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## STAKEHOLDER BRIEF

ACIAR Cassava Value Chain and Livelihood Program

### Cassava Pests and Disease Management in Dak Lak, Vietnam

## Introduction

Project AGB/2012/078 “Developing value-chain linkages to enhance the adoption of profitable and sustainable cassava production systems in Vietnam and Indonesia” aims to increase the profitability and sustainability of smallholder cassava production in Vietnam and Indonesia by developing effective linkages between value-chain actors to increase the adoption of improved technologies. In Vietnam the project activities were implemented in Daklak and Son La from 2017-2020 by Tay Nguyen University, NOMAFSI , the International Tropical Agriculture Center (CIAT) and the University of Queensland (UQ) with financial support from ACIAR.

Dak Lak is a province in the Central Highland Region of Vietnam and one of the top three provinces in Vietnam in terms of cassava production volume. Provincial cassava production increased 40 percent over the 10 years from 2008 (509,800 tons) to 2018 (716,400 tons) as a results of expansion of the production area from 25,600ha to 38,700 ha. During the same time period, average fresh root yield declined 7 percent from 19.9 tons/ha to 18.5tons/ha. Yield declines are due to many factors, including degradation of soil and varieties, inappropriate farming practices, pests and disease and unfavourable agro-climatic conditions.

Assessment of the cassava pest and disease situation in Dak Lak and identification of possible solutions for prevention and mitigation of negative impacts from pests and disease on cassava were some of the research activities of the project. This brief presents findings from the research activities and proposes policy recommendations on cassava pest and disease management in order to minimize the risk of disease spread and negative impacts on cassava production.

## Key Issues

There are seven common types of pests and diseases of cassava in Dak Lak that have been emerging since 2014. Pests include pink mealy bugs and red mites. The main diseases are leaf blight due to bacteria, leaf spot due to fungus, witches broom due to phytoplasma and cassava leaf mosaic disease (CMD) due to mosaic virus. These pests and diseases can survive on cassava stems after being harvested and reserved as planting materials for the following seasons. Red mites and pink mealybugs can infest all cassava varieties. Red mites grow well in the dry season and under drought conditions while pink mealybugs grow well year around. Cassava mosaic virus is spread through whiteflies.

Existing common varieties of cassava in Dak Lak are KM94, KM419, La Tre, KM140, HLS11 and HLS12. KM94 accounts for 50 of the production area and has been grown in Dak Lak for more than 10 years. HLS11 and HLS12 were recently introduced. All existing common varieties in Dak Lak have been found to be infected and damaged with pests and diseases. KM94 and KM419 are more susceptible to witches broom, and HLS11 is more susceptible to CMD, leaf blight and leaf spot.

Cassava growers' awareness and knowledge of pests and diseases is limited. Farmers usually select cassava stems from their own fields as planting materials for the following season without proper examination of how healthy the stems are and without taking into consideration of the risk of yield loss due to using unhealthy planting materials. Cassava planting material traders are not well aware of the risks of pests and diseases being spread through transport and sales of infected planting materials. Plant sanitary and phytosanitary regulations relating to cassava planting material trading and sales have not been effectively enforced.

## Recommendations

Pest control: Apply correct doses of fertilizer at appropriate times to strengthen cassava growth especially at the early growing stage. Sprinkle irrigation in dry season, if possible. Pesticides (Comite 73EC, NISSORUN 5EC, SIRBON 5EC, Ortus 5SC, KELTHANE 18,5EC) are recommended for red mite control in case there is a high density of mites identified in the fields. A. Lopezi is recommended as a biological control of pink mealybugs. In case pests are identified in the fields when cassava is mature and ready for harvest it should be harvested and all crop residues after harvest should be removed from the field and the field should be cleaned up properly before establishing the following seasons crop.

Witches broom and CMD control: Infected planting materials should not be utilised as viruses can spread to healthy plants via transmission vectors. Susceptible varieties should not be used in the region where diseases already exist because it could create higher disease infection incidence and accelerate the spread of disease spread. Rotate cassava with different crops but not crops which are hosts for whiteflies (this includes tobacco, cotton, tomato, eggplant, cucurbit, potato and chilli).

Cassava growers' and trader's awareness improvement: Farmers' knowledge about pest and disease monitoring and identification in their own fields and for the planting materials they source for the following season should be strengthened. Cassava planting material traders should be equipped with knowledge on cassava pest and diseases and skills so that they will be able to select healthy planting materials for trading. This capacity building could be conducted through agriculture extension networks of both public and private sectors with the support of specific, concise and easy to understand training materials. Phytosanitary measures should be developed and applied strictly to cassava planting material traders to prevent trading in infected planting materials.

Cassava disease free planting material production and distribution: It is not possible to produce cassava disease free planting material within disease infected regions unless the system is put under a close monitoring and control process. A proper production system which can produce large quantities of healthy planting materials rapidly to replace the existing infected cassava fields should be prioritised.

Cassava mosaic virus and witches broom diseases resistant varieties: In the long term, cassava mosaic virus and witches broom resistant varieties should be developed and made available for farmers in the region. This can be done only with efforts from cassava breeders with strong and sustainable financial support from the public sector for research and breeding activities and active collaboration from the private sector in promotion of disease resistant and disease free planting materials.

This stakeholder brief summarises issues, findings and key policy recommendations related to cassava pest and disease management Dak Lak, Vietnam from ACIAR Project AGB/2012/078 *Developing value-chain linkages to enhance the adoption of profitable and sustainable cassava production systems in Vietnam and Indonesia*. The project is funded by ACIAR and implemented by Tay Nguyen University, CIAT and the University of Queensland. The intended audience of this brief is the Ministry of Agriculture and Rural Development, Local Government and extension centres and the private sector stakeholders in the cassava value chains.

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