

## Weed Control Methods - A Quick Glance

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Weeds are ubiquitous in nature and are important biological constraints to crop production. They compete for nutrients, soil moisture, space and sunlight leading with crop plants. Hence, various weed control methods which are cost effective and easy to adopt are necessary for practical crop production.

**Weed Control Methods:** They are broadly classified in two groups:

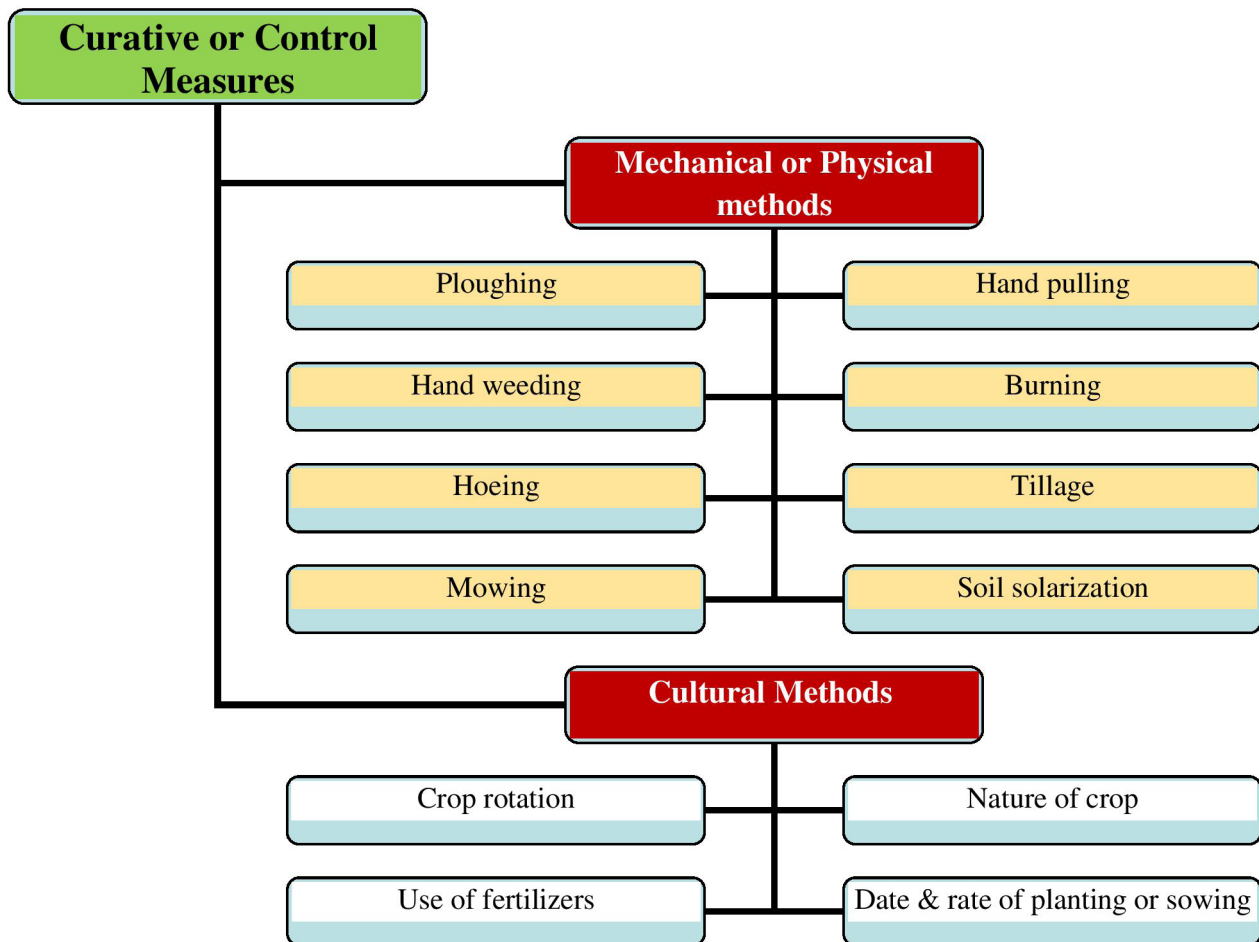
- 1) Preventive Measures.
- 2) Curative or Control Measures which includes:
  - i). Mechanical or Physical method
  - ii). Cultural or Cropping method
  - iii). Biological method and
  - iv). Chemical method

**1) Preventive Measures:** This method includes preventing the weeds from their powerful multiplication, introduction from other areas and nipping off the flower buds.



Figure 1 Preventive measures for weed control

2) **Curative or Control Measures:** These measures are followed to remove or to smother the weed growth and further multiplication.



*Figure 2 Curative or control methods of weed management*

**i) Mechanical or physical methods:** It comprises: Ploughing, hand pulling, hand weeding, burning; flooding, hoeing, tillage, mowing and soil solarization.

**ii) Cultural methods:** The weed germinates and establish faster than crops at any given situation in field condition. Hence, the cultural practices are managed in such a way that, the crop should establish earlier and grow quicker than weeds. This method includes;

**a. Crop rotation:** It controls the free growth of weeds due to change of cropping season and subsequent crop season.

**b. Nature of crop:** Cover crops like legumes will smother the weed growth. E.g.: Cowpea, Groundnut.

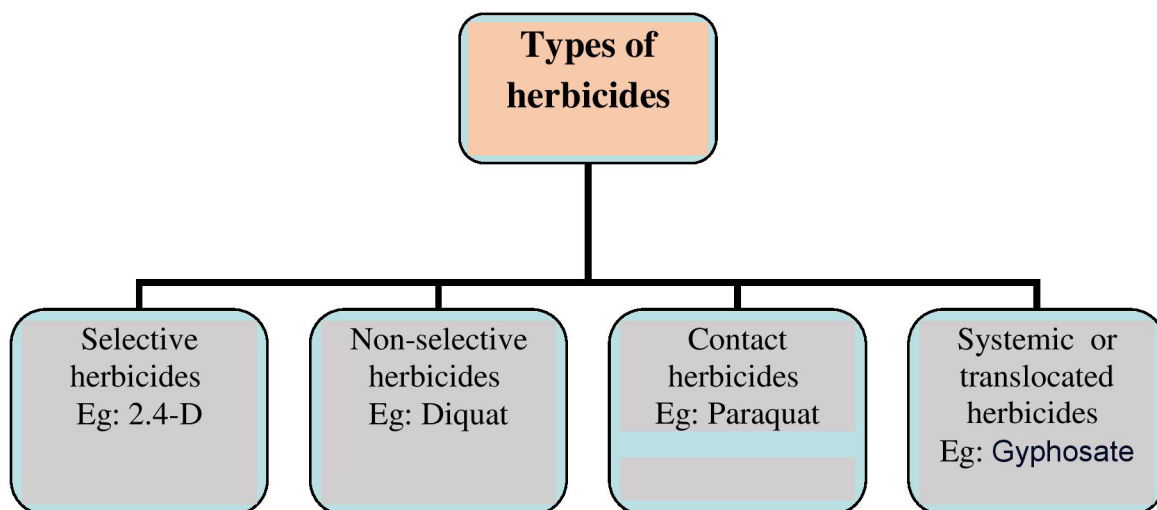
**c. Use of fertilizers:** Application of optimum doses of fertilizers to crop will help to grow quicker.

**d. Date & rate of planting or sowing:** The sowing of crops at appropriate time following optimum seed rate will aid the crop to cover the ground and will make the weeds deprived of light.

**iii) Biological methods:** In this method, living organisms are used for suppressing or controlling the weeds. It includes the use of plant, animal or microorganisms for destruction of weeds. These living organisms are known as bioagents and they feed only on specific weeds and they do not feed on crop plants.

**iv) Chemical methods:** This method is very effective and has a great scope provided the chemicals are easily available, efficient and cheap. These chemicals are called herbicides and they assist in killing the weeds or in preventing their growth. There are different types of herbicides are available for application and are classified as;

**a) Based on Selective Nature;**



i) **Selective herbicides:** Which kills only weeds without harming/injuring crop plants. Eg 2,4-D.

ii) **Non-selective herbicides:** The herbicides which kills all kinds of vegetations i.e. weed and crop plant. Eg. Diquat

iii) **Contact herbicides:** The herbicide which kills all the plant parts which may come in contact with the chemical by directly killing the plant cells. These chemicals are most effective against annuals weeds particularly when they are in juvenile stage Eg: Paraquat

iv) **Systemic or translocated herbicides:** They first absorbed in the foliage of the weeds or through roots of the weeds and later they translocated to other parts of the plant or kill plants after their absorption by hastening or hindering the metabolic activities of plants. These herbicides are more vigorous in destroying deep rooted plants including perennials. Eg: Glyphosate

**b) Based on relative time of application to weed emergence;**

**i) Pre-planting (Before sowing):** Application of herbicides before the crop is planted or sown.

Eg Fluchloralin

**ii) Pre-emergence (Before emergence of crops and weeds):** Application of herbicides after sowing of crop plants but earlier than emergence of crops and weeds is known as pre-emergence application of herbicides. It is done within 48 hours of sowing and only selective herbicides are used. Mostly germinating weeds are killed by pre-emergence application of herbicides and gives reasonable advantage to crop. Eg: Pendimethalin, Alachlor, Atrazine.

**iii) Post-emergence (After emergence of crops and weeds):** The application of herbicides subsequent to emergence of crop is known as post-emergence application. It is usually resorted to when the crop has put forth its growth sufficiently to tolerate herbicides and to kill weeds that appear late in the crop. Eg: 2,4-D, Imazethapyr, Quizalofop –P-ethyl.