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KERAGRAM IN VARANDARAPPILLY:

A Success Story

1. INTRODUCTION

The Central Plantation Crops Research Institute had evolved a twin strategy for tackling coconut root (wilt) disease, namely "Contain the disease" and "live with the disease". To achieve the first objective a Field Station was established at Irinjalakuda in Trichur district in 1979 with the programme of eradicating all the disease affected palms north of Karuvannur river and Amballur-Palappilly road, the protective belt maintained by the Kerala Agricultural Department to check the disease. Eradication of the diseased palms was initiated in 8 villages along the belt from Varandarappilly in the east to Keezhppallikkara in the west which was subsequently extended to all the northern districts of Kerala as and when the disease was located. To supplement this, the possibility of increasing the productivity of the coconut crop in the belt area was also considered. In consultation with the Kerala Agricultural University, the Kerala Agriculture Department, the major fertilizer concern of the State, the FACT and the local financing agency, Indian Overseas Bank, a scheme was formulated in 1980-81 for implementation initially in an area of nearly 125 acres in Varandarappilly village.

2. THE SCHEME

The salient features of the scheme are systematic eradication of all disease affected palms, adoption of appropriate plant protection measures and proper management practices with the aim of checking the spread of the coconut root (wilt) disease and improving the productivity of the crop.

In order to assist the small and marginal farmers to carry out the cultivation and manurial practices necessary term finance is to be provided to the farmers.

2.1 *Area of operation & beneficiaries*

It was proposed to implement the scheme in the IVth ward of Varandarappilly village where all the beneficiaries come under marginal and small farming group. The total number of cultivators are 206 in an area of 126.23 acres having a total of 5739 palms in different age groups, 55% of them in the bearing stage and 45% below 5 years. According to the size of the holding 67% of the farmers have less than 50 cents, 20% upto 100 cents and 7% have 1 to 2 acres and 6% more than 2 acres. The bench mark survey indicated an average yield of 28 nuts per palm per year.

2.2 *Implementation*

The scheme was implemented as a collaboration project of FACT, CPCRI, IOB and Kerala Agricultural Department, wherein FACT will organise and supervise adoption of management practices including input requirements and the CPCRI is to provide technical expertise and adopt plant protection measures with the co-operation of the Agricultural Department and IOB to extend financial help for the timely execution of the operations. The Kera Gramam came into existence in May, 1981. The programme was envisaged for three years. A working committee was identified with representatives of the participating agencies, the Panchayat President, Panchayat members of the IVth ward, President and Secretary of the Service Co-operative Society and four farmers from Keragramam. The working committee was scheduled to meet once a month to review the progress and to evolve suitable arrangements for the functioning of the scheme. Based on the assessment of the performance of palms in 1983 and in view of the heavy drought in the same year, the IOB was requested to extend the loan facility to the farmers for two more years. However only 50% of the farmers availed themselves of this facility in 1984 and 1985.

2.3 *Extension and Education*

An information Centre and a Krishi Vignan Kendra were run by FACT at the Keragramam with a full time Field Assistant who maintained close liaison with the

various agencies and also supervised the field operations. A monthly calendar of operations for coconut gardens was prepared by the CPCRI and was printed and distributed to the farmers by FACT. A suggestion book maintained at the information centre provided an opportunity to the farmers to record their requirements which were taken care of by the various agencies.

The FACT attended to the soil test in the Keragramam and communicated the recommendations regularly. The FACT also took the lead in the fertilizer promotion programme in the adopted village by personal contacts, arranging mobile fertilizer depots, conducting fertilizer festival, group discussions, agricultural seminars and organised training to the farmers on the scientific aspects of coconut cultivation by agricultural experts through the Krishi Vignan Kendra and Information Centre.

3. PACKAGE OF PRACTICES ADOPTED

3.1 *Eradication of coconut root (wilt) disease affected palms*

The programme of eradication of the diseased palms by the CPCRI covered two wards of Varandarappilly village including the 4th ward which formed the Keragramam. The diseased palms were cut and removed with the bole and roots after an insecticidal spray with 0.05% carbaryl. The bole and roots were burnt *in situ*. The farmer was given compensation for the eradication of the palms at Rs.75/-per palm in cash, a quality coconut seedling and its fertilizer requirements for three years in kind by the CPCRI. Surveillance of the disease affected garden was carried out periodically for rouging out the disease affected palms. Agriculture Department supplied coconut seedlings to meet the additional requirements of the farmers.

3.2 *Plant protection measures*

Spraying of the coconut palms with 1.0% Bordeaux mixture during pre and post monsoon periods was arranged through the Panchayat by the Agricultural Officer. Control measures for budrot and infestation of red palm weevil were also carried out by the farmers with the help of the field workers of the Agricultural Department.

3.3 *Management practices*

a) *Manuring :*

Fertiliser mixture 10:5:20:1.5 for coconut supplied by the FACT at the rate of 6 kg. per palm per year was the scheduled dose recommended. Under rainfed conditions the fertilizer mixture was supplied in two split doses, 1/3 in May and 2/3 in September. In irrigated gardens fertilizer mixture was supplied in 4 split doses. Green leaves were applied in June - July according to availability. Agriculture Department supplied seeds of green manures like Daincha to promote the use of green manures in coconut gardens.

b) *Cultural operation :*

Opening of basins around the palms in June and closing in September and digging the garden in October - November were adopted.

c) *Irrigation :*

Majority of the area was rainfed. Irrigation was arranged only in bigger holdings. 36 pumpsets were supplied to the farmers on subsidised rates, involving Rs. 1,72,157/-.

4. FINANCIAL SUPPORT

The cost of cultivation per palm per year was worked out as Rs. 16/- excluding labour cost. The cost of fertilizers and plant protection chemicals was paid direct to the suppliers, and the balance amount disbursed in cash. The cost of own labour, 67% of the beneficiaries being marginal farmers was not taken in the scale of finance for financing purpose.

A total amount of Rs.2,70,263/- was disbursed by the bank to 160 farmers during 1981-83 based on their eligibility for availing of the loan facility.

5. EVALUATION

5.1 *Interim assessment*

After three years of implementation of the scheme a random assessment of the response to the scheme was conducted by a team representing the participating agencies on 8, 9 and 10 August 1983. The survey covered 100 gardens in the Keragramam. Both the small and marginal farmers agreed to have noticed increase in yield of the palms ranging from 5 to 7 nuts in unirrigated gardens and 10 to 15 in irrigated gardens. General improvement in the vigour of the non - bearing palms was also reported. In general the farmers were enthusiastic about the programme. The damage due to the severe drought in 1983 was

assessed as severe in 25 to 30% of the gardens, moderate in 50% and slight in 20 to 25%. A significant observation made was the severe button shedding in the irrigated gardens during April - June when there was paucity of water for irrigation. In unirrigated gardens button shedding was comparatively less, while in irrigated gardens with no scarcity of water, there was very little button shedding but no leaf damage.

5. 2 A detailed assessment of the response to the package of practices was carried out during 12 to 14th August 1985 by these teams representing the CPCRI, the FACT, the Agricultural department and the IOB when all the 160 gardens were visited.

a) *Incidence of coconut root (wilt) disease*

Out of the 160 gardens covered by the Keragramam 28 gardens had 79 diseased palms which were eradicated during 1979 to 1981 i. e. prior to the implementation of the scheme. Periodical observations on further disease development showed that 30 more palms contracted the disease between 1982&1985. The details of disease recurrence presented below reveal considerable reduction in disease during the period.

INCIDENCE OF COCONUT ROOT (WILT) DISEASE

Period	No. of gardens	Palms affected
1979-81	28	79
1982	8	20
1983	4	4
1984	4 (3 + 1)	5 (one palm in one garden)
1985	2	2

The number of disease affected palms varied from one to 24 per garden. Repeated recurrence was noticed in three gardens. Fresh incidence of disease was observed in one garden in 1984. One garden had recurrence of disease in 1985 after a gap of 5 years. All the disease affected palms were cut and removed and the Keragramam is now free of disease.

b) *Productivity of palms*

The yield data of 155 gardens consisting of 4938 palms for 1984-85 was recorded based on the reports of the farmer. In the 126 healthy gardens having 3831 palms an average yield of 47 nuts was reported whereas in the 29 disease affected gardens having 1107 healthy palms average yield was 51.3. Thus an increase in yield by 68% in healthy gardens and 83% in diseased gardens was observed over the average yield of 20 nuts per palm per year in 1980-81.

Data collected from the 11 demonstration plots with 10 palms each maintained by the FACT confirm the observations reported earlier.

The yield recorded by the Field Assistant of the FACT from 1981 to 1985 is as follows:-

Sl. No.	Average yield per palm per year 1981-82	82-83	83-84	84-85	
1.	14	22	18	38	
2.	21	37	39	56	
3.	18	30	36	58	An average increase
4.	26	34	36	51	by 145% in the yield
5.	21	36	34	48	of nuts by proper
6.	29	43	48	64	management during
7*	13	18	16	34	the course of four
8.	20	36	34	54	years was effected.
9.	21	33	31	54	All the gardens ex-
10.	32	42	34	64	cept two* were irri-
11*	9	13	12	21	gated.
Total	224	344	338	542	
Average	20.2	31.2	30.7	49.2	

6. CONCLUSION

The aim of the Keragramam to check the spread of the coconut root (wilt) disease and increase productivity of the crop by management was fulfilled with the co-operative effort of the institutions involved. The necessity to eradicate root (wilt) disease affected palms to reduce the development of the disease, for which no other check is readily available, is well brought out by the lowering trend in the incidence of disease. Regular and systematic rouging of all disease affected palms is essential to render the area free of disease. The urgent need to rejuvenate the palms by adoption of agronomic and plant protection measures and to increase production and ensure economic returns from the perennial crop has also been proved beyond doubt. It is for the individual farmer to take the lead from the Keragramam to protect the coconut crop and maintain it economically.

—CPCRI, Kasaragod