



THE ABILITY TO RESPOND IN AN APPROPRIATE AND TIMELY FASHION TO POTENTIAL OR ACTUAL PEST OR DISEASE INCURSIONS IS ESSENTIAL TO PROTECT VALUABLE AGRICULTURAL INDUSTRIES AND NATURAL ECOSYSTEMS. SASRI IS DRIVING A REGIONAL BIOSECURITY PROGRAMME WITHIN SADC COUNTRIES BY PROVIDING TECHNICAL ADVICE AND SHARING PRACTICAL EXPERIENCE. THE PROGRAMME INCLUDES ALL IDENTIFIED THREATS, SUCH AS THE IMMEDIATE THREAT FROM THE EXOTIC SUGARCANE BORER *Chilo sacchariphagus*, WHICH IS NOW ESTABLISHED IN MOZAMBIQUE.

BIOSECURITY IS A GROWING FIELD DRIVEN BY THE NEED TO MAINTAIN AGRICULTURAL AND ENVIRONMENTAL INTEGRITY. WITH EVER INCREASING LEVELS OF TRADE, TRAVEL AND AGRICULTURAL ENCROACHMENT INTO NATURAL AREAS, EXOTIC AND INDIGENOUS PESTS AND DISEASES POSE SIGNIFICANT THREATS TO CROPS.

Biosecurity can be defined as any practices, policies, or procedures employed to prevent and/or control pests and diseases entering into an agroecosystem, emerging within an agroecosystem, or moving around within it. Biosecurity can also be seen to be a continuum, covering pre-border, border and post-border activities that are underpinned by:

- plant pathology,
- entomology,
- weed biology,
- risk analysis,
- invasion biology,
- emergency response planning,
- community engagement,
- legislation
- and quarantine processes, at border, regionally or on farm.

Biosecurity plans provide for the best possible protection against new pests and diseases. These plans cover:

- the identification of the highest risk pests and diseases (threat identification and risk analysis)
- how to guard against new pests and diseases (risk mitigation activities)
- how to determine when a new pest or disease has established (surveillance) and how to identify it (diagnostics)
- how to deal with new pests and diseases if they are found e.g. eradication or local quarantine (emergency response plans)
- how to deal with new pests and diseases if they become endemic (management plans).

Dedicated biosecurity workshops convened in Mpumalanga and Swaziland have raised awareness about biosecurity threats, highlighted tools (revised Chilo poster) and discussed survey methods and a refined pheromone trapping technique.

Control methods and current research projects were also discussed, as was the need for a balanced variety disposition to reduce risk, with emphasis on

the Chilo-susceptible variety N25. This year these workshops will be repeated in Mozambique and Malawi.

There is a distinct possibility that Chilo could be eradicated from Mozambique through a concerted Integrated Pest Management (IPM) approach. In this regard, a mating disruption technique is being researched by SASRI. This involves saturating sugarcane crops with a synthetic form of the pheromone released by Chilo female moths to attract mates that will disrupt normal functioning of the communication between the moths.

The use of mating disruption may be a cost-effective means of reducing Chilo field populations, making complementary Sterile Insect Technique (SIT) cheaper, because fewer irradiated moths need to be produced in order to achieve a necessary high ratio of released moths to wild moths. SIT involves irradiating moths with sub-lethal doses of radiation or x-rays, and releasing these individuals into the field to mate with wild moths. This results in the next generation being mostly infertile. Subsequently, the sterile eggs that are laid can be utilised by egg parasitoids, so bulking up their numbers in the field and enhancing the level of control. Because the Chilo-infested sugar estates in Mozambique are surrounded by natural vegetation, and the pest only feeds on sugarcane plants, it may be possible to eradicate Chilo using this methodology, since there would be no re-infestation from surrounding vegetation.

Current initiatives in Mozambique include the production of a framework document, by representatives of the four main sugar estates, detailing proposed regulations needed for this pest. It is intended to then approach the relevant government organisation viz. APAMO to establish common rulings that apply to all sugar estates and mechanisms to enforce regulations thus ensuring compliance and accountability across the regions in Mozambique.

In South Africa, the National Department of Agriculture, Forestry and Fisheries have been



Damage to sugarcane demonstrated at a Chilo workshop, in Mafambisse, Mozambique.

requested to include *Chilo sacchariphagus* on the list of registered pests (within subordinate legislations under the Agricultural Pests Act, 1983 (Act No. 36 of 1983)) that will automatically allow implementation of controls anywhere in South Africa.

SASRI continues to monitor the areas most at risk with the help of Local Pest, Disease and Variety Control Committee survey teams whilst Swaziland has also employed pheromone traps, mill-yard stalk surveys and Chilo posters at border posts. ☺

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