THE EAST AFRICAN COMMUNITY

SUMMARY OF THE GUIDELINES FOR EVALUATING AND REPORTING THE EFFICACY OF PEST CONTROL PRODUCTS FOR PLANTS

Approved by 38th Extra-Ordinary Meeting of the Council of Ministers, held on 30th January, 2019

PREAMBLE

The East African Community (EAC), with support from the Food and Agriculture Organisation of the United Nations (FAO) and the United States Agency for International Development (USAID), initiated the process of harmonising EAC pesticide management guidelines in September 2016. The main focus was to harmonise pesticide regulation in the region and to reduce the risks associated with their use, improve trade, and safeguard crops, the environment, human and animal health. The process culminated in the approval of the guidelines on efficacy trials, residue trials and data requirements by the Council of Ministers, in January 2019.

Guidelines for evaluating and reporting the efficacy of pest control products for plants were among those prioritised. According to provisions of the guidelines, Partner States shall ensure that all new pest control products for plants or new uses of existing products are subjected to thorough efficacy evaluation before they are authorised for use.

This document summarises the procedures for conducting efficacy trials on pesticides. They are a product of intense and collaborative processes that entailed series of reviews, workshops, consultations and validations. They shall be applied to products used in the control of harmful organisms (insects, pathogens, weeds etc) on plants, plant products, products applied to soil and regulated articles. The procedures shall also be applied to plant growth regulators.

OBJECTIVES OF THE GUIDELINES

- To harmonise the procedures of carrying out efficacy trials and reporting system on pest control products in the region.
- To promote mutual recognition of efficacy trial data and reports within the EAC.

STEPS TO CONDUCTING PESTICIDE EFFICACY TRIALS

1. **Objectives:** The pest control product to be evaluated and the target crop/plant, pest(s) and other objectives must be stated clearly.

2. Trial site selection: The sites should be as uniform as possible and representative of the conditions where commercial use is anticipated. As a general rule, sites at field edges or near ditches, trees, hedges or other obstacles should be avoided, as they are subject to interfering “edge” effects from those obstacles.

3 **Trials on plants grown under protection:** Efficacy trials on plants grown under protection should be conducted under conditions comparable to those used in practice. If products with high vapour pressure, fumigants, aerosols or fogs are tested, separate glasshouses or glasshouse compartments should be used for each treatment.

4 **Postharvest pest control products:** Post-harvest products should be tested in the laboratory (bioassay) and field facilities that simulate supply chain/storage conditions. Storage duration of the grain before application (or in the case of fresh produce, cold storage conditions) should be specified to establish if there is a relationship between time in storage and pest population/disease severity/incidence, and subsequent influence to the trial.

5 **Trial lay-out:** The design of a trial intended for efficacy evaluation should permit a statistical evaluation. It should however be simple and compatible with the immediate objective of the test.

6 **The non-treated control plot:** It is a requirement to include non-treated control plots.

7 **Choice of reference product:** The reference product must have been registered and in use in the country where the test is being done, for use on the pest and target crop, and where possible, the positive control should have the same mode of action as the test product.

8 **Plot size and shape:** This should be determined by the crop-pest combination in question. Generally, the plot size should just be sufficiently large enough to allow application of treatments, sampling and evaluation of the crop yield at harvest.

9 **Number of treatments:** Efficacy trials on the new product should have a maximum of five treatments distributed as follows: manufacturer recommended rate; rates slightly higher than recommended and a bit lower than recommended for the new product; reference standard at the registered rate; and untreated control. There may be exceptional circumstances where more than five treatments may be required, such as where the test product has more than one active ingredient with different modes of action and >1 positive control may be necessary.

10 **Number of replications:** The fewer the treatments, the more the replications needed to give an acceptable estimate of variance and to give the necessary degrees of freedom. Four to five replications are usually sufficient to give a reasonable estimate of the variation.

11 **Number of seasons**

a) Where an applicant submits an application to one Partner State for registration of a product not registered in the region according to this guideline, the product shall be subjected to two successful cropping seasons trials at two sites in different agro-ecological zones. Where a commercial crop is only grown in one agro-ecological zone, data from that one zone will suffice.

b) Where an applicant submits an application for registration of a product on the same crop/pest combination, simultaneously to more than one Partner State, two cropping seasons on one site will be required in each of the respective Partner States.

c) Where a trial on a product has already been conducted for two cropping seasons at one site within a Partner State in accordance with this guideline, only one season of trials at two sites in different agro-ecological zones would be required in the next Partner State.

d) Where applications for label extensions (new uses) are submitted in a Partner State, the product will undergo one cropping season of efficacy trials at two sites in different agro-ecological zones in the Partner State.

e) If an applicant submits an application to more than one Partner State for a label extension, one cropping season's trial shall be conducted at a representative site in each Partner State and all data from the region shall be submitted to the respective Partner States for decision-making.

f) Where an application for a label extension has been approved in one Partner State in accordance with these guidelines, one cropping season's trial shall be conducted at a representative site in each next Partner State and all data shall be submitted to the respective Partner States for decision-making.

12 **Application of the pest control products:** The type of equipment used should be stated. It should, as much as possible, be similar to that used in practice, and should give an even distribution of the pest control product over the plot. The type (foliar, soil incorporated, seed dressing, etc), method of application (e.g. drench, spray, etc.), time, dosage and frequency of the pest control products will be as recommended by the applicant and should be recorded.

13 **Other pest control products used:**
Information on other pest control products used in the trial plots should be provided.

14 **Growth stage of the crop and variety used:** The growth stage of the crop at the time of application should be indicated. The last application should be aligned with harvesting time. The variety of the crop should be specified.

15 **Meteorological and edaphic data:** Before, during and after the application, daily precipitation, temperature and insolation should be recorded on the field trial site or obtained from a nearby meteorological station. For pest control products applied to the soil, the soil organic matter, texture and moisture should be recorded. For plants grown under protected environment (glass houses) or grains stored in fumigation sheets or silos, the temperature and humidity should be recorded througout the trial period.

16 **Assessment of efficacy and yield:** An assessment of the level of infestation/infection should always be made prior to treatment. The number of assessments after treatment depends on the type of the plant, its growth stage and the pests. Assessment should always be made in the net plot.

17 **Phyto-toxicity and other side effects:** The type and extent of phyto-toxicity should be described and, where appropriate, recorded according to a recognised scale. Any detrimental effects on wildlife and/or beneficial organisms shall also be recorded.

18 **Residual effects:** The effect of the pest control product on subsequent crop should be documented. This is particularly important for herbicides.

19 **Monitoring of efficacy trials:** The testing institution should send to the regulatory authority, the study plan and schedule of activities showing critical milestones, including the initiation of the trials, treatment application, data collection and expected date of completion for each season.

20 **Statistical analysis of data:** The generated data should be subjected to statistical analysis to establish statistical significance.

REPORTING

A progress report should be submitted at the end of each season. The report should undergo internal peer review before being submitted to the regulatory authority. The final report should be compiled in the following format:

1. Title
2. Summary
3. Introduction
4. Materials and methods
5. Results
6. Discussions
7. Recommendations and Conclusions
8. Acknowledgement
9. References.

Office of the Deputy Secretary General Productive and Social Sectors

East African Community Secretariat

Afrika Mashariki Road

P.O. Box 1096 Arusha

United Republic of Tanzania

Tel: +255 (0)27 216 2100

Fax: +255 (0)27 216 2190

Email: eac@eachq.org