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A Brief Note on Weed Science

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Opinion Article

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DESCRIPTION

A weed is a plant that is regarded undesirable in a specific setting, or "a plant that is in the wrong location." Plants that are undesirable in human-controlled environments, such as agricultural fields, gardens, lawns, and parks, are frequent examples. The term "weed" has no botanical relevance from a taxonomic standpoint, because a plant that is a weed in one setting is not a weed in another. Volunteer crops (plants) are treated the same way as weeds in a following crop. Any plant that grows or reproduces aggressively or is invasive outside of its original habitat is referred to as a weed. More broadly, "weed" is occasionally applied pejoratively to species outside the plant kingdom, species that can survive in diverse environments and reproduce quickly; in this sense it has even been applied to humans. Some plants that are widely regarded as weeds are intentionally grown in gardens and other cultivated settings, in which case they are sometimes called beneficial weeds.

In agriculture, weed management is crucial. Hand hoeing, powered cultivation with cultivators, smothering with mulch or soil solarization, deadly wilting with high heat, burning, or chemical assault with herbicides are some of the methods used. Ruderals are with modifications that let them thrive in certain situations. That is, weeds gain an advantage over valuable crops, pastures, or decorative plants in disturbed areas when soil or natural vegetative cover has been disrupted or is often harmed. The habitat's characteristics and disturbances will influence or even determine which weed groups become dominant.

Plants suited to naturally occurring disturbed settings such as dunes and other windy places with shifting soils, alluvial flood plains, river banks and deltas, and sites that are burnt frequently are examples of ruderal or pioneer species. Some weeds are successfully preadapted to grow and thrive in human-disturbed regions such as agricultural fields, lawns, gardens, roadsides, and construction sites because human agriculture and horticultural operations often imitate similar natural habitats where weedy species have developed.

Because they generally grow and reproduce fast, they have seeds that stay in the soil seed bank for many years, or have short lifespans with numerous generations in the same growing season; their weedy character sometimes offers them an edge over more desired species. Perennial weeds, on the other hand, frequently have subterranean stems that extend beneath the soil surface or creeping stems that root and spread out over the ground, such as ground ivy (*Glechoma hederacea*) Because the animals and plants that compete with or feed on them in their native habitat are missing, certain plants become dominant when transplanted into new ecosystems; this is known as the "natural enemies theory," and plants liberated from these specialised consumers may become dominant. Klamath weed, for example, threatened millions of hectares of key grain and grazing area in North America after it was unintentionally introduced, but was quickly reduced to an uncommon wayside plant until natural enemies were brought during World War II. Weeds have more resources available for growth and reproduction in areas where predation and mutually competitive interactions are absent. The "novel weapons theory" suggests that the weediness of some species brought to new areas is caused by their production of allelopathic substances that indigenous plants have not yet evolved to. Established plants' development, as well as the germination and growth of seeds and seedlings, may be hampered by these substances. Another way a plant's ecological role might make it a weed, even if it's innocuous in and of itself, is if it harbours a pest that relies on it for survival; for example, Berberis species are intermediate hosts for stem rust fungus, causing considerable damage to wheat harvests when they grow near the fields.