

Classification of Pesticides

Pesticides play a vital role in protecting crops, improving agricultural productivity, and ensuring global food security. However, understanding their classification, usage & safety measures is equally important. Pesticides are substances used to prevent, destroy, repel, or control pests such as insects, weeds, fungi, rodents, nematodes, mites, bacteria, and other harmful organisms affecting crops and stored products.

Major Classification of Pesticides

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1. According to Target Pest
- Insecticides – Control insects ✓ Herbicides – Control weeds ✓ Fungicides – Control fungal diseases ✓
 ✓ Rodenticides – Control rats and mice ✓ Nematicides – Control nematodes ✓ Acaricides – Control mites and ticks ✓
 Molluscicides – Control snails and slugs
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2. According to Chemical Composition
- Organophosphates – e.g., Malathion, Chlorpyrifos ♦ Carbamates – e.g., Carbaryl, Carbofuran ♦
 Organochlorines – e.g., DDT ♦ Pyrethroids – e.g., Cypermethrin, Permethrin ✚ Each group differs in persistence, toxicity and mode of action.
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3. According to Mode of Action
- ✓ Contact pesticides ✓ Systemic pesticides ✓ Stomach poisons ✓ Fumigants These determine how pesticides affect the target organism and how they should be applied effectively.
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4. According to Source
- ☐ Chemical pesticides – Synthetic compounds 🌱 Biological pesticides (Biopesticides) – Derived from natural organisms such as bacteria, fungi, and plant extracts. 💡 Examples: ✓ Neem extract ✓ Bacillus thuringiensis (Bt)
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5. According to Toxicity
- 🔴 Danger – Extremely toxic ☐ Warning – Highly toxic ☐ Caution – Moderately toxic ☐ Careful Use – Slightly toxic Proper handling and application are essential to minimize risks to humans, animals, and the environment.
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- Importance of Responsible Pesticide Use
- ✓ Improves crop yield and quality ✓ Reduces pest-related economic losses ✓ Supports food security ✓ Protects stored agricultural products ✓ Helps control disease vectors such as mosquitoes
 However, excessive or improper use may lead to: ✚ Environmental pollution ✚ Pest resistance ✚ Residue accumulation in food ✚ Harm to beneficial organisms and human health 🌱 Sustainable agriculture depends on balancing productivity with environmental protection and human safety.

Should you have any further questions, please contact Shire's Environmental Health Officer, via email health@coolgardie.wa.gov.au.



ALL TYPES OF PESTICIDES & INSECTICIDES WITH THEIR USES



PROTECT CROPS • IMPROVE YIELD • ENSURE FOOD SECURITY

Pesticides are substances used to prevent, destroy, repel or control pests that harm crops, stored products and public health.

1. INSECTICIDES (Control Insects)

By Mode of Action	By Chemical Type	Used to Control
Contact Insecticides Kill insects on contact.	• Organochlorines (Long-lasting, mostly banned/restricted)	Aphids
Systemic Insecticides Absorbed by plant, insects die after feeding.	• Organophosphates (Fast-acting nerve poisons)	Caterpillars
Stomach Poisons Act when ingested by insects.	• Carbamates (Broad-spectrum control)	Whiteflies
Fumigants Act as gas or vapor, used in closed spaces.	• Pyrethroids (Synthetic, low-dose effective)	Jassids
	• Neonicotinoids (Systemic, widely used)	Beetweevs
	• Biological Insecticides (Derived from bacteria, virus, fungi - eco-friendly)	Termites

2. HERBICIDES (Control Weeds)

	Used in
Selective Herbicides Kill specific weeds without harming the crop.	Rice
Non-selective Herbicides Kill all types of vegetation.	Wheat
Pre-emergence Herbicides Applied before weed seeds germinate.	Maize
Post-emergence Herbicides Applied after weeds appear.	Vegetables
	Orchards
	Plantation Crops

3. FUNGICIDES (Control Fungi)

	Used to Control
Contact Fungicides Remain on the surface of the plant.	Leaf Spot
Systemic Fungicides Penetrate and move within the plant.	Rust
	Blight
	Mildew
	Damping off

4. RODENTICIDES (Control Rats & Mice)

	Used in
Anticoagulants Cause internal bleeding and death.	Storage Facilities
Acute Poisons Fast-acting, fatal after a single dose.	Warehouses
	Fields
	Homes

5. NEMATICIDES (Control Nematodes)

Kill harmful nematodes in the soil that damage roots and reduce yield.

Used for

- Soil treatment
- Root protection
- Vegetable crops
- Plantation crops

6. BACTERICIDES (Control Bacteria)

Control bacterial diseases in plants.

Used in

- Citrus
- Vegetables
- Tobacco
- Ornamentals

7. MOLLUSCICIDES (Control Snails & Slugs)

Kill snails and slugs that damage crops.

Used in

- Paddy fields
- Vegetables
- Orchards
- Nurseries

8. ACARICIDES (Control Mites)

Control mites (spider mites, red mites) that damage leaves and fruits.

Used in

- Fruits
- Vegetables
- Tea
- Ornamentals

9. BIO-PESTICIDES (Eco-Friendly)

Natural origin, safe for environment and beneficial organisms.

Types

- Microbial pesticides
- Botanical pesticides (Neem, Pyrethrum etc.)
- Biochemical pesticides (Pheromones)

10. PLANT GROWTH REGULATORS (PGRs)

Regulate plant growth and development (not directly pesticides but used for better yield).

Benefits

- Better flowering
- Fruit set
- Uniform maturity
- Higher yield

PESTICIDES APPLICATION METHODS

Foliar Spray
 Soil Application
 Seed Treatment
 Fumigation
 Granular Application
 Baiting
 Trunk Injection

BENEFITS OF PROPER PESTICIDE USE

Higher Crop Yield
 Better Quality Produce
 Pest & Disease Management
 Economic Benefit
 Food Security

SAFETY FIRST

Wear Gloves & Mask
 Avoid Direct Contact
 Do Not Eat, Drink or Smoke
 Wash Hands & Clothes
 Dispose Empty Containers Safely

RIGHT PESTICIDE • RIGHT DOSE • RIGHT TIME • RIGHT WAY • BETTER TOMORROW

