

(Mock 1) :-

- ① Weeds are unwanted, persistent plants that grow in cultivated areas, distinguished by their remarkable ability to compete with crops through rapid growth, high reproductive capacity & environmental resilience. According to Jethro Tull : "Weed is an unwanted plant growing where it is not desired."

- Classification of Weeds :- (A) Basis of Life Cycle :- (a) Annual :- Celosia, Cyperus ; (b) Biennial :- Daucus carota, Cirsium vulgare ; (c) Perennial :- Cynodon sp. ; Cyperus rotundus etc.

- (B) Basis of Origin :- (a) Indigenous :- Native weeds of the country or region. ex:- Acalypha indica. (b) Introduced :- Exotic weeds brought from other countries ; ex:- Parthenium hysterophorus ; Lantana camara.

- (C) Basis of Parasitic Nature :- (a) Semi-root :- Striga sp. ; (b) Semi-stem :- Loranthus sp. ; (c) Total root :- Orobanchis sp. (d) Total stem → Cuscuta sp.

- (D) Basis of Morphology :- (a) Grasses :- ex:- Cynodon, Avena etc. ; (b) Sedges :- ex:- Cyperus ; (c) Broadleaf :- ex:- Camellia etc.

• Importance of Weeds with Example :-

- ① Maintain soil fertility :- Typha sp. (add 1-35% Nitrogen).
- ② Control soil erosion :- Cynodon dactylon ; Convolvulus ;
- ③ Use as fodder :- Cynodon sp.
- ④ Medicinal value :- Leucas aspera is used in snake bite. Striga sp. is used in diabetes. Phyllanthus " " in Jaundice.
- ⑤ Have economical value :- Roots of Cichorium intybus is used in adding flavours to coffee. Cyperus rotundus is used in making agarbatti.
- ⑥ Used as pollution indicator :- Brassica to indicate NO_2 pollution. Chick weeds " " SO_2 pollution.
- ⑦ Used as cleaning water :- Eichhornia crassipes.
- ⑧ Religious purposes :- Cynodon sp.

Feedback :-
① Add important characteristics
② Add harmful effects.

Q. D1

ii)

① Characteristics of Weeds :-

- ① Prodigious Seed Production :- Weeds produce a vast number of seeds to ensure survival. For instance, Amaranthus sp. can produce roughly 1,96,000 seeds per plant; Chenopodium sp. upto 72,000 seeds per plant.
- ② Seed Longevity & Dormancy :- Weeds seeds can remain dormant (dormancy) in the soil for years, ~~generating~~ germinating only when conditions are favorable (e.g. after tillage). Conyololulus arvensis can remain viable upto 50 years.
- ③ Rapid growth & Early Maturity :- Weeds grow faster than most crops, allowing them to dominate resources early in the season than crops.
- ④ Extensive vegetative reproduction :- Many weeds spread via perennial vegetative structures, making them hard to remove, such as rhizomes (e.g. Cynodon dactylon), tubers (e.g. Cyperus) etc.
- ⑤ Wide Adaptation & Plasticity :- Weeds can grow in diverse soil types, moisture levels & climatic conditions. They often utilize C4 photosynthesis, allowing them to perform efficiently under high temperature & moisture stress.
- ⑥ Effective Dispersal Mechanism :- Weeds ^{have} specialized features for dispersal, hooks/spines, wing/hairs & buoyancy (water). 
- ⑦ Allelopathy :- Some weeds such as Parthenium hysterophorus & Cyperus rotundus release toxic chemicals (allelochemicals) from their roots or residues that inhibit the germination & growth of neighboring crops.
- ⑧ Mimicry (Ward-Crop Interaction) :- Some weeds ~~has~~ like - Phalaris minor look similar to crops (wheat) in their vegetative stage, making them hard to distinguish during weeding.
- ⑨ Noxious habit & Persistence :- Many weeds are extremely difficult to eliminate once established due to their deep-rooted systems like - Conyololulus sp. has upto 20ft. deep roots.

②. In organic farming, there are mainly 3 weed management practices, including - weed prevention, weed eradication & weed control.

- Weed prevention :- Prevent the entry of weed or establishment of weeds in an area.
- Weed eradication :- Complete removal or elimination of weeds after it has established in an area.
- Weed Control :- Prevent limiting infestation of weed plant so that crops can be grown profitably.

Major weed management Practices :-

- ① Preventive methods :- Use certified, weed-free seeds & clean farm machinery. Also maintain clean irrigation channels & field boundaries. Always use well decomposed manure to avoid introducing viable weed seeds.
- ② Cultural methods :- Several techniques including crop rotation in which rotate the crops in distinct time interval to break the life cycle of persistent weeds. Also introduced dense-growing crops to suppress weed growth & practices like intercropping which provides better ground cover & reduces available space for weeds.
- ③ Mechanical & Physical methods :- Use of wheel-hoes, cultivators & weeder between crop rows & ~~establishment~~ formation of strategic tillage can uproot or bury weeds & exhaust weed-seed reservoir. Also the processes of mowing & slashing can be very useful for controlling weeds on bunds & field margins.
- ④ Mulching :- Organic materials such as straw, crop residues, leaves & compost are spread around crops. Through this, these materials block sunlight, suppress weed emergence & conserve soil moisture & modulate soil temperature.
it is cultural method.
- ⑤ Biological methods :- Use of cover crops like - Zizoglossa bicolor has been used for the biological ~~sup~~ suppression of Parthenium.
- ⑥ Ecological / Integrated Weed Management :- Combining several methods is more sustainable than depending on a single technique.
Example :- Crop rotation + ~~crop~~ cover crop + timely hoeing + mulching.

5
10
Thus, organic farming manages weeds through ecological regulation rather than chemical eradication. A well-designed integrated approach can simultaneously suppress weeds, conserve soil resources & strengthen the long term sustainability of organic agriculture.