

Laying out of Demonstration Plots for integrated management of coconut root (wilt) disease in Tenkasi district

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Launching of LoDP scheme at Thenkasi

Root (wilt) disease (RWD), is one of the major debilitating diseases of coconut palms in peninsular India. The disease is prevalent in certain regions of Kerala and Tamil Nadu. In Kerala, RWD was noticed as early as in 1874 and the disease is widespread from Thiruvananthapuram to Thrissur districts. The disease is also observed in isolated areas in northern districts of Kannur, Kasaragod and Kozhikode. The initial reports of RWD incidence from Tamil Nadu state (Kanyakumari and Senkottai regions) dates back to 1970s. Further, the disease was reported from Coimbatore district during 1980s and from Cumbum (Theni district) in the year 2000. The presence of the disease has been recorded in Tirupur district in 2019.

RWD is a non-lethal disease, but disease contraction in the pre-bearing age delays flowering

Root (wilt) disease is spreading slowly to new areas causing significant threat to coconut cultivation in Kerala and Tamil Nadu. Area-wide adoption of integrated management approaches help to revive the coconut palm health in RWD affected tracts.



LoDP Field visits

and affects the vitality of the palm. About 65 per cent of the RWD palms are affected by a fungal disease known as leaf rot.

The leaf rot disease superimposed on root (wilt) diseased palms lead to rapid decline and reduction in yield. Being a phytoplasmal disease, no curative measures are available to manage RWD. A significant feature of RWD is that it is not lethal. The diseased palms respond well to the management practices and hence integrated disease management practices are advocated to enhance yield and income per unit area even in disease prevalent tracts. ICAR-CPCRI has evolved inclusive management strategies through tolerant varieties, systematic nutrient application, biomass recycling as well as management of leaf rot disease. These technological options were area-wide demonstrated in RWD-endemic regions of Kerala and enhanced palm health as well as farm income boosting confidence among coconut community.

Laying out Demonstration Plots (LoDP) in Tamil Nadu

The spread of root (wilt) disease in major coconut

cultivating tracts of Tamil Nadu is a growing concern considering the role of coconut in the economic security of thousands of farm families. The decline in production due to the disease along with the negligence of the crop by the disappointed coconut community results in significant yield reduction heavily impacting the production and marketing segments of coconut sector. Scientific experiments and field trials conducted at ICAR-CPCRI have established that adoption of integrated management practices improved palm health and ensured sustained productivity from RWD affected coconut palms. Since the disease is highly debilitating causing significant loss in nut yield, farmers in the region are to be empowered with good management practices so as to enhance the nut yield. Hence, to increase awareness among farmers on the necessity to adopt integrated management approaches to enhance and sustain the income from disease affected plantations, ICAR-CPCRI proposed to lay out demonstration plots in Tenkasi District of Tamil Nadu with collaboration and financial assistance of Coconut Development Board. This LoDP scheme on 'Integrated Management of Coconut Root (wilt)



Training and input distribution to farmers of LoDP scheme

Disease’ aims to demonstrate the management practices developed by ICAR-CPCRI to improve the palm yield and to enhance the income in diseased tract through farmer-participatory approach

Converging resources to tackle the emerging concern

Collective and coherent action of Coconut Development Board, ICAR-CPCRI, Tamil Nadu Agricultural University, Tamil Nadu State Department of Horticulture and Plantation Crops and farmers were found to be imperative to ensure quick and effective implementation of the LoDP scheme. Accordingly, various meetings involving stake holders were conducted at various levels for streamlining the activities to be undertaken under the scheme. The activities proposed included awareness campaign/training programmes, formation of farmer clusters, farmer participatory management of coconut palms, supply of critical inputs, production of quality planting materials etc. The cooperative societies/banks present in the operational area of the scheme arranged and distributed fertilizers for the farmer beneficiaries with the financial assistance from CDB.

A three days training programme on ‘Identification and management of root (wilt) disease of coconut’ was organized by ICAR-CPCRI Regional Station Kayamkulam during 4-6 March, 2024 for empowering officials from Department of

Horticulture & Plantation Crops, Tamil Nadu. Thirty officials representing Coimbatore, Tirupur, Theni, Tenkasi and Kanyakumari Districts attended the training. The officials were trained to identify root (wilt) disease, disease indexing, managing important pests on coconut including exotic whiteflies infesting palms, resistant/tolerant coconut varieties/hybrids to combat root (wilt) disease, innovative ground pollination techniques, nutrient management with emphasis of customized nutrient mixtures, leaf rot disease management, microbial consortia enhancing palm growth and stress tolerance, systems approach to de-risk farmers as well as farmer-participatory, community-mode and area-wide disease management strategies that were successfully demonstrated in Kerala. Hands-on-training were given on the mass production of bioagents used against coconut pests, field identification of pests and diseases, root (wilt) disease identification and indexing, collection of male flowers and processing for pollen collection, and hybridization techniques in coconut.

Random surveys were conducted by ICAR-CPCRI along with CDB in RWD affected areas of Tenkasi District to select the demonstration plots. The officials of Tamil Nadu State Department of Horticulture rendered support in selection of demonstration plots and farmer beneficiaries. Three blocks with RWD incidence viz., Senkottai, Tenkasi and Kadayanallur

were selected for laying out demonstration plots. The scheme is now being implemented in a total of 100 ha with 25 ha each in four villages—one each from Senkottai (Puliyara), Kadayanallur (Kadayanallur) and two from Tenkasi (Kanakkupillaivalasu, Vadakara). Pest and disease incidence status of coconut palms from representative plots were recorded. Disease incidence ranged from 32-64% for RWD and 12-24% for leaf rot in selected plots. A total of 110 farmers were selected as beneficiaries of the scheme.

Launching of the LoDP scheme

The LoDP on 'Integrated Management of Root (wilt) in Coconut' funded by Coconut Development Board, Kochi and implemented by ICAR-CPCRI with the field support of Tamil Nadu State Department of Horticulture & Plantation Crops was launched on 15th November 2024 at the Nannagaram Community Hall, Melagram Block Panchayat near Courtallam. Dr. K. B. Hebbar, Director, ICAR-CPCRI, Kasaragod presided over the programme. Shri. M. Elango, Deputy Director of Horticulture inaugurated the programme and outlined the synergistic role of ICAR-CPCRI and the State Department of Horticulture in the outreach of the scientific technologies to enhance income from coconut. Shri E. Aravazhi, Director (Development), CDB, Regional Office, Coimbatore highlighted on the various schemes of CDB for the welfare of the coconut community. This was followed by a technical session on "Palm Health Management" handled by Dr. P. Subramanian, Head, Division of Crop Production, ICAR-CPCRI, Kasaragod. Dr. Regi J. Thomas, Head, ICAR-CPCRI, RS, Kayamkulam welcomed the gathering and Dr A. Joseph Rajkumar, Principal Scientist and Principal Investigator of the project outlined the programme activities. Smt. M. Thangam, ADH, Tenkasi and Smt. K. Subashini, ADH, Kadayanallur offered felicitations. Dr. S. Indhuja, Scientist proposed vote of thanks. A pamphlet on the "Integrated Management of Root (wilt) in Coconut" in Tamil as well as a "Management kit for coconut root (wilt) disease" were released and distributed to the farmers during the occasion. More than 100 farmer beneficiaries participated in the programme.

Integrated management of RWD -Farmer participatory demonstration

Research efforts of ICAR-CPCRI have resulted in evolving integrated management technologies which was successfully area-wide demonstrated in

farmers' fields in Kerala. Under the LoDP scheme the RWD management package is customized to meet the requirements of demonstration plots in Tenkasi District.

The integrated approach involves basin and crown management. The package includes application of soil amendments based on soil reaction, sowing of cowpea, application of organic manure, incorporation of suitable bioinoculant mixture, soil-test based application of nutrients including micronutrients, leaf rot management, adoption of feasible intercrops specified for the region, systematic irrigation and targeted delivery of nutrients, adoption of IPM strategies, using seedlings of RWD resistant/tolerant varieties/hybrids (Kalpasree, Kalparaksha, Kalpa Sankara and Kalpa Vajra) and quality planting material production.

The LoDP scheme is being implemented in a farmer participatory mode where ICAR-CPCRI with financial support from CDB will provide technical support as well as critical inputs. The remaining components of the package particularly agronomic management and plant protection measures has to be arranged by the farmer beneficiaries of the scheme. Trainings on scientific management of RWD affected palms were organized for beneficiaries. Fertilizers, green manure seeds, Kera Probio and micronutrient formulation Kalpa Vardhini are being distributed to beneficiaries during the initial phase of the scheme. Microbial bioinoculants, bioagents against pests and diseases, organic inputs and plant protection chemicals will be supplied on need basis during the second phase of the scheme

Root (wilt) disease is spreading slowly to new areas causing significant threat to coconut cultivation in Kerala and Tamil Nadu. Area-wide adoption of integrated management approaches will help us to revive the coconut palm health in RWD affected tracts. Showcasing the inclusive and sustainable management options for the management of RWD in Tamil Nadu in large area with the support of Coconut Development Board is the hallmark of the programme. Coconut community in the region is being empowered on systematic and scientific management of coconut palms through pedigree, production and protection technologies auguring continuous and sustainable farm income by enhancing palm health. ■

