



# Responsible Use of Pesticides as a Component of Good agricultural Practices in Pyrethrum Production



**NAVCDP**

NATIONAL AGRICULTURAL VALUE CHAIN  
DEVELOPMENT PROJECT

## Introduction

Good agricultural practices (GAP) are practices that address environmental, economic and social sustainability for on-farm processes and result in safe and quality food and non-food agricultural products.

In pyrethrum value chain, GAP in pesticides use has evolved to address the concerns of different stakeholders in pyrethrum production, food safety and quality, and environmental sustainability.

### General definition of pesticides

The term “pesticide” is defined as a substance or association of substances intended to repel, destroy or combat undesirable species of plants or animals causing damage to production, processing, storage, transport or marketing of

agricultural products like tomatoes.

### Pesticide hazard classification and uses

All pesticides can be of how hazard level, moderately hazardous or highly hazardous. The level of hazard is usually marked on the pesticide label as hazard classification in the World Health Organization (WHO) systems. The categories are Ia, Ib, II, III and IV (unclassified). These hazard levels are indicated by color code.

### Choice of pesticides and their use

Factors to consider when choosing pesticide are the efficacy of active ingredient, safety of active ingredients, safety of formulations, safety of packing, mode of action and resistance. Application of pesticides when the pest pressure is below economic

Table I. Classification of pesticides

Poison Group	Warning statements on container	Colour of band* around container
Group IA	Very toxic	RED
Group IB	Toxic	RED
Group II	Harmful	YELLOW
Group III	Caution	BLUE
Group IV	No warning statements	GREEN

injury level does not result in net benefits and vice versa; Spraying of pesticides when the pest pressure is above economic injury level results in net benefits.

### Selecting pesticides for application in the field

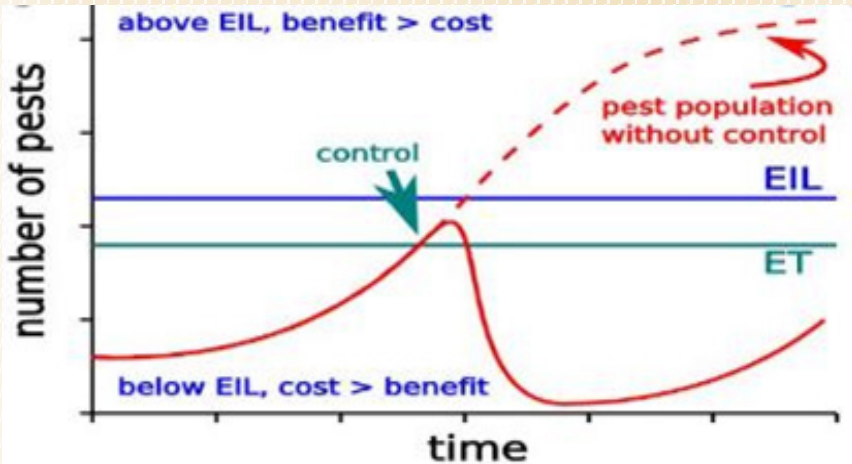
Pesticides selected must take into account the following:

- Compliance with marketing authorization in terms of authorized uses and approved dosages.
- Adherence to obligatory

precautions such as application period, pre-harvest interval, maximum authorized dose, and protective equipment.

GAP before, during and after spraying pesticide include the following:

- Do not spray pesticide during high winds, high sun and when it is raining;
- Careful calculation of pesticide concentration;
- Water used for pesticides preparation should be free of pathogenic organisms;



A figure showing Economic threshold (ET) and economic injury level (EIL) used in making decisions on use of pesticides to control pests

- Special attention to spray equipment, pumps and nozzles used to apply pesticides;
- To minimize potential for over or under - treatment, accidents and spills, equipment should be calibrated for accuracy and checked frequently for malfunctions.

### **Personal protection equipment (PPE) during mixing, filling and maintaining the sprayer**

Thorough training of personnel responsible for using and applying pesticides is critical. They should be aware of the dangers that can result from improper use of agrochemical product. They also should be trained in the use of safety equipment and application devices such as gloves, eye protection, protective clothings, boots, hat, mask/respirator and waterproof apron or large plastic bag to cover the front of the body. This helps in preventing the entry of pesticides into the body through various avenues.

### **Storage**

The pesticide storage facility should be on the ground floor with direct access to the outside. The storage area should be locked at all times and legibly and prominently identified as a place of pesticide storage. The area should be well ventilated either by

windows or a fan to avoid the build-up of fumes.

### **Transporting pesticide**

The following measures should be taken when transporting pesticides: Never transport pesticides with people, food or animal feeds; Pesticides should be transported locked in a box and kept back in the pickup or in the car boot; Carry absorbent materials, such as toilet paper, sawdust, soap and water, to clean up any spills.

### **Disposal of empty packaging containers**

Empty, properly rinsed pesticide containers can be disposed of at most sanitary landfills. Well-rinsed metal cans can be punctured and buried at a depth of at least 80 cm in an area far away from any dwelling and water point. In view of the persistent, volatile nature of many pesticides, disposal by burning or burying on the farm is discouraged. In this case, if burial is authorized, the FAO directions (1985) should be followed to avoid any risk to the environment.

### **Pesticide poisoning and first aid**

Signs of pesticide poisoning include dizziness, feeling sick, tiredness, worry, excitedness, sweating, salivation, shaking hands, stomach cramps, blurred vision, pupils of the eye become very small, and unconsciousness.



*Proper reading of pesticide label*



*Proper storage of spray equipment*



*Mixing pesticides before application*



*Personal Protective equipment (PPE)*



*Pesticides spraying gear*



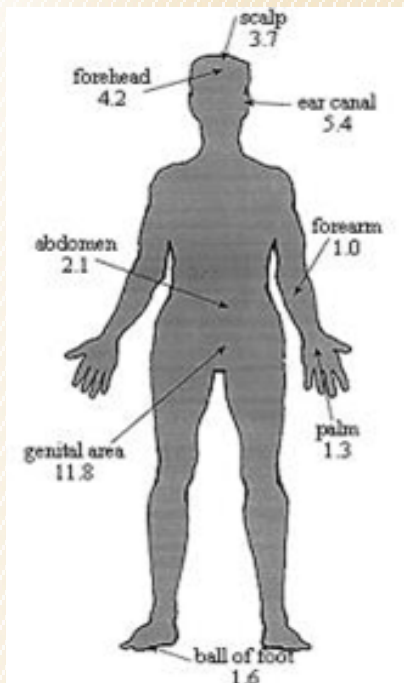
*Pesticides store*



*Pesticides transportation*



*Pesticides Disposal*



*Entry points of pesticides into a human body*

## Summary

1. All pesticides are dangerous, some very dangerous while others are less dangerous. The level of danger is usually marked on the pesticide label as hazard classification in the WHO systems. The Categories are Ia, Ib, II, III, or unclassified. Do not use pesticides under Categories Ia and Ib.
- 2.. All personnel responsible for using and applying pesticides must wear PPE during mixing, filling, and cleaning/maintaining the sprayer.
3. Keep pesticides in a lockable store to avoid pollution and reduce fire hazards.
4. Sprayed field should be clearly marked to prevent people from entering until safe to do so.
5. Always observe PHI (the waiting period between the last spray and harvesting date). This period must be strictly observed so that the residue level does not exceed the acceptable limits.



*Pesticide first aid kit*



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