



Centurion
UNIVERSITY

*Shaping Lives...
Empowering Communities...*

7. Herbicide – Classification



Centurion
UNIVERSITY
Shaping Lives...
Empowering Communities...

7.1 Classification based on chemical nature

- **Inorganic herbicides** do not contain carbon atoms in their molecules. **They were the first chemicals used for weed control..** Arsenic acid, arsenous acid, sulphuric acid are acid type of inorganic herbicides. Where as sodium arsenate, sodium chlorate, copper sulphate etc are inorganic salts
- **Organic herbicides:** These herbicides contain carbon atoms in their molecules. They may be oils or non oils. Eg. diesel oil, xylene type of aromatic oils. Majority of present day herbicides are non oils.



Centurion
UNIVERSITY
*Shaping Lives...
Empowering Communities.*

7.2 Classification based on methods of application of herbicides

7.2.1 Soil-Active Herbicide

A soil-active herbicide is one that is applied primarily to the soil rather than to the vegetation. Inside the soil it kills weeds as they germinate or inhibits sprouting of their rhizomes, stolons, and tubers. **Eg simazine, alachlor, trifluralin, and EPTC**

7.2.2 Methods of Application of Foliage-Active Herbicides

A Foliage-active herbicide is applied to weeds after their emergence from the soil. They are absorbed by the plant foliage and these are translocated to the other plant parts. **Eg 2,4,5-T, paraquat, diquat, MCPB, amitrole**



Centurion
UNIVERSITY
Shaping Lives...
Empowering Communities

7.3 Classification based on time of application of herbicides

7.3.1 Pre-plant treatment

An herbicide treatment made any time before the crop is planted is called a preplant treatment.

. eg Fluchloralin , Pendimethalin, and Alachlor

7.3.2 Pre emergence treatment

Application of herbicides soon after planting of a crop is called pre emergence treatment.

Eg. atrazine in maize, diuron in cotton, pendimethalin,

7.3.3 Post emergence treatment

Post emergence treatment is the application of herbicide after the emergence of both the crops and the weeds. E.g. paraquat. Propanil in Rice at 25 DAT 2,4-D at 30 DAT of Paddy



Centurion
UNIVERSITY
*Shaping Lives...
Empowering Communities...*

7.4 Based on selectivity/Mode of action

7.4.1 Selective herbicide:

It is one that will kill some plant species when applied to a mixed plant population, without causing serious injury to the other species. Ex. 2,4-D, atrazine, EPTC, trifluralin, alachlor, butachlor, fluchloralin and pendimethalin are selective herbicides used on crop land.

7.4.2 Non-selective herbicide

It is one that kills plants without regard to species, for example, **paraquat**, **Diquat**, **sodium chlorate**, weed oils, and acrolein.



Centurion
UNIVERSITY
*Shaping Lives...
Empowering Communities*

7.5 Based on translocation/mobility

7.5.1 Contact herbicide kills plants by coming in contact with the plant tissue rather than as a result of its translocation. Thus, a contact herbicide applied to the foliage of a plant **will not kill its roots**, though in simple annuals the roots of the treated plants may die because they were deprived of their shoots.

Some common **contact herbicides** are **paraquat, diquat, Propanil, and petroleum oils**.

7.5.2 Translocated (systemic) herbicide moves within the plant from the point of treatment to its other parts, to variable extent. It often kills the entire plant even if only a portion of the plant was treated with the herbicide. **Eg Glyphosate**



Centurion
UNIVERSITY

Shaping Lives...
Empowering Communities

7.6.1 A residual herbicide maintains its phytotoxic effects in soil for considerable time after its application. This residue period may be three to four weeks in some herbicides, such as **2,4-D and EPTC**, and much longer, up to several months, in others.

7.6.2 A non-residual herbicide is inactivated in soil immediately, or within a few days, after it reaches the soil, **Paraquat, diquat, amitrole, DSMA**, and **weed oils** are non-residual or very short persistence herbicides. The non-residual herbicides are good for a quick knock-down of the existing weeds. They do not provide any extended period of weed control..