agriculture,
forestry & fisheries
Department:
Agriculture, Forestry and Fisheries
REPUBLIC OF SOUTH AFRICA

Survey Protocol of the Fall Armyworm (FAW) *Spodoptera frugiperda*

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Verified identification of Lepidoptera is based on characters of the adults, and not the damaging caterpillar stage (Cock *et al*., 2017). The infestation is largely due to adults that tend to migrate to far distances. The adults known as moths are active in the evening (nocturnal). After mating the female moths search for suitable crops where they could lay their eggs. However the presence of male moths in pheromone traps is a good indicator of the presence of female moths which can already be ovipositing on host plants. It serves therefore as a good early warning system to alert authorities and producers to increase scouting. The presence of egg-packs and first instar larvae detected during scouting will activate insecticidal spray programs.

Monitoring surveys aims to monitor fluctuations in numbers of moths caught in warmer areas where FAW is always present. High pheromone trap catches are a fair indication of moths for up to 100 km radius from traps.

A. Detection survey

- Detection surveys must be carried out by DAFF officials on production areas. The selection of trapping sites will be influenced by the availability of hosts or alternative hosts.
- Trapping is seasonal and should only be utilized during the growing season of crops. However it is also important to ensure monitoring throughout the year to determine when the pest arrives in areas and when the last specimens are detected

- ❖ Male sex Pheromone attractant lures and traps should be used before emergence of the first generation until the end of the season, all year for surveillance and early warning
- ❖ Bucket funnel traps should be used. The traps are made with green and yellow material to reduce non-target insect attraction to the trap. It is suitable for both monitoring and mass trapping.
- ❖ A trap should be positioned 0.3 – 1 meter above the crop canopy using supporting posts
- ❖ For trap density the following should be considered:

• Detection/: 1 trap every 20 – 50 hectares

• Monitoring: 1 trap every 2 hectares for large plots and 3 traps for small plot

• Mass Trapping: 5 – 15 traps per hectare

The lures have a longevity of 4 – 6 weeks. Lures must be replaced every 4 weeks. Trap servicing.

- ❖ Traps must be serviced every 2 weeks during the season for monitoring purposes and every 2 weeks throughout the year for early detection especially for new areas.

B. Trapping application

I) Material required

A pheromone

A trap

Gloves

Disposal plastic

A GPS/phone

Notepad

Killing strip

II) Procedure

- A suitable pheromone should be placed inside the case and closed within the cap of the Bucket Funnel Trap see Fig. 1.
- A killing strip can be placed within the white side of the bucket.

Figure 1: Showing the Bucket Funnel Trap suitable for both monitoring and mass trapping. The green trap lid pushes onto the yellow funnel leading to the bucket and can be opened/closed via twisting clockwise

- Wash hands before and after handling to avoid contamination as well as an essential precautionary measure.
- Preferably avoid extensive contact by hand by wearing gloves.
- Avoid clogging the trap entrance with foliage which can hamper moths entry.
- When placing or changing the lures ensure it is disposed away from the monitoring area
- Note the area where the trap is placed using a GPS and record the available hosts. Please refer to the **Cropwatch Training Guide** on the procedure for cell phone application usage
- Mark the trap with a unique trap number and mark it as a GPS waypoint with the same number.
- Use Cropwatch data sheet format to attach the current FAW data with required information needed, typically the following: Country, Province, District, Date of

data, Pest Count, GPS Coordinates, etc.

- Ensure the date of when the trap was placed is indicated on the traps.
- A trap must be examined once a week during the height of the infestation, for more frequent readings.
- Traps should be serviced regularly. Old trap contents should be collected and disposed with away from the trap and outside the field.
- When the season is complete traps should be wiped, dried and stored carefully for use in the following season and should not be used for trapping other types of insects as pheromones may
- Decisions on pesticide application should not be taken solely on the trap catch data. Climatic and biological considerations should also be taken into consideration.

References

Cock, M.J., Beseh, P.K., Buddie, A.G., Cafá, G. and Crozier, J., 2017. Molecular methods to detect Spodoptera frugiperda in Ghana, and implications for monitoring the spread of invasive species in developing countries. Scientific Reports, 7(1), p.4103.

Crop Watch Africa 2017. Biosecurity Africa _Technical Data Sheet. http://www.biosecurityafrica.com