PEST ALERT

Occurrence of cassava mealybug *Phenacoccus manihoti* Matile-Ferrero in India

Phenacoccus manihoti Matile-Ferrero is one of the most destructive pests of cassava in the world. It is native to South America, but has become acclimatized throughout sub-Saharan Africa since its unintentional introduction into the continent in the early 1970s causing up to 84% loss of yield and endangering the subsistence of about 200 million people. This pest was not known to occur in Asia until 2008, when it was first detected in Thailand.

At present the pest is distributed in Neotropical Region (Argentina, Bolivia, Brazil, Colombia, Paraguay); Australasian Region (Indonesia); African Region (Angola, Benin, Burundi, Congo, Côte d'Ivoire, Gambia, Ghana, Guinea, Guinea-Bissau, Kenya, Malawi, Mali, Mozambique, Nigeria, Rwanda, Senegal, Sierra Leone, Sudan, Tanzania, Togo, Uganda, Zaire, Zambia, Zanzibar); and Oriental Region (Cambodia, Malaysia, Thailand and Vietnam). Cassava mealybug is known to infest plants belonging to 9 families viz., Cyperaceae, Euphorbiaceae, Fabaceae, Lamiaceae, Malvaceae, Nyctaginaceae, Portulacaceae, Rutaceae and Solanaceae. Besides cassava, *P. manihoti* can infest crops like citrus, *Solanum* species and basil. So far thirty-three natural enemies have been recorded on this pest in other countries.

In India, infestation of this pest was observed on around 2000 square meter experimental plot of cassava (*Manihot esculenta* Crantz) in Thrissur, Kerala (Fig. 1 A). All the stages of mealybug viz., eggs, nymphs and adults (Fig. 1 B & C) were observed on all the plant parts including undersurface of leaves (Fig. 1 D) causing curling up of the leaves at growing tip of the plant leading to formation of bunchy tops (Fig. 1 E) and adventitious buds on almost all the internodes (Fig. 1 F). Heavy population resulted in drying of the leaves and complete defoliation (Fig. 1G).

In the present survey the mealybug was found to be surviving and breeding on three weeds *viz*., *Alternanthera sessilis* (Amaranthaceae), *Synedrella nodiflora* (Asteraceae) and *Blumea lacera* (Asteraceae) which may support the carryover of the pest during absence of cassava crop. Three predators *viz*., *Cardiastethus* sp. (Hemiptera: Anthocoridae), *Spalgis epeus* (Lepidoptera: Lycaenidae) and *Scymnus coccivora* (Coleoptera: Coccinellidae) were found to be predating upon the mealybug.

Strategies for avoiding spread of the cassava mealybug

- The main objective should be to evade further spread of this mealybug to other cassava growing areas of India by complete destruction of the infested plants in the specific areas
- Avoid use and transport of setts from the infested area for further planting
- Constant exhaustive monitoring and inspection for its infestation in new areas and on alternate host plants and weeds through surveys in cassava growing areas
- Record and use of native natural enemies
- Biological control is known to be very effective against this invasive pest, but no parasitoids were found in the Indian samples of cassava mealybug. *Apoanagyrus lopezi* (De Santis) has already been introduced to Thailand, where it has provided effective control of the mealybug, and has since been introduced from Thailand to Indonesia and Laos. The first priority in India should therefore be screening for the occurrence of indigenous parasitoids and introduction of *A. lopezi*.
- Use of organic chemical pesticides in heavily infested sites

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