**SITE COMMITTEE MEETINGS**

A Site Committee was constituted under the chairmanship of Prof. Mohan Joseph Modayil, with ICAR officials, various Heads of divisions of CMFRI, CIFT, KAU, CPRI, State Government Departments such as Agriculture, Animal Husbandry and Fisheries as members and Dr. R. Sathidihas, Principal Scientist & Head, SEETID, CMFRI as the thematic leader and Member Secretary.

- The first site committee meeting was held on 8th December 2000 and gave approval for 30 interventions over a period of 3 years and implementation of 17 interventions in the first phase.
- The second site committee meeting was held on 18th June 2002 and approval was given for 15 interventions.
- The third site committee meeting was held on 14th May 2004 and six refined interventions were approved for horizontal expansion.

**POTENTIAL FOR WIDER TRANSFER AND IMPACT PROJECTIONS**

- The experiments at Elumkunnapuzha proved that the average yield of Mugil cephalus is 4.050 kg/ha and Chanos chanos 5.00 kg/ha with an average farmgate price of Rs. 315/kg and Rs. 70/kg respectively. If 20,000 ha of potential area of Kerala is brought under monoculture and polyculture of fishes in a time span of 10 years, an additional production of 60,000 kg can be attained, fetching a surplus revenue of about Rs. 420 crore per annum even if an average production of 3 t/ha with an average price of Rs. 70/kg is anticipated.
- The coastal districts of Kerala have a coconut plantation area of 7,46,046 ha with an annual production of 486 crore coconuts. The IVLP experiments have shown an increment of 40 nuts per palm per annum by Integrated Nutrient Management. If this intervention is replicated in at least 20% of the coconut farming areas of coastal districts of the State in a time span of 5 years, an additional production of about 82 crore coconuts could be achieved even with an annual increment of 20 nuts per palm. The surplus net returns after deducting additional expenses per annum for INM would be about Rs. 190 crore from the coconut plantation of coastal districts of the State.

Elumkunnapuzha experiments showed a daily increment to the tune of 1.5 kg milk per treated cow (from 7.5 L/day to 9 L/day). This intervention, if applied to at least 20% of the cattle population in Kerala in a time span of 5 years, the surplus milk yield would be about 1,000 tonnes per day. The surplus revenue would be about Rs. 220 crore per annum from milk production alone.

- The poultry showed an increment of 2 eggs per 10 birds per day (from 3 eggs per 10 birds per day to 5 eggs per 10 birds per day) with the introduction of improved variety "Gramaalakshmi". The additional egg production per day would be about 10 lakh eggs, if the intervention is applied to 20% of the population. The net revenue generated would be about Rs. 12.00 crore per annum from additional egg production alone.

**EXPECTED IMPACT**

- By following the four identified interventions, at an adoption rate of 25% in the coastal belt of the State, a surplus production of about 60,000 fish, 52 crore coconuts, 2.7 lakh tonnes of milk, and 200 lakh eggs could be obtained contributing to the State an additional returns of Rs. 842 crore per annum.

**MAJOR PUBLICATIONS**

- Books:
  - CMFRI Special Publication Nos. 75, 81, 82, 87
  - Research Papers: 5
  - Popular Articles: 4
  - Video Film: 1
  - Extension folder: 1

*Edited by Dr. R. Sathidihas, Principal Scientist & Head, SEETID, CMFRI, Kochi-682 018
Published by Prof. Mohan Joseph Modayil, Director, CMFRI, Kochi-682 018*
Benefits
- Production increment of 1.3 t/ha (from 5,700 kg/ha to 7,000 kg/ha)
- Net profit for treatment was Rs. 4.43 lakh/ha as against Rs. 2.54 lakh/ha by farmers' practice

II. Agriculture Based Intervention - INM in Coconut Plantation

Almost all the agricultural interventions produced better results. Kerala depends on other States for its requirement of vegetables and other agricultural products. There is enormous demand for vegetables in the urban Ernakulam market and hence there is immense scope for enhancing vegetable production along the embankments of ponds. However, the most significant intervention having far reaching impact on coastal agro-ecosystem is Integrated Nutrient Management (INM). Practices in coconut plantation, which needs to be accorded top priority.

Non-Treated Coconut Trees
- Most of the people in the coastal belt depend on earnings from fisheries and coconuts for their livelihood.
- Fertilizer application and appropriate management practices were lacking in most cases.
- Introduction of INM based on soil test data.
- Recommended nutrient dosage per palm was 1 kg lime, 2 kg urea, 2 kg super phosphate, 2 kg murate of potash, 1 kg magnesium sulphate and 0.5 kg sunn hemp seeds per annum.

Performance indicators
- Number of bunches per palm increased from 7 to 9.
- Number of nuts produced per bunch increased from 6 to 10.
- The number of nuts per palm increased by forty-eight (from 42 to 90) per annum.
- Nut weight showed an increment of 475 g.
- Net returns were Rs. 0.5 lakh/ha for treatment against as 0.15 lakh for farmers' practice.

II. Agriculture Based Intervention - INM in Coconut Plantation

Livestock - Centre for Advanced Studies in Poultry Science (CASPS), College of Veterinary and Animal Sciences (CVAS) of KAU, District Animal Husbandry Office and Village Veterinary Clinic of Government of Kerala-marketing outlets

Agriculture - KVK of CMFRI, Agricultural Technology Information Centre (ATIC) of KAU, Banuna Research Station, Kunnad of KAU, Krishna Bhavan of Government of Kerala, Department of Agriculture, Government of Kerala, Laboratories and Nurseries of various institutions and fertilizer firms.

All the interventions were functionally linked with the stakeholders mainly through a pair of key informants, frequent visits of scientific personnel and a group of progressive farmers. The linkages developed in this programme enabled the stakeholders to sustain and continue their efforts.

TECHNOLOGIES FOR HORIZONTAL SPREAD
- Altogether 31 techno-interventions were assessed and refined in farmers' fields (13 fisheries, 5 livestock and 13 agriculture).
- Number of farm families participated in TAR experiments of CMFRI were 667 with the average family size of 5.
- The total population covered under this programme is 3,435.
- Selected and prioritized techniques having far reaching impact in the coastal agro-ecosystem pertaining to fisheries, agriculture and livestock are discussed below.

I. Fishery Based Interventions

- Although shrimp farming proved to be very profitable on account of its high market demand, there are areas unsuitable for shrimp farming where they are cultured due to sheer greediness and ignorance.
- Instead of utilizing such areas for shrimp culture, other species like finfish and crab which could fetch better and optimum returns could be highly advisable in monoculture and polyculture production systems.

A) Monoculture of grey mullet (Mugil cephalus)

Interventions

- Eradication of predators prior to stocking
- Stocking at a standardised rate of 15,000 seed/ha
- Fabricated sluices introduced for better water exchange
- Fish feed with wheat bran, rice bran and oil cakes recommended.

Dr. Mario Pedini, World Bank Expert, visits Fish Farming Site

B) Monoculture of milkfish (Chanos chanos)

Interventions

- Eradication of predators prior to stocking
- Standardised stocking rate of 15,000/ha

Benefits

- Increase in yield (55%) from 2,625 to 4,050 kg/ha
- Net profit was Rs. 2.76 lakh/ha as against Rs. 1.18 lakh/ha in the farmers' practice

II. Agriculture Based Intervention - INM in Coconut Plantation

INM Treated Coconut Trees

III. Livestock Based Interventions

A) Dairy farming

Constraints
- Absence of scientific practices like prophylactic measures and feed supplementation.

B) Polyculture of finfish (milkfish and grey mullet)

Interventions

- Fabricated sluices for better water exchange
- Natural fish entry of restricted feed
- Eradication using malathion oil cake

Benefits

- Production increment of 1.75 t/ha (from 3,750 to 5,500 kg/ha)
- Net profit of Rs. 2.23 lakh/ha against Rs. 0.85 lakh/ha by farmers' practice.

Visit of Dr. E.G. Silas, Chairman NATP Review Team to the Finfish Farm

Harvesting of Milkfish

Benefits

- Production increment of 1.75 t/ha (from 3,750 to 5,500 kg/ha)
- Net profit of Rs. 2.23 lakh/ha against Rs. 0.85 lakh/ha by farmers' practice.

II. Agriculture Based Intervention - INM in Coconut Plantation

INM Treated Coconut Trees

III. Livestock Based Interventions

A) Dairy farming

Constraints
- Absence of scientific practices like prophylactic measures and feed supplementation.

B) Polyculture of finfish (milkfish and grey mullet)

Interventions

- Fabricated sluices for better water exchange
- Natural fish entry of restricted feed
- Eradication using malathion oil cake

Benefits

- Production increment of 1.75 t/ha (from 3,750 to 5,500 kg/ha)
- Net profit of Rs. 2.23 lakh/ha against Rs. 0.85 lakh/ha by farmers' practice.

Visit of Dr. E.G. Silas, Chairman NATP Review Team to the Finfish Farm

Harvesting of Milkfish

Benefits

- Production increment of 1.75 t/ha (from 3,750 to 5,500 kg/ha)
- Net profit of Rs. 2.23 lakh/ha against Rs. 0.85 lakh/ha by farmers' practice.