

# AGROCHEMICALS

1. Chemical products used in agriculture are termed as AGROCHEMICAL.

2. Types of agrochemical:

- Pesticides
- x Herbicides
- x Insecticides
- x Fungicides
- x Synthetic fertilisers
- x Hormones
- x Growth agents
- x Animal manure

4. Agrochemicals are used to improve quantity and quality of food.

5. Benefits of Agrochemicals:

Improves plant nutrition

Improve economic production

Improve quality of life

## 6. Demerits of Agrochemicals:

- × Reduce soil fertility
- × Harmful to the environment

7. Prefer organic farming over synthetic agrochemicals.

# CROP PROTECTORS

## PESTICIDES

1. It is used to kill, repel or control plants and animals that are considered as pests are called pesticides.

2. Pests are two types:

a) Inorganic chemicals, that doesn't contain carbon.

· Obtained from mineral ores extracted from the earth.

· They include copper sulphate, copper and sulphur etc.

b) *Organic pesticides*, that contains carbon.

- Obtained from plant and materials.

- They include

organochlorine, organophosphorus and pyrethroid compounds.

3. Act on nervous system of insects or by inhibiting the growth.

4. Ex: Malathion, Endosulfan and Lindan.

# HERBICIDES

1. Destroy weeds and unwanted vegetation.
2. Crop protector.
3. Natural herbicides, allelopathic chemicals.
4. Some herbicides act on a particular class of plant growth regulators.  
Ex: 2,4-dichlorophenoxyacetic acid, which inhibits the growth of dicotyledons plant not monocotyledons.
5. Some herbicides persists in environment.

# INSECTICIDES

1. Eliminates insects that are harmful to the plants.

· 2. Action depends on chemical composition of insecticides:

· On nervous system or

· May harm exoskeleton.

3. Ex: Insect growth regulators like pyriproxyfen

and methoprene, this don't allow insect to grow or lay eggs properly but don't necessarily kill them

## FUNGICIDES

1. Removes fungal species that destroy plants
2. Damages fungal cell membranes or interfere with the cellular machinery of fungi that involves in energy production.
3. Eg: Benzimidazole, Imidazole, triazole, and dicarboxymide.

# SOIL SUPPLEMENTS

# FERTILISER

1. *Definition:* Any organic or inorganic chemical supplements added to the soil to provide essential nutrients for supporting plant growth and development called fertiliser.
2. Provides micro and macronutrients.
3. micronutrients: B, Zn, Cu, Fe etc.
  - Macronutrients: N, Ca, S, Mg, K etc.
4. Two type of fertiliser:
  - Inorganic
  - Organic

## INORGANIC FERTILISERS

1. Easily dissolved in soil.
2. Rate of uptake by plants is high.
3. High concentration of micro and macronutrients.
4. DISADVANTAGE:
  - They contaminate the water, soil and environment.
5. Eg: Nitrogen and Potassium fertilisers.

# ORGANIC FERTILISERS

1. Macro and micronutrients are released during the decay of organic matter.
2. Very slow process.
3. Low concentration of plant nutrients.
4. Improve fertility of soil.
5. Organic nutrients increases the organisms.
6. **DISADVANTAGE:**
  - May contain disease causing organisms.

## HORMONES/GROWTH AGENTS

1. Are of Endogenous origin and are synthesised by plants.
2. These are Growth regulators performing specific function in overall development of the plant.  
Eg. hormone/growth regulator for enhancing root growth, controlling plant height, improving fruit yield etc.

IMPACT ON

THE

ENVIRONMENT

# AIR POLLUTION

The pesticides/ herbicides/ insecticides which are suspended in the air contribute to air pollution, when they are carried away to other areas due to wind.

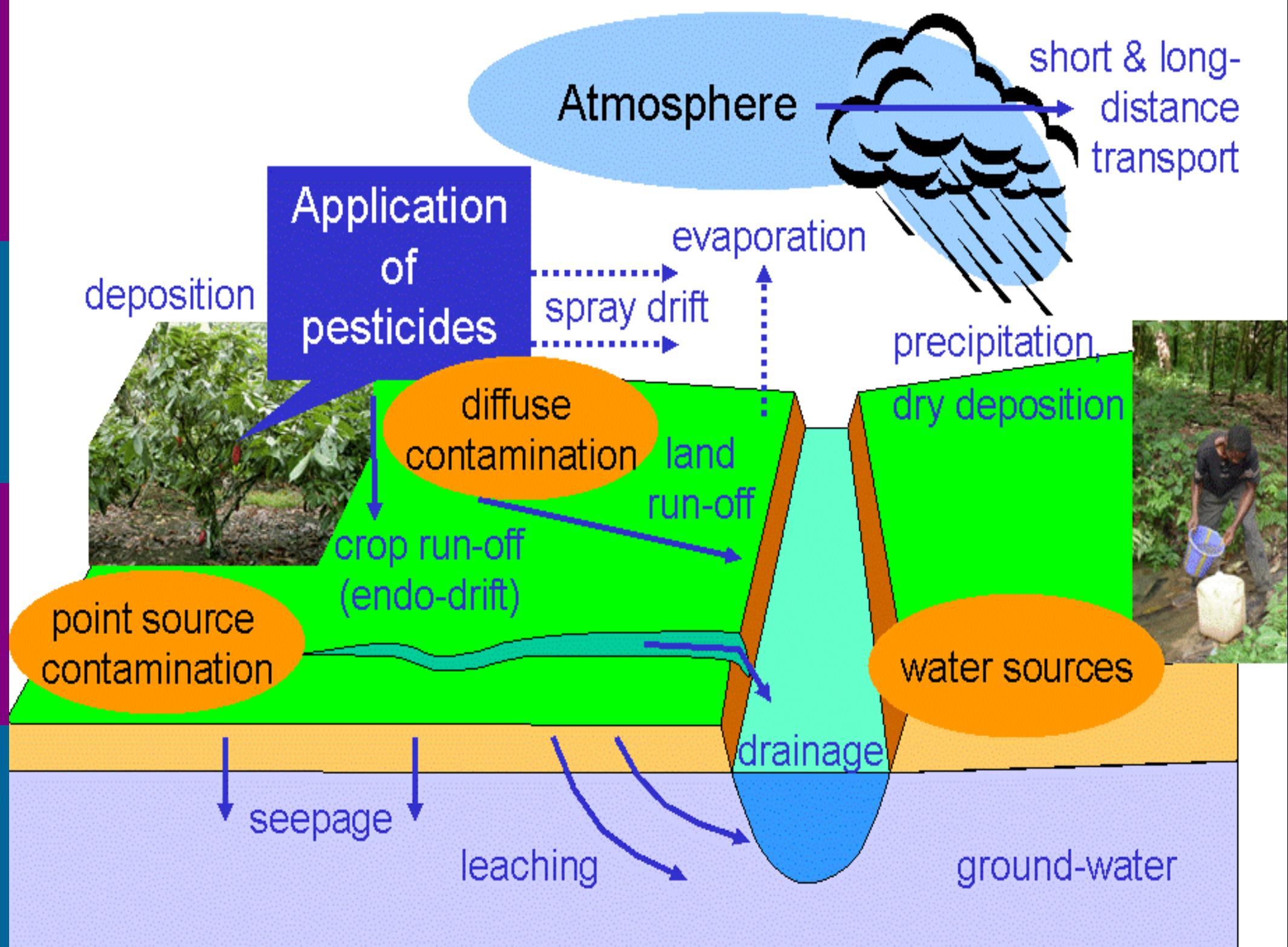
The phenomenon is also known as pesticide drift.

# WATER POLLUTION

- It refers to pollution of water bodies such as ponds, lakes or rivers due to unintended mix up of synthetic herbicides/ fungicides/ pesticides

# SOIL POLLUTION

- It generally occurs when many of the pesticides/ insecticides/ herbicides is used for a prolonged period of time which adversely affects the soil quality and therefore polluting it.



# ORGANIC FARMING

- Organic farming is an alternative form of agriculture in which a variety of techniques such as crop rotation, green manure and compost are used.
- Helps the soil in water retention, which increases productivity during drought seasons
- Involves usage of natural pesticides/herbicides instead of synthetic ones