



## FAW GUIDANCE NOTE 1

# REDUCTION OF HUMAN HEALTH AND ENVIRONMENTAL RISKS OF PESTICIDES USED FOR CONTROL OF FALL ARMYWORM

### Avoid use of highly hazardous pesticides

The use of highly hazardous pesticides (HHPs) to control Fall Armyworm (FAW) has been reported in several African countries. Under the conditions of use prevailing in these countries, HHPs pose great concerns for human health and the environment.

It should be noted that:

- FAO has been mandated by the Council in 2006 and again in 2013 to assist member countries in reducing risks posed by highly hazardous pesticides;
- **The International Code of Conduct on Pesticide Management** under article 7.5 stipulates that *Prohibition of the importation, distribution, sale and purchase of highly hazardous pesticides may be considered if, based on risk assessment, risk mitigation measures or good marketing practices are insufficient to ensure that the product can be handled without unacceptable risk to humans and the environment;*
- **The fourth session of the International Conference on Chemicals Management (ICCM4)** in 2015 called for concerted action to address highly hazardous pesticides (resolution SAICM/ICCM.4/15), and that
- **FAO and WHO have issued the Guidelines on Highly Hazardous Pesticides** in 2017 to provide criteria for the identification of highly hazardous pesticides and guidance on risk mitigation.

### Definition:

Highly hazardous pesticides (HHPs) are pesticides that are acknowledged to present particularly high levels of acute or chronic hazards to health or environment according to internationally accepted classification systems such as the World Health Organization (WHO) or the Globally Harmonized System of Classification and Labelling of Chemicals (GHS) or their listing in relevant binding international agreements or conventions. In addition, pesticides that appear to cause severe or irreversible harm to health or the environment under conditions of use in a country may be considered to be and treated as highly hazardous (Code of Conduct).

### Criteria:

The FAO/WHO Joint Meeting on Pesticide Management (JMPM) has defined eight criteria to identify highly hazardous pesticides:

1. Pesticide formulations that meet the criteria of **Classes Ia or Ib** of the **WHO Recommended Classification** of Pesticides by Hazard;
2. Pesticide active ingredients and their formulations that meet the criteria of **carcinogenicity Categories 1A and 1B** of the Globally Harmonized System of Classification and Labelling of Chemicals (**GHS**);
3. Pesticide active ingredients and their formulations that meet the criteria of **mutagenicity Categories 1A and 1B** of the **GHS**;

4. Pesticide active ingredients and their formulations that meet the criteria of **reproductive toxicity Categories 1A and 1B** of the **GHS**;
5. Pesticide active ingredients listed by the **Stockholm Convention** in its **Annexes A and B**, and those meeting all the criteria in paragraph 1 of **Annex D** of the Convention;
6. Pesticide active ingredients and formulations listed by the **Rotterdam Convention** in its **Annex III**;
7. Pesticides listed under the **Montreal Protocol**;
8. Pesticide active ingredients and formulations that have shown a **high incidence of severe or irreversible adverse effects** on human health or the environment.

For criteria 1-7 there are reference lists and related guidance can be found in the Annex 1 of the FAO/WHO Guidelines on Highly Hazardous Pesticides (HHPs). Assessment as to whether an active ingredient of a formulation would fall under Criterion 8 is more complex as this depends on the actual situation in individual countries.

**For the selection of pesticides to control Fall Armyworm, criterion 8 is however particularly relevant due to the constraints that many countries face in controlling conditions of use. Some African countries have already taken the appropriate measures to phase out highly hazardous pesticides.**

FAO Environmental and Social Risk Management requires that all pesticide use in FAO field activities be considered and cleared by AGP.



## HHPs reported as in use on Fall Armyworm in Africa

FAO has received various indications that the following highly hazardous pesticides have been used or recommended for use to control Fall Armyworm in African countries:

| Pesticides   | Concentration | FAO/WHO HHPs criteria   |
|--|---------------|---|
| Methomyl   | >34%          | Criterion 1   |
| Cyfluthrin   | >22%          | Criterion 1   |
| Methyl parathion   | >28 %         | Criterion 1   |
| Endosulfan   | All           | Criteria 5 & 6  |
| <b>Pesticides that under the prevailing condition of use in African countries might meet criterion 8</b> |               |   |
| Acephate   | All           | Not approved in EU for acute consumer exposure and non-target organisms concerns* |
| Benfuracarb  | All           | Not approved in EU for high health and environmental concerns*                    |
| Carbaryl   | All           | Not approved in EU for high health and environmental concerns*                    |
| Carbosulfan  | All           | Candidate for listing under Annex 3 of the Rotterdam Convention                   |
| Chlorpyrifos   | All           | Use only by trained and supervised operators through FAO                          |
| Cyfluthrin   | <22%          |   |
| Diazinon   | All           | Not approved in EU for health and environmental concerns*                         |
| Methomyl   | < 34%         |   |
| Methyl parathion   | <28%          |   |

\*Source: European Commission, Health & Consumer Protection Directorate-General, Review Reports available at EU Pesticides database

In addition, the use of pyrethroids and neonicotinoids has been reported to control Fall Armyworm. It should be noted that resistance development through the use of pyrethroids is a concern for public health in malaria – affected countries. And that the use of neonicotinoids such as imidacloprid pose risks to pollinators where present.

**This list is not intended to be an exhaustive list of HHPs in use in the African countries.** It is the result of a first assessment of the pesticides that have been reported to be in use or recommended for use on Fall Armyworm and assessed against the FAO/WHO JMPM criteria. It is very likely that other HHPs are currently in use. Some African countries have prohibited the use of these and other pesticides due to the conditions of use.

The options for mitigating risks of highly hazardous pesticides range from ending, restricting or changing formulations or uses. Selection of the most appropriate option will vary from case to case and depend on risk levels and needs, but also on policies and adequacy of institutional infrastructure for pesticide management.

FAO recommends an Integrated Pest Management approach with the use of low-risk pesticides as the last resort. Within the group of low-risk pesticides, bio pesticides are considered to be the best option. However, if there are temporary constraints to the use of biopesticides, low-risk pesticides, e.g. products falling under WHO hazard classes III and U, can be considered.

## Promotion of biopesticides to manage Fall Armyworm

Biopesticides, such as those based on the bacteria *Bacillus thuringiensis* (Bt), fungi (*Beauveria bassiana*) and Baculovirus have proven to be effective in the management of FAW. Biopesticides – like any other pesticide – should be registered in the country before use. FAO has developed Guidelines on the registration of microbial, botanical and semiochemical substances for both plant protection and public health uses.

Below some of the biopesticides that have been registered to control Fall Armyworm:

| Active substance   | Target   | Crops  | Countries registered                      |
|--|--|--|---|
| <i>Beauveria bassiana</i> strain R444                          | Lepidoptera, including <i>Spodoptera frugiperda</i>    | Barley, brassica, maize, sweetcorn, sorghum, tomato, wheat | South Africa (emergency approval in 2017) |
| <i>Bacillus thuringiensis</i> subspecies kurstaki strain SA-11 | Lepidoptera, including <i>Spodoptera frugiperda</i>    | Maize, sweetcorn, sorghum, wheat                           | South Africa (emergency approval in 2017) |
| Baculovirus  | <i>Spodoptera frugiperda</i>                           | Unspecified  | Pending, Brazil                           |
| SFMNPV - Baculovirus <i>Spodoptera frugiperda</i>              | <i>Spodoptera frugiperda</i>                           | Cereals, Cotton, Sweetcorn, sorghum, Turf                  | Brazil (monograph B51), USA               |
| Baculovirus  | <i>Helicoverpa armigera</i> and some other Lepidoptera | All crops where pest present                               | Global                                    |

Other biopesticides registered for control of Lepidoptera are currently being tested for Fall Armyworm. In addition, certain botanical pesticides, such as those based on neem have also shown positive results.

FAO has developed a **Programme for Action** for the sustainable management of Fall Armyworm.



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