

Cassava pests: from crisis to control

The cassava mealybug (*Phenacoccus manihoti*) and cassava green mite (*Monoychellus tanajoa*) invaded Africa in the early 1970s and, by 1987, had spread to 31 countries causing considerable damage to cassava crops (up to 80%). The situation was particularly worrying for the large numbers of subsistence farmers dependent on the crop who had no means of fighting the pests with chemical pesticides. To their aid came The Biological Control Centre for Africa which was established in the 1980s by the International Institute of Tropical Agriculture to support an Africa-wide classical biological control campaign.

IITA researchers and farmers assess the impact of predatory mite releases against cassava green mite in Ghana.



Credit: IITA

The fight against the mealybug was relatively straightforward. Collaborating researchers returned to the home of the cassava pests in South America to seek out 14 natural enemies that could be used to control the insect. The most effective control agent was found to be a small parasitic wasp (*Epidinicarsis lopezi*) which was mass reared and distributed by land and air to nearly 30 countries across Africa. Unbeknown to most farmers, the wasp continues to effectively control the cassava mealybug and is estimated to have saved the African farmer hundreds of millions of dollars in reduced crop losses.

Despite the success in controlling the cassava mealybug, the fight against the green mite was not quite so straightforward. However, research work to find an effective natural enemy continued and the effort and resources invested in the past decade has now been effectively rewarded by spectacular success in control of the pest. The phytoseiid predatory mite *Typhlodromalus aripo*, identified after many years of painstaking research in collaboration with South American collaborators, has now spread from the initial release site in Benin and become established over an estimated 500,000 km² in nine African countries.

Field evaluation indicates that the predator can reduce the pest population by half and increases cassava yields by about one third. The advantage of using *T. aripo* is that it does not require a mass breeding programme. It can be transferred to new locations on the cassava shoot tips, established in the field for multiplication and later the shoot tips can be picked and moved to the release sites. This makes it very easy for national programmes to organize and implement and it represents, by far, the most extensive establishment of a predatory mite ever achieved, worldwide, in a classical biocontrol campaign.

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