Interim Recommendations for Management of Fall Armyworm in Kenya

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Fall armyworm (*Spodoptera frugiperda* (J.E. Smith)) is a fairly new pest of maize in Kenya, having been noticed in the first quarter of 2017. It has spread to several counties, including Trans Nzoia where a significant proportion of both seed and commercial/grain maize is produced. Although comprehensive studies on the management of fall armyworm in the country have not been concluded, management options based on information from other countries and/or other scientific experiences have been suggested.

The following can be considered as interim interventions to mitigate against high economic losses which are likely to emanate from widespread infestation by this pest:

1. Appropriate planting practices
    a) Planting early and adhering to regional planting calendar (avoiding late and off-season planting) to allow maturity of maize before high pest population build-up.
    b) Avoiding the planting of new crops near heavily infested plants.

2. Mechanical control
Deep ploughing during land preparation to expose the pupae to predators and solar heat is recommended; early land preparation is vital.

3. Monitoring and early action
Frequent scouting in maize fields to detect larvae (caterpillars) and symptoms of damage early enough for quick action (before extensive damage and pest build-up).

4. Mass trappings
Setting up fall armyworm pheromone traps[1] to suppress moth populations, leading to reduction in laid eggs and resultant larvae. Pheromone traps can also be used in monitoring and early warning.

5. Restricting movement of infested plant materials
Transportation of infested plant materials to areas where the pest has not been reported is strongly discouraged. Destruction of infested materials or feeding of livestock with such materials should be done as close to the affected farm as possible.

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[1] Examples of sources that can be contacted for fall armyworm (*Spodoptera frugiperda*) lures include: Evergreen Growers Supply (email: info@evergreengrowers.com); Russell IPM Ltd (email: info@russellipm.com); Novagrica – Biological products and solutions (email: info@novagrica.com).

6. Use of pesticides

As an interim measure, synthetic insecticides containing the following active ingredients[2] to control fall armyworm in Kenya can be tested: diazinon, alpha cypermethrin, chlorpyrifos, flubendiamide, chlorantraniliprole, and lambda cyhalothrin. Biopesticides based on *Bacillus thuringiensis*[3] may also provide sustainable control of fall armyworm.

Notes:
i) Technical evaluation on the efficacy of the suggested products against fall armyworm has not yet been done/concluded in Kenya.
ii) Without prejudice, the mention of any of the products should neither be construed to mean advocacy/advertisement of the product nor the exclusion of other products that may prove to be effective against fall armyworm.
iii) Pest control products need to be used appropriately to minimize development of pest resistance.
iv) For effective control in maize, farmers should spray at least three times: at two weeks after emergence, at knee-high and just before tasseling.
v) Area wide approach is critical; farms where control measures are not implemented can act as reservoirs of the pest.
vi) Application of insecticides should be done late in the evening when the larvae (caterpillars) are active (not hiding); they mostly feed at night when temperatures are not high and when there is no bright light.

Ongoing and future actions

The following broad action lines can enhance sustainable management of fall armyworm in Kenya:

1. Continued sensitization and capacity building of farmers, agricultural extension agents and the general public on the occurrence and interim management approaches.
2. Continued surveillance for early warning and management decision-making.
3. Institutionalization of area-wide control measures.
4. Research on and evaluation of management options, including bioecology and biological control.

Note: This compilation is based on contributions by several persons/sources.

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[2] Examples of products containing respective active ingredients are **Diazinon:** Diazon 60EC, Diazote 540EW, Agrozinon 60EC; **Alpha cypermethrin:** Bestox 20EC, Alfacyper M EC, Fastac 10EC, Supremo, Tata Alpha 10EC, Alphakil 100EC; **Chlorpyrifos:** Colt 480EC, Dursban 4EC, Agropyrifos 48EC; **Flubendiamide**: Belt 480SC; **Chlorantraniliprole:** Coragen 20SC; **Lambda cyhalothrin:** Duduthrin Super, Karate 5EC, Tata umeme 2.5EC, Kingcode Elite 50EC.

[3] Examples of biopesticides based on *Bacillus thurigiensis* (Bt) include Dipel DF, Halt 50WP, Baciguard 16WDG and Xentari.