava variety Sree pavithra were multiplied and supplied through Farm store. A satellite fruit grafts nursery at Keerampara, Kothamangalam was also commenced to supply quality fruit saplings. More than 20,000 saplings were supplied through Farm store during 2020-21.

▼ SPC vegetable seedlings, Puthuvyppu



▼ SPC fruit grafts, Keerampara



▼ SPC vegetable seedlings, Cherai



RADIO PROGRAMMES

1. K. Smita Sivadasan. കോഴി വളർത്തലിലെ സംശയങ്ങൾ Kochi FM 102.3 broadcasted on 23-12-2020.
2. K. Smita Sivadasan. Care and management of animals during monsoon, Kochi FM 102.3 broadcasted on 10-06-2020.
3. Shoji Joy Edison. മാവ് പൂക്കു നോൾ ശ്രദ്ധിക്കേണ്ട കാര്യങ്ങൾ Kochi FM 102.3 broadcasted on 08-12-2020.
4. Vikas P.A. വീട്ടു പരിസരങ്ങളിലെ മത്സ്യകൃഷി, Kochi FM 102.3 broadcasted on 08-05-2020.

COLUMNS IN MEDIA

Vikas P.A. Subject matter specialist (Fisheries) 2021

മത്സ്യകൃഷി: ഛോദ്യം ഉത്തരം.

Karshakashree Book 27 Issue 1, 2 & 3



PUBLICATIONS

1. Smita Sivadasan K. and Subramannian, S (2020). Comparison of growth performance of goat kids under supplementation with different probiotics. J. Anim. Res., 10(6): 1063-1065.
2. Amala P.V., Sumithra T.G., K.J. Reshma, F. Anjua, Shinoj Subramannian, P. Vijayagopal (2020). Analytical validation of a modified turbidimetric assay to screen sulphur oxidizing bacteria, J. Micro. Methods, 176(2020), 105998.
3. Vipinkumar V. P., Gills Reshma, Swathi Lekshmi, P. S., Narayanakumar R., Ramachandran, C., Subramannian Shinoj, Vikas, P. A., Aswathy, N and Athira, P. V, Ambrose, T V (2020) Women SHGs in the Midst of Covid 19 Pandemic: A Cautionary Glimpse on a Transition in Kerala Fisheries. Indian Journal of Pure and Applied Biosciences, 8 (6). pp. 16-27. ISSN 2582 – 2845.
4. Shinoj Subramannian and Vikas P.A (2021). തിരുതകൃഷി കർഷകർ അറിയേണ്ട കാര്യങ്ങൾ. Kerala Karshakan. Page 67-68, 66 (6).
5. Shoji Joy Edison and Shinoj Subramannian. (2020). മവു കായ്ക്കാൻ. Kerala Karshakan, October, 2020, p57.
6. Vikas PA and Shinoj Subramannian (2021). വേഗം വളരും ജയന്തി. Malayala Manorama. 25/2/2021.
7. Vipinkumar V.P., Vikas P.A., Subramannian, Shinoj, Aswathy N, Gills Reshma & Athira P.V. (2020) കരിമീൻ വിത്തുൽപ്പാദനം. Other. ICAR - Central Marine Fisheries Research Institute, Kochi.
8. Sumithra T.G., Reshma K.J., Antony Alan, Nair V. Anusree, Subramannian Shinoj, Sayooj P., & Vijayagopal, P (2019) Outlining metabolic versatility of a commercial waste composting consortium in fish waste management. Fishery Technology, 56. pp. 68-73.
9. Vipinkumar V.P., Vikas P.A., Subramannian Shinoj, Aswathy N. & Athira P.V. (2019) കൂട് മത്സ്യകൃഷി Other. ICAR - Central Marine Fisheries Research Institute, Kochi.

PROGRAMME PARTICIPATION

Shinoj Subramannian, Senior scientist & Head

1. Management development programme on Market research & value chain management of agricultural commodities (On-Line) organized by ICAR-National academy for agricultural research management, Hyderabad during 17-21 November 2020.

P Sreeletha SMS (Home science)

1. Webinar on Role of nutrition and kitchen garden to boost immunity organized by Kerala Agriculture University on 17-07-2020
2. National webinar on Role of Balance nutrition in mitigation of Malnutrition organized by ICAR –Agricultural Technology Application Re-

search Institute, Ludhiana on 26-09-2020

F. Pushparaj Anjelo, SMS (Agricultural Extension)

1. Webinar on Farm bills, organised by Ministry of Agriculture and Farmers Welfare, Government of India, New Delhi on 06-10-2020.
2. Webinar on Outreach Programme for KVK's Farmers on Farm Act by Indian Coun-

cil of Agricultural Research, New Delhi on 07-10-2020.

3. Webinar on Puthiya Karshika Parishkarana Billukal, organised by Integrated rural technology centre, Palakkad on 15-10-2020
4. Virtual workshop on Strengthening technology interventions and documentation of achievements conducted by ICAR-Agricultural Technology Application Research Institute, Bengaluru on 05-11-2020.
5. Virtual workshop on India International Science Festival (IISF-2020) jointly organised by Ministry of Science & Technology, Ministry of Health & Family Welfare and Ministry of Earth Sciences, Government of India in association with Vijnana Bharati during 22nd – 25th December, 2020.

Shoji Joy Edison SMS (Horticulture)

1. One day training on Prospects in Dragon fruit cultivation organized by ICAR-Indian Institute of Horticultural Research, Bengaluru on 01-06-2020
2. Online world food day programme where biofortified crop varieties developed by Indian Council of Agricultural Research released by Hon'ble Prime Minister of India on 16th October during the 75th anniversary of Food and Agricultural organization.
3. District level meeting on Exploiting the scope of flower cultivation, problems in production, marketing and export organized by State Horticulture Mission on 28-12-2020.

4. Webinar on Microgreens for health and wellness organized by Indian Agricultural Research Institute, New Delhi on 20-01-2021.

K.Smita Sivadasan SMS (Animal husbandry)

1. International webinar on Role of Poultry sector in boosting the Post COVID Indian economy organized by College of Avian Sciences and management, KVASU, Thiruvazhamkunnu and ICAR-National Agricultural Higher Education Project Innovation grant from 28-07-2020 to 30-07-2020.
2. Webinar on Therapeutic management of economically important diseases of broilers organized by Indian Society for Veterinary Medicine (ISVM) on 03-10-2020.
3. International webinar on Climate Smart livestock and poultry production through nutritional interventions organized by Institute of Animal Nutrition, Tamil Nadu veterinary and animal sciences university during 23-11-2020 to 24-11-2020.
4. Virtual workshop on Strengthening technology interventions and documentation of achievements conducted by ICAR-Agricultural Technology Application Research Institute, Bengaluru on 05-11-2020.

Dr. P.A Vikas, SMS (Fisheries)

1. Stakeholder meet organized by Kadamakudy Aqua Agriculture Tourism Society (KAAT), Kadamakudy on 19-06-2020.
2. Virtual "Krishi Vigyan Kend-

ra -Department of fisheries-Training on Fisheries" on Dec 22, 2020 organized by Indian council of agricultural research.

3. Virtual training on Bio-floctechnology in aqua farming: Prospects in income generation organized by National Agricultural Higher Education Project (NAHEP) - Centre of Advanced Agricultural Science & Technology (CAAST), ICAR-Central Institute of Fisheries Education, Mumbai on 15-12-2020.
4. Webinar on Pradhan Mantri MatsyaSampada Yojana (PMMSY) Programme organized by Indian Council of Agricultural Research (ICAR) on 22nd December 2020.
5. Webinar on COVID-19 pandemic - impact on fisheries and aquaculture- Effects, good practices and recommendations -As part of the Virtual dialogue to the path to the 34th session of the FAO committee on fisheries 15-17th July 2020 organized by FAO.
6. Online lecture "Fish for People: Future I See" by Dr. Rohana Subasinghe, Managing Director, Future Fish, Former Chief - Aquaculture Branch, FAO, Past President of the World Aquaculture Society - Asia Pacific Chapter (WASAPC) on 7 December, 2020 organized by ICAR-Central Institute of Freshwater Aquaculture, Bhubaneswar, India.
7. Webinar on The Invasive mussel Mytellastrigata: Impacts on fisheries and farming, ICAR-Central Marine Fisheries Research Institute, Kochi on 13-10-2020.

COLLABORATIONS

The KVK collaborated with various organizations by sharing its expertise for their programmes during the year 2020-21.

Regional Agricultural Technology Training Centre (RATTC), Vyttila

Training to Kerala state agriculture department officials on Fish farming in homesteads on 16th October 2020 by Dr. PA Vikas, Subject matter specialist (Fisheries), Skill training programme to rural youth on Preparation of organic manures on 17th March, 2021 by Shri. F. Pushparaj Anjelo, Subject matter specialist (Agricultural Extension), Training to Agriculture department officials on Animal based integrated farming systems on 04th January 2021 by Dr. K.Smita Sivadasan, Subject matter specialist (Animal husbandry).

State agricultural management and extension training institute (SAMETI), Thiruvananthapuram

Capacity building to farmers on Pearlsport farming on 12th October 2020 by Dr. PA Vikas, Subject matter specialist (Fisheries).

Agricultural Technology Management Agency (ATMA), Ernakulam

Capacity building programme to farmers on Organic farming inputs on 11th September 2020 at Narakkal, Training on Quality control of organic farming inputs on 21st November, 2020 at Varapuzha by Shri. F. Pushparaj Anjelo, Subject matter specialist (Agricultural Extension).

Krishi bhavan, Kadamakkudy

Capacity building to Pokkali farmers on Integrated fish farming in pokkali fields, 17th February 2021 by Dr. PA Vikas, Subject matter specialist (Fisheries), Capacity building programme on Organic vegetable cultivation in homesteads on 18th March, 2021 by Shri. Shoji Joy Edison.

Krishi Bhavan, Mudakkuzha

Capacity building programme on Cool season vegetable cultivation and plant protection on 1st December, 2020 by Shri. Shoji Joy Edison Subject matter specialist (Horticulture).

Kerala institute for entrepreneurship development (KIED), Kalamassery

Training on opportunities in agro-food business in Kerala on 23rd February 2021 by Dr. Shinoj Subramannian, Senior scientist & Head.

Unarvu-Sustainable survival programme of MLA & Agro park, Piravom

Workshop on employment, self-reliance and entrepreneurship for Piravom assembly constituency on 31st May 2020, online by Dr. Shinoj Subramannian, Senior scientist & Head.

Palliyakkal service cooperative bank, Ezhikkara, Ernakulam

Capacity building to self help groups on Cage fish culture on 25th July 2020 by Dr. PA Vikas, Subject matter specialist (Fisheries).

Service cooperative bank, Narakkal, Ernakulam

Capacity building to self help groups on Cage fish culture on 17th July 2020 by Dr. PA Vikas, Subject matter specialist (Fisheries).

Future positive-Rehabilitation plan for NRI's by Minority morcha, Bharatiya janatha party, Kerala

Lecture on Prospects of fish farming as an enterprise on 18th September 2020, online by Dr. PA Vikas, Subject matter specialist (Fisheries)

CMFRI NEWS

BEST RESEARCH INSTITUTE AWARD FOR ICAR-CMFRI

ICAR-Central Marine Fisheries Research Institute has won the prestigious Sardar Patel outstanding ICAR institution award-2019. The award announced during ICAR foundation day ceremony held on 16th July 2020 at New Delhi consisted of cash prize of Rs.10 lakhs, silver plaque, certificate and citation. This is the second time ICAR-CMFRI is bagging this prestigious award.

▼ Best research institute award



BIVALVES DEPURATION UNIT ESTABLISHED

ICAR-CMFRI under NAIP Project has established Bivalves depuration unit in Sathar Island, Ernakulam for value addition of bivalves viz., Mussels, Oyster and Clams farmed locally. Dr. K. Sunil Mohamed, Principal scientist and Head (Rtd.), Molluscan Fisheries Division, ICAR-CMFRI inaugurated the unit on 14th December 2020. The depurated bivalves are safer for consumption and can fetch premium price thereby enhancing income of the farmers. Mussel and oyster farming has recently become popular under CMFRI initiatives among coastal fishers in Ernakulam district.

▼ Inauguration of bivalves depuration unit



ICAR-CMFRI'S SNAPPER SEED PRODUCTION TECHNOLOGY DEDICATED TO NATION

The seed production technology of John's snapper developed indigenously has been dedicated to the Nation by Hon'ble Vice President of India, Shri M. Venkaiah Naidu at CMFRI Regional centre, Vishakhapatnam on 7th December 2020. Snapper is a premium fish species for Marine fish farming (Mariculture).

▼ Hon'ble Vice president of India Shri. M. Venkaiah Naidu visiting ICAR-CMFRI's Snapper seed production facility



INDIAN POMPANO BROOD BANK ESTABLISHED

The Indian pompano brood bank to supply quality fish seeds has been established at Vizhinjam Regional centre of ICAR-CMFRI near Thiruvananthapuram, Kerala. The centre commenced distributing eggs of Indian pompano to the Kerala State fisheries department and private hatcheries for rearing and distribution to farmers. The fish, Indian pompano, is preferred over Silver pompano due to high growth rate, good meat quality and market demand.

▼ Indian pompano seed production & distribution at CMFRI



KVK IN PRINT MEDIA





Services for farmers by KVK Farm Service Centre



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