Mary Thomas

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Fish technology newsletter

Vol. 1 No. 11 May 1979

Sh. N. Kaleeswaran, Vice-Chancellor, Kerala Agricultural University, Inaugurating the Lab - To - Land Programme on Improved Methods of Fish Curing at Calicut (sitting left to right) : S/Sh. M. R. Nair, G. K. Kuriyan and A. G. Vasavan.

(Report on Page - 4)

CENTRAL INSTITUTE OF FISHERIES TECHNOLOGY
MATSYAPURI P. O. COCHIN - 682 029

CONTENTS

Foreword

Fish Technology Newsletter issued every month is intended to bring the fishery industry in India in touch with some of the important developments in fisheries technology resulting from investigations carried out at this Institute and elsewhere. It is not a research publication. Every effort has been earnestly made to express the ideas in non-scientific language. Its ultimate aim is the application of the results of contemporary research for the advancement of our fishery industry.

Fish Technology Newsletter does not owe allegiance to any manufacturer, patent, product or development agency unless otherwise specified. Its purpose is to open up a communication channel through which useful ideas can be exchanged, problems discussed and success shared. The process of exchanging views and opinions makes it easier to identify the real issues and that is where problem-solving begins.

We welcome contributions from any source which will help to achieve our above-mentioned aim. The sources of all such contributions will be acknowledged. We sincerely hope that the current events and informations contained in the columns "GLEANINGS FROM OTHER JOURNALS" and "LET'S TALK IT OVER" will be of interest to the Indian fishing and fish processing industries.

We also welcome suggestions from our readers for improvement in the contents and get-up of Newsletter. Any part of this publication may be reprinted in any language if the translation is true and the source is acknowledged.

Abbreviation : Fishtech News

Editorial Committee.

LAB - TO - LAND
PROGRAMME OF CIFT - 3

[One of the highlights of the Golden Jubilee Celebrations of Indian Council of Agricultural Research being observed this year is a massive - LAB - TO - LAND programme to which the C I F T is contributing its might. In the previous issues we had published reports on training programmes held at Mangalore and Bombay. In this issue we publish reports on field demonstrations on canning of clam meat and improved fish curing method held at Kumarakom and Calicut respectively.]

Canning of Clam Meat:

Kumarakam is a typical village on the bank of the Vembanad lake in Kottayam District, falling in the Kuttanad region of Kerala. Many villagers in this area collect clams as part of their livelihood. Clam shells are used for making lime and white cement, whereas, the meat is boiled and sold locally at a low price. To increase the returns from clam meat, it is necessary to process the meat in a better way and to preserve it for distribu in better markets. The Ce al Institute of Fisheries Tecl logy has evolved a techno for preserving it by way canning, pickling etc.

In view of the inte

Shri. Abraham speaking on the occasion

shown by the local people, a two-day field demonstration on canning of clam meat was organised at Kumarakam in May, 1979.

Inaugurating the programme on May 14, Shri. S. N. Rao, State Fisheries Director, assured all possible help including finance and equipments to co-operative bodies coming forward for undertaking any canning programme of clams.

While appreciating the programme, Shri. Rao also cautioned about the necessity for taking simultaneous steps to ensure adequate productivity of clams.

In his presidential address Kumarakam Panchayat President, Shri. V. Divakaran spelt out the importance of clams in as much as it influences the social and economic aspects of Kumarakam and other villages adjoining Vembanad Lake. He appealed the Scientists to persue with enthusiasm and dedication, the matter of transfer of proven technology in such a way that it can benefit the rural poor engaged in clam fishery for their economic betterment.

S / Shri. Illikalam John Abraham and Dan M. Peters also spoke on the occasion. Eighty persons representing 30 fishermen families and various co-operative societies took part in the demonstration-cum-training programme. Various steps involved in canning of clam including the equipments required, its approximate cost, marketing feasibility and other technical details were also discussed.

Deshelling of clam

This was a programme through which the poor fishermen of Kumarakam and surrounding areas could learn improved techniques of clam meat preservation and supplement income. Besides, a perishable commodity like clam meat can now be available to many more consumers in far away places

Improved Fish Curing Methods:

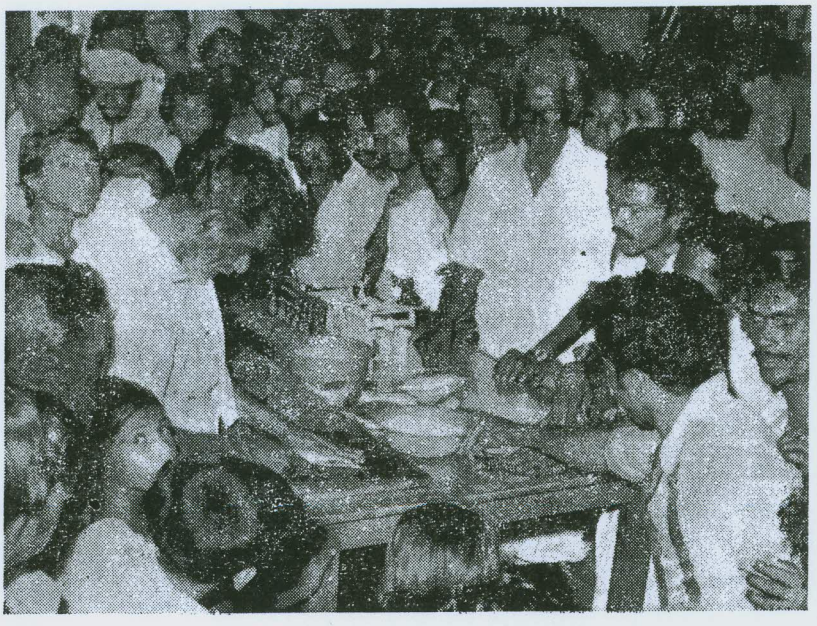
Cured fish is at presen made in a most unhygieni and unscientific method. Th cured products prepared unde unhygienic conditions, usin salt of very low quality, i susceptible to contaminatio with the red halophylic an other objectionable bacteria The overall quality of thes products is deplorably poo

Cleaning of clam meat

The product is often repelling and the shell life of such products is also very short. Due to these reasons, the middle class and well to do people who can afford to pay a better price, generally avoid purchasing cured fish If hygienically prepared and neatly packed, cured fish is marketed through urban super markets in convenient consumer packs, the product is sure to have a very lucrative market. Many people actually even prefer salted fish to fresh fish. It is only the deplorably poor quality and lack of proper packaging that is preventing such people from purchasing cured fish. so if our fish curers are made conscious of these facts and are persuaded and trained to adopt scientific and hygienic methods of curing, their income is sure to go up tremendously. With this end in view the Calicut Research Centre of CIFT organised a two-day programme to educate the poor and illiterate fishermen of the Calicut coast about the necessity and advantages of adopting scientific and hygier methods of fish curing.

The programme was in ugurated by Kerala Agricultu University Vice Chancellor, Sh N. Kaleeswaran at Vellayil (May 22, 1979. Speaking (the occasion Shri. Kaleeswar emphasised the need of tran ferring the technology develo ed in the Laboratory to tl field so that the people, esp cially, the rural folk cou derive maximum advatange o of it. He also pointed o this type of training programr could greatly improve the ec nomic status of the backwa masses in the rural areas.

Kerala Fishermen Welfa Corporation Managing Direct Shri. A. G. Vasavan presid over the function. Shri. M. Nair, Joint Director of CIF welcomed the gathering.



A fisherman cutting a fish during curing

Fifteen persons sponsored by the Vellayil Fish Curers' Society participated in the training programme conducted in the Fish curing yard of Shri. P. Chandran of Vellayil beach.

The curing yard was arranged according to the lay out already perfected by the Calicut Research Centre. Training in handling fresh fish, cleaning, dressing - washing - and draining, salting (including weighing out the required amount of salt) and stacking the salted fish in tank was conducted. How to maintain proper hygiene in the curing yard and surroundings was also demonstrated.

Washing and Salting of Fish

Next day, training was given to dry the salted fish properly. The salted fish was taken out in clean strainers made of bamboo, dipped in fresh water to remove any adhering solid salt from fish surface, and spread on drying racks made of bamboo covered with nets.

After drying for about 24 hours, the participants were shown how to pack the dried fish in polythene bags.

Films on the hygienic method of curing fish and related aspects were also shown to the trainees on the concluding day.

It is proposed to conduct this programme regularly in every season and extend to other centres of that region. The products prepared in this way by the Fishermen will be packed in attractive polythene bags, as convenient consumer packs. These are planned to market through the local super market. The increased returns thus received by these curers is expected to inspire other curers also to adopt such methods of curing, packing and marketing. This is thus expected to bring about a silent revolution in the economic status of the poor fishermen engaged in fish curing.

★

National Collection of Aquatic and Fish Bacteria

Since 1961, the Microbiology Division of the Central Institute of Fisheries Technology had been working on a comprehensive programme on the microbiological studies on marine fish, shell fish and processed fishery products. After gathering quite a large volume of information on the quantitative and qualitative nature of the microflora of ocean-fresh fish, iced and frozen fishery products attention was turned to the microbiology of canned fishery products. Here

one meets with a different type of flora as distinct from those occurring naturally on ocean-fresh sea foods. A separate study was initiated on the occurrence of food poisoning organisms like *Clostridium* spp. In all these studies, thousands of cultures had been isolated and their identity established up to the generic level if not to species in every case.

It is well known that identification of Gram negative rods of marine origin is beset with considerable amount of uncertainity. The pioneering work of Dr. S. M. Shewan and his colleagues at the Torry Research Station is well known. In 1960, he and his co-workers put forward a tentative scheme for the identification of marine Gram negative rods and this formed the basis for the identification scheme for these organisms. However. most of the identification schemes are scattered widely in literature and are in fact undergoing occasional modification at the hands of marine microbiologists all over the world.

For our purpose, we have chosen the most reliable method developed till date and the cultures have been characterised with reference to that. The present collection, totalling to about one hundred well-defined cultures, forms the nucleus for the Nati type collection.

Of late, interest in ma microbiology is shown by q a few of the National Lab tories and Universities exis in maritime states. This necessitated the developn of such a collection to wl marine and fishery bacteri gists are invited to dep their cultures so that t isolates may not be lost can be made available future comparison and stuc By this scheme, it is ho that studies on marine fishery bacteriology in country would progress ir more systematic way.

MAINTENANCE OF WOODEN FISHING BOATS

For obtaining long and trouble - free service from fishing boats, adequate care has to be taken in their proper maintenance at regular intervals, at least once a year. Under monsoon conditions fishing is mostly irregular. This time is most opportune for boat-owners to attend to the maintenance of hull and machineries so that the boat is in a thoroughly fit condition to go into action as soon as fishing conditions improve. Further it may not be possible to check and attend to certain major repairs when the boat is afloat. The suggested schedule for hull maintenance is as follows:-

1) Before hauling the boat ashore, remove mast, derricks, stay wires and all other heavy items of removable stores including ballast etc. The boat has to be made as light as possible and carefully hauled ashore.

2) The boat should be kept off the ground sufficiently high to permit free air movement underneath as well as in and around them. Care has to be taken against the pos attack of white - ants. can be done by provi metal shields in the keel bl and other supporting stru res. The boat should protected from sun and rai

3) Remove all the bo foulers on the hull wit sharp metal scraper when are still wet (when they up it is rather difficul scrape them off). Scrap the "algal belt" seen just a and below the water-line

4) Examine the hull sheathing carefully, particularly at the stem, keel and rudder. If the hull has been leaking before, the sheathing has to be removed at such places. The seams and joints have to be checked, recaulked and properly filled with 'Putty'. The sheathing should extend 15 to 22 cm above water line both forward and aft.

Look for marine-borer-holes - if any and fill them with wooden plugs or with any good seaming compound. If the damages are great, it is advisable to replace such members without fail.

If the caulking material has been eaten away at the seams of the hull planks, better renew them in the conventional manner either using treated cotten threads or 'Oakum' and fill up with a suitable seaming compound like white putty, CNSL resin or the special polyester seaming compound as has been recommended by this Institute.

The entire wooden hull below water line should receive two or more coats of coal-tar or its derivatives like creosote. In between the coated wooden hull and the metal sheathing thick layer of insulation of tarfelt underlay is always recommended.

The metal sheathing in convenient lengths will have to be firmly fixed on to the hull using the recommended type and quality of fastenings. It is very essential not to allow any voids in between the sheathing and the insulation. *For copper sheathing work, use only copper tacks and not of iron, G. I. or aluminium. With aluminium sheathing use only aluminium alloy fastenings - screws or tacks.*

While copper sheathi does not require any furth coat of anticorrosive or an fouling paint under norm circumstances, aluminium ar FRP sheathing requires pain ing as per the schedul recommended by this Institu The Schedules are reproduce below for ready reference.

Painting schedules recommended by the CIFT for the hull below waterline of wooden fishing boats

Details	Copper sheathing	Aluminium sheathing	FRP sheathin
1. Etching primer to ensure better adhesion of the subsequent coats of paints.	Not Necessary	Etching primer on both the sides of new Aluminium sheets is essential	Etching prim only on th exposed surface is necessary
2. Anticorrosive paint	Not Necessary	Two coats of Zinc chromate paint on both the sides of the sheathing OR one coat of zinc chromate and one coat of epoxy coal tar.	Not necessar
3. Antifouling paint for preventing the settlement of the marine fouling organisms (plants and animals)	Normally necessary but recommended for old sheets	Two coats of any good quality antifouling paint which will give about 8 to 10 months of fouling free life.	Two coats of antifouling paint as for aluminium alloy sheathing

N. B. During the annual hauling, if bare metal of the old sheathing is exposed, renew the anticorrosive and antifouling paints as recommended. Launch the boat when antifouling paint is still wet and tacky. Never allow it to dry completely.

5) Leaky decks are responsible for rapid deterioration of the internal timber structures. Rake out the deck plank seaming compounds that have become brittle and fill them with fresh compounds after re-caulking, if necessary, Frequent application of any good oil (linseed oil or Poon Oil) keeps the deck planks free from splitting and weathering.

6) After thoroughly cleaning the inside of the hull, check the frames, shelves, beams, stringers and bulk-heads for the presence of 'Dry-rot'. Pentachlorophenol / copper / or Chrome Arsenic compounds can be used as wood preservatives. Good ventilation inside the hull is absolutely necessary. Fish hold must always be kept clean in a most hygienic condition with the frequent application of suitable disinfectant.

7) Above water-line on the outside hull, scrape off all old paint, thoroughly clean and allow it to dry. Wooden structures recently renewed should receive two coats of any good quality wood primer. Give two uniform finishing coats of good quality top coat wood - paint of any desired colour. There is no need to paint the inside of the hull as it would slow down the drying of the wet wood particularly at the bilges.

All ferrous structures should be thoroughly chipped, brushed and cleaned to remove rust and mill scale. The choice and application of priming paint is the most important factor. Red lead and zinc chromate are good rust inhibitive primer paints and over them good quality finishing paints have to be given. Painting of ferrous structures should be attended to at regular intervals depending on the intensity of corrosi n.

8) Check up all external fastenings at all assembly points for slackness and corrosion. Badly corroded fastenings should be replaced at all costs. Bimetallic contacts have to be carefully avoided. Rudder and stern gear fittings have to be thoroughly checked for possible failures.

Check The Sea - Cock

9) Damaged propellers and major repairs to the main engine and other machineries should be left for attention under competent hands. Minor dents on the propeller blade edges can be cleaned up with a file and finally treated with emery paper. Excessive wea of the propeller blades ma be due to the galvanicaction an as such no metals of greatl different potentials should b in the vicinity of the propelle Cathodic protection can b ensured by providing sacrifici zinc blocks (Electrolytic zin only) at appropriate place near the propeller on the stei post or rudder.

Unprotected wooden stru ctures will rapidly deteriorat due to biological agencie Unprotected metallic structure will corrode and wear ou rapidly. Hull sheathing ma be damaged due to abrasion running aground. So it is es ential / or to check these item carefully from time to time Boats well cared for and we maintained last longer an serve better without breal downs.

APPOINTMENTS

Sh. K. N. Velayudha kutty, joined as Supporti Staff Grade I at C I F T

S / Sh. Gopal Gur Harisankar Ghasi and Nep Mahanandia joined as Suppo ing Staff Grade I at Bu Research Centre.

Sh. T. P. George, S entist S-1 has been transferr from Goa Research Centre a joined at C I F T Head quarte

Smt. K. Sarasamma h been appointed substantiv to the permanent post T-2 (Draughtaman)

GLEANINGS FROM OTHER JOURNALS

Fishing of Andhra Coast : Forecast

New fishing harbours are coming up at Visakhapatnam and Nizampatnam (Andhra State) along the East Coast of South India, and there will be considerable increase in the landings of shrimps and fish on account of the introduction of new fishing vessels viz. trawlers and mechanised and non - mechanised fishing vessels Therefore there is imminent need for installing suitable sea food processing equipments at Visakhapatnam and Nizampatnam to meet the demand.

The Andhra Pradesh Fisheries Corporation has undertaken steps to provide the following sea food processing facilities at their fishing harbours and have called for Global tenders for the execution of the works by 1980 / 1981.

	VISAKHAPATNAM	NIZAMPATNAM
a)	Ice Production : 80 tons / day	25 tons / day
b)	Ice storage : 100 tons	25 tons
c)	Cold storage : 50 tons	25 tons
d)	Quick Plate freezing : 12 tons	1.5 tons
e)	Blast freezing : 12 tons	—
f)	Frozen storage : 600 tons	20 tons
g)	Insulated Trucks : 3 units (5 tons)	1 unit (5 tons)
h)	Shrimp grader : 1 No (20 tons / day)	—

— HINDU

Seafood Exports Up

India exported a record 86,657 tonnes of marine products valued at Rs. 233 . 97 crores during 1978-79 as against 65,967 tonnes valued at Rs. 180 . 95 crores during the previous year, according to a report by the Marine Products Export Development Authority.

The performance during the report year showed a 31.36 per cent increase in terms of quantity and 29 . 30 per cent in value as compared to the previous year. This was against the target of 73,780 tonnes valued at Rs. 226 . 57 crores set for the year.

Japan and USA, were the major buyers of Indian seafoods during the period. There was remarkable increase in the supply of frozen frog-legs and seafoods to west European markets, particularly France and Belgium.

Cochin continued to be the principal port of shipment accounting for 36 per cent of the quantity exported during the period.

— INDIAN EXPRESS

Ocean Research Vessel to be Acquired Soon

The proposal of the Ocean Science and Technology Agency to acquire an oceanographic research vessel from West Germany has been cleared by the Union Cabinet,

The cost of the vessel including equipment on board is estimated at Rs. 20 crore which will be met from West German aid.

LET'S TALK IT OVER

M/s. Gangadevi marine Fishermen Co-operative Society, Orissa

We have decided to operate 20 mechanised boats (Trawlers) of 32 ft during 1979-80 under financial assistance from A. R. D. C. Therefore, we would like to know the suitable diesel engines of Kirloskar make tested and recommended by your Institute.

CIFT: The followidg engines of Kirloskar make have been tested py this Institute ai recommended for 32 ft fishi vessels.

1. RBV 4 M - 53.5 H. at 2000 r. p. m.
2. RB 33 M - 46 H. I at 2000 r. p. m.

(Contd. on Page 14)

The vessel will help India to survey and exploit the maritime resources in its exclusive economic zone and the continental shelf, it will be used for studies relating to non-living resources with marine geosciences, physical and chemical oceanography and meteorology as major disciplines.

— HINDU

BUMPER FISH CATCH

A bumper fish catch mostly brown prawns, has been reported in all ports by fishermen between Mangalore and Cochin this season.

Local fishermen say such a big catch has not been experienced for the past 10 years.

Freezing plants on the Konkan coast cannot cope with the catch due to Shortage of ice and tranpos facilities and this has resulte in some fish going waste.

Fish prices remained stead throughout the season, fror February to May, along th coast. The present price range from Rs. 22 to Rs. 36 per kg There are 7,400 mechanise fishing boats operating on th Konkan coast.

—HINDU

National Bureau to Preserve Fish Species Planned

The Indian Council of Agricultural Research propose to set up a national bureau of fish genetic resources for cataloguing and conserving the available fish species in the country. The bureau will initially have three centres at Dhauli, Kakdwip and Cochin for freshwater, brackishwater and saltwater fishes, respectively.

India's fish fauna is believed to be one of the richest in the world. There are roughly about 1,800 fish species in varied types of water bodies having diverse ecological conditions and widely varying geographical locations. Only a few of these are commercially exploited at present,

—TIMES OF INDIA

Fisheries Projects

Burma is to get a £ 500,00C grant from Britain to proceed with two fisheries projects. The grant is to be allocated to the People's Pearl and Fisheries Corporation to finance the purchase of a fisheries research vessel and of an ice plant to be installed at Kanbe, in the Irrawaddy delta. The vessel and associated equipment will be procured through the Crown Agents.

— Third World Agriculture.

Meet Our Scientists—5

P. N. KAUL

Born 1942 Srinagar (Kashmir); B. Sc. 1960 Univ. of Jammu & Kashmir; BVSc & AH 1964 Punjab Agricultural University.; M. Sc. (VM & AH) 1967 Pb. Agric. Univ.; PhD 1970 Pb. Agric. Univ. Specialization: Extension Education.

Teaching Assistant at PAU, Hissar for 2½ years from 1964 to 1967; Lecturer in Extension for 6 months at PAU, Ludhiana in 1967; Asst. Professor of Extension Education for about one year at Himachal pradesh University, Palampur in 1969-70; Scientist (Extension) for 8 years at Indian Veterinary Research Institute from 1970-1978. Currently working as Scientist (Agri. Extension) at the CIFT and in-charge of Extension, Information and Statistics Division.

Helped in starting the divisions/departments of Extension Education at the Punjab Agricultural University, Hissar, at Himachal Pradesh University, Palampur and at the Indan Veterinary Research Institute, Izatnagar, from the very inception. Helped develop the Operational Research Project for livestock improvement and fodder development at IVRI. Worked with farmers, officials, non-officials, fishermen, etc. for extension work in agriculture, animal sciences and fisheries. Helped in disseminating scientific and technical information through various media to farmers, fishermen and extension workers and drew the attention of crop, animal, and fisheries scientists and admini strators towards practicial problems faced by farmers, fishermen and extension workers Organized training courses for officials at various levels on a scientific basis in diverse subjects. Won 2nd prize in the first All-India paper-reading contest in Extension Education. Edited a research journal "Punjab Veterinarian" for nearly three years. Represented the IVRI in the Indian Standards Institution for formulating various standards in connection witn laboratory animals. Member of the Indian Psychological Association and the Indian Society of Extension Education; past member of the Rural Sociological Society.

Taught under graduate courses in Extension Education. Recognized as guide for the doctoral research programmes of the Kerala University and the Cochin University. Contributed to two books dealing with research in Extension Education and has 20 publications. At present working on the adoption of a few items of fisheries technology.

Extra-curricular activities: Represented the PAU at the 9th All-India Inter-University Youth Festival; was member of the College Cricket eleven; 'B' Certificate holder in NCC; hobby is music appreciation.

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What They Have to Say About CIFT

With the help of Institutions like this India will sooner than later join the front rank of the worlds fishing Nations.

—T. V. PARASURAM, Washington Correspondent, Indian Express.

I am happy that I have been able to visit this apex Institute of research in Fisheries Technology in India.

—T. T. JOSEPH, Secretary to Govt. of Pondicherry

I sincerely hope that a purposeful co-operation will develop between CIFT and PFP for the benefit of fishe development in India.

—T. SCHARTE, F Head Quarters, Ro

(Contd from Page 12)

3. RB 44 M - 61 H. P. at 2000 r. p. m.

M/s. Swastik Household & Industrial Products, Bombay :

We would request you to let us know the names of manufacturers who can supply Fish Oil for non-edible purpose and if possible, the price indication prevailing at the moment.

CIFT: Please contact the follwing parties for fish oil.

1. The Managing Director, Kerala Fisheries Corporation, Shanmugham Road, Cochin - 682 011.

2. M/s. Mukka Oil and Food Industries, Karnataka Bank Building, Kodiyalbail, Mangalore - 575 003.

Depending upon the quality, the price of fish oil may vary from Rs. 4.50 - Rs. 6/kg.

The Director, Defence Food Research Laboratory, Mysore :

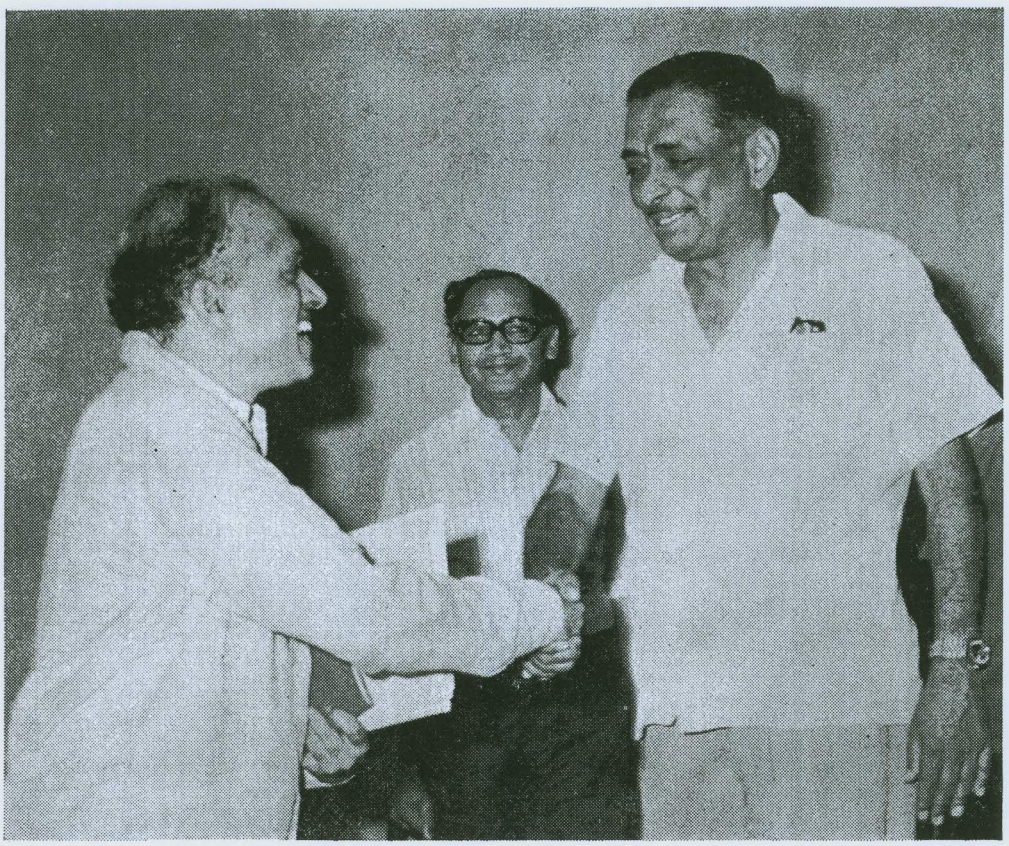
For canning fish in oil what are the oils or mixture of oil which can be used in order to ensure adequate storage life of the product. IS : 4304 for tuna canned in oil stipulates only deodorised refined vegetable oil.

CIFT: Refined and deodorised ground nut oil, cotton seed oil or olive oil can be used for packing oil sardines. A process using ground nut oil and refined sardine oil in 1 : 1 ratio has also been reported in the article 'Use of sardine oil in oil sardine packs. —by D. P. Sen and G. D. Revankar published in Seafood Export Journal, Vol. 3 No. Pages 13-18.

Dircetorate of Fishe es, Govt. of Goa, Daman and Diu, Pan

We have taken up activities of fish processing intends to establish a "I Meal Sausage Plant" to m good use of trash fish. total raw material used will to the tone of half tonne one tonne per day. Pl intimate the types of mac ery required for the said p and its capacity.

CIFT: This Institute has d loped a rotary drum dryer production of fish meal $\frac{1}{2}$ tonne raw material capa We have not developed far a fish meal sausage pl



Dr. M. S. Swaminathan, [redacted] Secretary, Ministry of Agriculture and Irrigation and former Director General of ICAR on a visit to C I F T is being received by Sh. G. K. KURIYAN, Director.