

### 1. Treatment of bio-degradable / non bio-degradable wastes

#### ©Krishi Vigyan Kendra KVK (Ernakulam)

As a part of the Swachh Bharath Abhiyan activities, KVK (Ernakulam) of ICAR-Central Marine Fisheries Research Institute, Kochi initiated the following:

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#### Wealth from Waste-Organic manure from marine fish waste

**Genesis:** Swachh Bharath Abhiyan envisages disposal of wastes to clean our premises. One of the programmes defined is to convert waste into organic manures and promote organic farming. During the Foundation day celebrations of ICAR held at Patna, 24-27 July 2015 the Hon'ble Prime Minister of India urged Agricultural scientists to participate in Swachh Bharath Abhiyan by doing such activities. Based on this, KVK Ernakulam of CMFRI has initiated composting of marine fish waste into organic manure on a commercial scale and branded it as **Fishlizer**. These wastes are otherwise dumped into public water bodies, road sides etc. creating hazards to public.

**Product details:** Fishlizer is produced through aerobic microbial degradation of marine fish waste mixed with coirpith medium. Coir pith is also a waste product of Coir Industry. Fishlizer contain Nitrogen (1.44%), Phosphorous (0.45%), Potassium (0.46%), Calcium (1.28%), Magnesium (0.5%), Sulphur (0.15%), Boron (11.3 mg/kg). In addition, the amino acids present in the marine fish would enhance flowering and fruit setting in plants, favouring enhanced production. The standard recommendation is 200gm Fishlizer per grow bag as basal dose and subsequent 50gms every 15 days interval. It would be interesting to note that ancient *Vrikshayurveda* identified fish manure as the best food for plants!

**Product launching and popularization:** The product was launched by Dr. AK Singh, Deputy Director General (Agricultural Extension) of ICAR on 14<sup>th</sup> August 2015 at ICAR-CMFRI. The media reports on the product are attached please.

**Production and sales:** The marine fish waste from Ernakulam market is collected and composted on a regular basis. So far 1.5MT fish waste processed and 1 MT Fishlizer sold in 500 gm packets through CMFRI sales counter with the Swach Bharath Symbol in each packet.

**Scaling up:** In order to cater to the increasing demand from organic farmers of the district and other KVKs in Kerala, a Satellite Production Centre (SPC)-Fishlizer was commenced in the farm of Mr. Saiju T.P, Puthanthara, at Mulavukadu island near Ernakulam during January 2016. The KVK has designed an equipment for fishlizer sieving and is in the process of fabrication. It is

envisaged to mechanize the production process and lower the price. Currently Fishlizer is sold @ 80 INR/- per kilogram.

### Steps in the production of Fishlizer



1. Waste collection from the market



2. Sorting of waste



4. Final product



3. Sorted waste



## @Calicut Research Centre of ICAR-CMFRI

The compost from the compost pit dug nearby the canteen in connection with Swachh Bharath activity on 18.05.2016 was used for vegetable gardening with active participation from all staff.



*Utilization of compost from the compost pit dug nearby canteen in connection with Swachh Bharath activity on 18.05.2016 for vegetable gardening*

As a part of Swachh Bharath programme, a Kitchen waste processing unit was installed near to the Canteen of the main campus of Calicut, CMFRI for biogas generation for cooking. This activity was done on 31<sup>st</sup> October, 2016.



*Installation of Kitchen waste processing unit nearby Canteen of main campus of Calicut, CMFRI for biogas generation for cooking on 31.10.16*

## © Mangalore Research Centre of ICAR-CMFRI

### *a. Awareness program on maintaining cleanliness and organic farming on 20.10.2016*

Staff of CMFRI Mangalore Centre organized seminars related to maintaining their premises clean, utilization of biodegradable waste to produce manure and also on the importance of organic farming. Experts from KVK, Kankanady, Mangalore and organic farming experts from Chennai gave talks to enlighten the staff in these matters.



***b. Vermicompost preparation and the waste disposal on 21.10.2016***

ICAR-CMFRI Mangalore Research Centre has established vermin-compost facility in the office premises to dispose the biodegradable vegetable wastes. On 15<sup>th</sup> October, the vermin-compost tanks were cleaned and bio-degradable vegetable waste were chopped and deposited in the tanks. The waste was then watered and a layer of cow dung slurry was spread on it. A layer of soil was then spread evenly on it to retain the moistness and reduce evaporation. Water is sprayed regularly to retain the moisture. Worms were released into the tank in a weeks' time. Scientists and other staff members of the Centre actively participated in the vermin compost preparation activities. Biogas plant installation procedures have been initiated and work order given to the party.



## © Mandapam Research Centre of ICAR-CMFRI

There are plenty of Neem trees within the office premises and residential areas in Mandapam Regional Centre of ICAR-CMFRI. Huge quantity of dried Neem leaves goes as waste. In order to use those Neem leaves waste efficiently, it is being composted using the earthworm. The centre has initiated preparation of vermin-compost using Neem leaves waste. These compost are being used for the plantation programme within the campus

