Welcome to my presentation

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My presentation topic is:

“Agrochemicals: Classifications of Pesticides & Insecticides”

What is agrochemicals?

Chemical products that used in agriculture are termed as Agrochemicals.

Or

Agrochemicals may any substance that used to help manage an agricultural ecosystem, or the community of organisms in a farming area.

Types of agrochemicals

Agrochemicals are may be classed in many types, such as-

a) Fertilizers,

b) Liming and Acidifying agents,

c) Soil conditioners,

d) Pesticides,

e) Chemicals to animal husbandry.

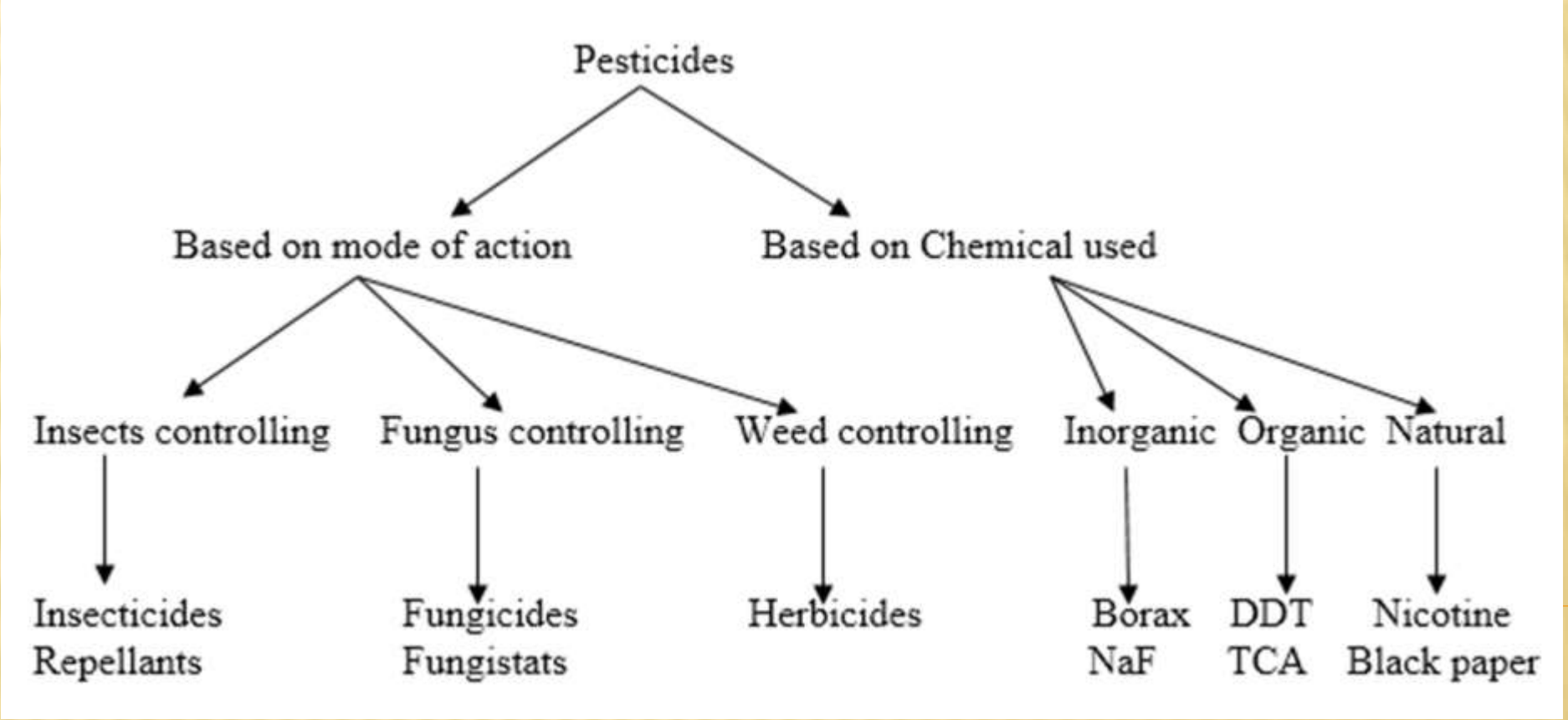
What are pesticides?

Pesticides are preparations for the eradication of plant and animal pests, for the protection of plants, animals and man.

Or,

“Any substance or mixture of substances intended for preventing, destroying, or controlling any pest, including vectors of human or animal disease, unwanted species of plants or animals, causing harm during the production, processing, storage, transport, or marketing of food, agricultural commodities, wood and wood products or animal feedstuffs”.

Classification of pesticides-



Classification & function of according to mode of action –

Number	Type	Action
01	Algaecides	Control algae in lakes, canals, etc.
02	Antifouling	Kill or repel underwater surfaces organs
03	Antimicrobials	Kill microorganisms,-bacteria and viruses
04	Attractants	Attract pests.
05	Bio-pesticides	certain types of pesticides derived,
06	Biocides	Kill microorganisms
07	Disinfectants and sanitizers	Kill disease-producing microorganisms
08	Fungicides	Kill fungi (including blights, mildews)
09	Fumigants	Produce gas or vapor intended to destroy pests in buildings or soil

10	Herbicides	Kill weeds and other unwanted plants
11	Insecticides	Kill insects and other arthropods
12	Miticides	Kill mites that feed on plants and animals
13	Microbial pesticides	Microorganisms that kill, inhibit pests
14	Molluscicides	Kill snails and slugs
15	Nematicides	Kill nematodes (microscopic, worm-like)
16	Ovicides	Kill eggs of insects and mites
17	Pheromones	Bio chemicals used to disrupt the behavior of insects
18	Repellents	Repel pests, including insects and birds

Classification & function of pesticides according to chemicals-

Name	Chemical based class	Function
01	Disinfectants	Destory micro-oranism
02	Growth regulators	Retard plant growth
03	Attractans	Attack insects
04	Chemosterilants	Sterilize insects
05	Defolients	Remove leaves

Use of pesticides

First use of synthetic pesticides: 1940

2.26 million tons of active ingredients used in 2001.

25% of the world production used in developing countries... where 99% of deaths due to pesticides occur!

Continue.

Use of pesticides – types of product

pesticides used in different settings: - agricultural
- veterinary
- domestic
- institutional

formulations: liquid, gel, paste, chalk, powder, granules, pellets, baits...

concentrations: from 2% to 80% of active ingredient

containers: glass, plastic or metal flasks, bottles, drums, traps, plastic bags or paper bags...

What is insecticides?

Insecticide is a substance used to kill insects. They include ovicides and larvicides used against insect eggs and larvae, respectively. Insecticides are used in agriculture, medicine, industry and by consumers.

Classification of insecticides –

on basis of activity insecticides can be classified in two major groups, such as:-

a) systemic insecticides: which have residual or long term activity.

b) contact insecticides: which have no residual activity.

according to chemical nature insecticides can be classified in two major groups, like-

a) inorganic insecticides,

b) organic insecticides.

Inorganic insecticides

These are generated by inorganic species.

a) As-type: Arsenic containing insecticides, example – $PbHAsO_4$, $Ca(AsO_4)_2$ etc.

b) S-type: Sulfur containing insecticides, example – S, CS_2 (liq), Borax –$CaSO_4 + Ca(OH)_2$ etc.

c) F-type: Flurine containing insecticides, example – NaF, Cryolite (Na_3AlF_6), Na_2SiF_6, Paris green, Ethylene oxide etc.

Organic insecticides

These are generated by organic species. These can be classed as –

a) Natural Organic Insecticides: These are naturally occurred.
Examples – Nicotine, Pyrethrins ($C_{21}H_{28}O_3$), Rotenone ($C23H_{22}O_6$) etc.

b) Synthetic organic insecticides: These are synthetically generated. Such as-

1. Chlorine containing compounds –
   DDT, Lindane ($C_6H_6Cl_6$), Eldrin: $C_{12}H_8Cl_6$ etc.

2. Phosphorus containing – TEPP, Di-thione, etc.

3. Organo-carbamates also insect's nervous system.
   Examples – Isolan, Car. Organo-carbamatebayl 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


Thank
You