EXTENSION STRATEGY FOR THE MANAGEMENT OF RED PALM WEEVIL

B.T.Rayudu and S.Leena

Red palm weevil (*Rhynchophorus ferrugineus*) is a dreaded pest of young coconut palms. This borer pest is considered as one of the most serious pests of coconut in Kerala causing heavy damage more often leading to the annihilation of the young palms. Being a hidden pest, attack is not generally identified at the early stage. Symptoms of pest infestation usually become clear at an advanced stage by which time the crown topples.

Even though the pest is observed in the field throughout the season, the infestation becomes severe after the south-west monsoon. The young plantations of 5-20 years old are damaged up to the extent of 5-10%. The characteristic features of pest infestation are yellowing and wilting of inner and middle whorls of leaves, presence of small circular holes on the stem with oozing of brownish black viscous fluid and the loosening and easy detachment of leaves when pulled out. Longitudinal splitting of leaf bases, emission of a characteristic odour from the damaged portions of the crown and the presence of cocoons and adult weevils and chewed up fibres in the leaf axils or at the base of the palms are also indications of the presence of red palm weevil (RPW) in the palm.

During November 2003, Krishi Vigyan Kendra (KVK) faculty observed damage by red palm weevil (RPW) in coconut gardens belonging to Muliyar, Mogral Puttur, Madhur, Vorkady and Meenja gram *panchayats* during the field visit programmes based on the information received from the farmers and Krishibhavan officials. A pest management programme was formulated in the consultation with Pest Management Specialists of Central Plantation Crops Research Institute (CPCRI) and concerned extension officials and implemented in seven hectare of Kasaragod district. The interventions included:

Top- left to right: Adult red palm weevil, symptoms of red palm weevil infestation, grubs of red palm weevil seen inside infested palm
Bottom: Field diagnosis of red palm weevil infestation

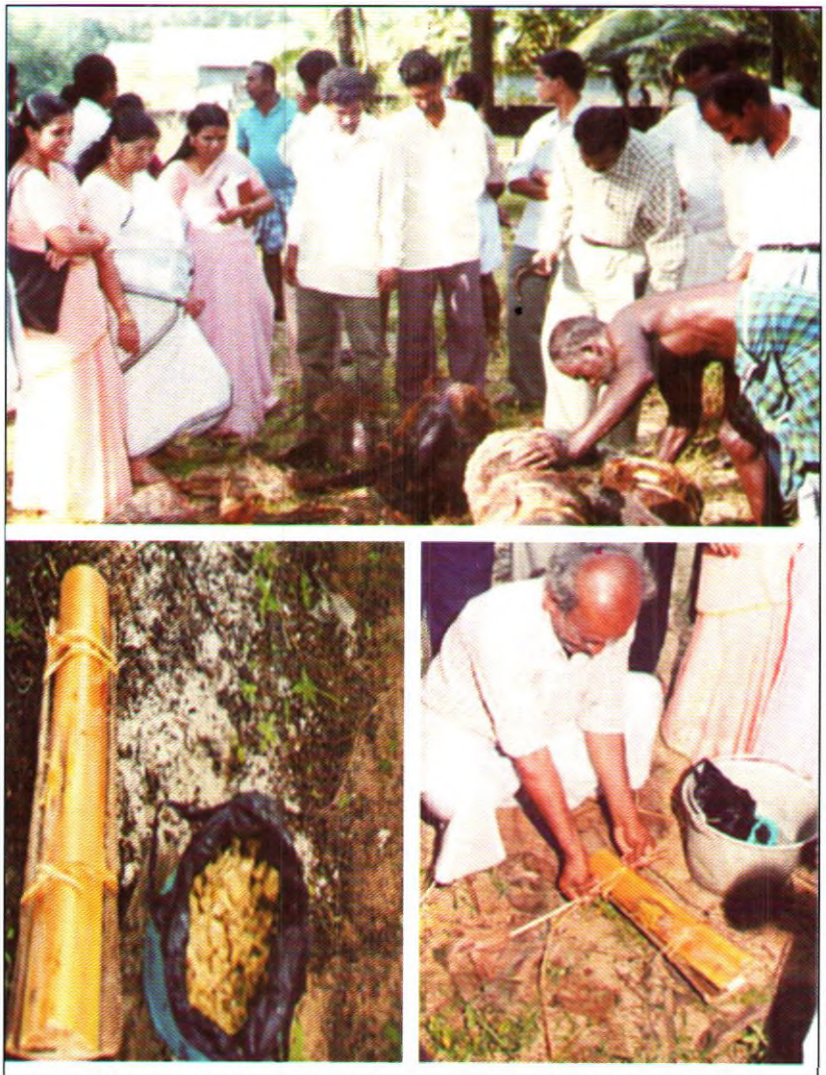
(i) Training: Two training programmes were conducted for 56 farmers to create awareness and to impart knowledge and skills on the management of RPW. Similarly two training programmes were organised for 36 extension functionaries (ADAs, AOs and AAs of Department of Agriculture) to update their knowledge and skills on the recent advances made in the management of RPW in coconut.

(ii) Consultancy services: A series of diagnostic field visits (17) were undertaken and advisory services (18) were renderded to the farmers along with the expert scientists from CPCRI, extension officials from state Department of Agriculture and KVK faculty.

(iii) Extension activities: A press release was given inviting farmers' attention on to the prevalence of RPW infestation as well participation in various activities conducted by KVK on this aspect. Organised farmers group meetings (6), seminars (4) and skill demonstrations (9) wherein farmers and extension officials were benefited. Five popular articles were published in local dailies and popular farm journals. A radio talk on the symptoms of infestation and measures of management of RPW was broadcasted.

(iv) Management practices for implementation: The recommended prophylactic and curative control measures against RPW are:

- Cut and burn all the dead palms in their respective locations to prevent the spread of pest incidence.



Top: Prompt disposal of dead palms infested by red palm weevil, Bottom: Coconut log trap with macerated sugarcane, m Mysore Poovan variety of banana and jaggery (5:1:1)

- When required, cut leaves leaving a petiole length of 120 cm to prevent entry of the pest through cut end. Avoid making steps or any other injury on the tree trunk to prevent entry through wounds.

- Treat the palms affected by bud rot caused by *Phytophthora palmivora* or infested with rhinoceros beetle (*Oryctes rhinoceros*), with suitable chemicals as they are more prone to red palm weevil attack.

- Fill top two leaf axils with two naphthalene balls (5-6 gm each) or sand (250 gm) plus neem cake (25 gm) or sand (250 gm) plus marotti cake (25 gm) per palm as prophylactic measure to all surrounding palms.

- Inject carbaryl 1% through the trunk as a curative treatment after plugging all the holes on the affected stem. If the pest infestation is through the crown the insecticide suspension should be slowly poured after cleaning the crown.

- Root feed with monocrotophos @ 10 ml in 10 ml water for pre bearing palms when the infestation is from the bole portion.

- **Set up coconut log traps**- The traps consisted of coconut logs of 50 cm long, split longitudinally and cut surfaces smeared with fresh toddy fermented with yeast and acetic acid or peeled coconut petioles arranged in trays and treated with macerated sugarcane and yeast to attract the adult weevils. Visiting weevils can be collected and killed. Alternatively a fermented mixture of macerated sugarcane, Mysore Poovan variety of banana and jaggery (5:1:1) kept inside two pieces of internally peeled coconut petioles could be used for trapping the floating population of adult beetles, which can be collected and killed.

(v) Outcome: Farmers adopted need based recommended practices based on the type of infestation in their respective gardens. In the total area of seven hectare under problem identification, out of 1240 palms 90 (7.26%) were infested before the start of interventions. Due to non-awareness about the pest and non adoption of available control measures, 38 palms were out-rightly killed by RPW (42.2%), which formed as the main source for spreading the pest incidence. Farmers were advised to dispose off these palms to prevent the further spread of the pest. Accordingly farmers uprooted these palms and burned. Concerted efforts taken at the right time to disseminate the available recommended technology against RPW resulted in the recovery of 48 palms out of 52 treated minimizing the extent of damage to 7.70 % (4 palms) and also by preventing its further spread. Timely intervention saved 92.30 % of palms.

Timely diagnosis and adoption of control measures against RPW prevented spread of pest incidence, saved 48 palms and ensured cumulative returns from these palms over years (on an average Rs.250/ palm/year).

.T. Rayidu is Senior Scientist, Division of Social Sciences and S. Leena, Senior Technical Officer, Krishi Vigyan Kendra, Central Plantation Crops Research Institute, Kasaragod-671 124, Kerala, India