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## **Cassava under threat**

### ***Pest and disease outbreaks put SE Asia on high alert***

CIAT scientists and their partners in Southeast Asia have issued urgent preliminary guidelines to tackle deadly pest and disease outbreaks that have crippled cassava production in parts of the region.

The move follows a CIAT investigation into reports from Thailand's eastern and northeastern regions, of damaged and stunted cassava plants with low root yields.



Cassava is an essential pro-poor crop in the region, where it is grown by around 5 million smallholders, mainly to supply the starch processing and animal feed industries. In Thailand alone, the industry is worth US\$1.5 billion annually, and the country accounts for three-quarters of the world's cassava exports.

CIAT entomologist, Dr Tony Bellotti, was part of the investigation team that traveled from CIAT headquarters in Colombia to the region: "When we arrived at the plantations in Thailand, I was stunned. Straight away I realized we've got real problems."

A drive around the Korat region, about three hours from the capital, Bangkok, confirmed the worst: the road was flanked by field-after-field of affected plants.

One troubling discovery was the large number of mealybugs – well-known cassava pests

in Latin America and Africa, but rarely a problem for cassava producers in SE Asia. The sap-sucking insects weaken plants, resulting in leaf distortion, and lower root yields.



The Thai fields were also found to be infested by tropical whitefly and red mites, while Cassava Bacterial Blight (CBB) and Brown Leaf Spot disease were also widespread. Although seen before, none of these pest and disease problems had previously caused significant losses in Thailand.

Some analysts now predict a cut in Thai cassava output by at least 30% this season; some farmers face losses as high as 80%. Some have already abandoned their crop.

Dr. Tin Maung Aye, a cassava specialist in CIAT's Asia office said: "These pests and diseases will place a huge strain on Thailand's cassava production. Not only will the incomes of smallholder farmers be greatly affected, but so will those of the many laborers employed in the cassava industry. There will be widespread economic and social implications."

### **Double-trouble**

Then, more bad news as farmers in neighboring Vietnam began to report problems in their cassava crops. The team again found mealybugs, tropical whitefly and red mites, but the main problems were not pests, but diseases.

"The CBB was incredible," said CIAT pathologist Dr Elizabeth Alvarez. "The disease was just oozing from the stems. I've worked with cassava for 30 years and I'd never seen anything like it."

They also found symptoms known as "Witches' Broom", still new to Vietnamese farmers. This is typified by discoloration and distortion of cassava leaves, and shortening of the branches and stems. When the affected cassava is uprooted, the roots are thinner and smaller.

Further investigations are underway, and CIAT is now investigating reports that fields in Cambodia, Laos and the Philippines have also been affected.

“It’s no surprise if these problems are spreading quickly,” continued Tony Bellotti. “If the mealybug, for example, can find its way from its native Latin America, across the Atlantic to Africa, and then to Asia, it can find its way around the Mekong region and beyond.

“We can be fairly sure that China and Myanmar will be hit soon, and in time, Indonesia too,” he said.

“Cassava production in SE Asia has enjoyed an extended honeymoon period. That period is now over.”

### **Taking control**

CIAT Asia is working with national partners to provide cassava management guidelines. “This is a red alert,” said Tin Maung Aye. “We’re still coming to terms with the scale of the problem, but without decisive action, we expect a huge slump in cassava output in SE Asia. That would be devastating for rural livelihoods in the region.

“The spread is almost certainly caused by the movement of infected planting material,” Tin continued. “One of the first responses is for the authorities in affected countries to impose strict quarantine regulations on the movement of cassava, especially the stems used as planting material, and of related species, like jatropha.

“Farmers also need to be trained to select and safely store clean planting material, and to identify pests and diseases. Establishing an effective surveillance and monitoring system with a Geographic Information System (GIS) database is essential.

“We will also need to develop an Integrated Pest and Disease Management (IPDM) strategy, based primarily on biological control. With sufficient and well-focused donor support, the current attempts to develop an effective IPM strategy could be strengthened very quickly, which will help protect next season’s crop. Over the medium to longer term, the biological control and IPDM strategy would be strengthened and include release of natural enemies to control pests and the insects that carry the diseases. Breeding of cassava varieties with greater pest and disease resistance would become a priority.


“As a result of generous, long-term support from the Nippon Foundation, CIAT and partners have had an extremely positive impact on cassava production in SE Asia, and the livelihoods of cassava farmers. We are therefore well-placed to provide solutions to the current pest and disease outbreaks,” he continued.

“But there is no time to lose.”

### **CIAT's main recommendations at this stage are:**

- Select pest and disease-free plants in the field for collection of stems as planting material
- Store stems for planting in a cool, dry place, and if necessary dip in a systemic insecticide such as Thiamethoxam
- Avoid application of foliar pesticides – they can affect beneficial biological control agents
- Restrict the movement of cassava planting stakes, especially from infected areas and restrict the movement of related species such as jatropha
- Train extension staff and farmers in the identification of the various pests and diseases and develop a network of trained professionals in the region and a GIS-based system to monitor pests and diseases
- Initiate research into the identification and control of all observed pests and diseases, and their vectors
- Initiate a breeding programme to develop resistance to pests and diseases.

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