



## Weed Science and Herbicides

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### Editorial

Weeds have existed since humans began settled agriculture have existed since the arrival of settled agriculture around 10,000 years ago it's been suggested that the foremost common characteristic of the ancestors of our presently dominant crop plants is their willingness their tendency to achieve success, to thrive, in disturbed habitats, mostly those around human dwellings. Farmers have likely always been conscious of weeds in their crops, although the evidence for his or her awareness and concern is almost all anecdotal. Unlike other agricultural sciences like entomology or plant pathology, the emergence of weed science is relatively recent, occurring largely within the 20th century and coinciding with the event of herbicides.

Objectives of weed science management of particularly troublesome weeds

While any plant are often a weed, approximately 250 plant species are sufficiently troublesome, cosmopolitan and economically injurious to warrant targeted research into their biology to help in their management and control. Samples of a number of these troublesome weed species in North America are Palmer amaranth (*Amaranthus palmeri* S. Watson), common lambsquarter (*Chenopodium album* L.), horseweed (*Erigeron canadensis* L.), morningglory (*Ipomoea* spp.), waterhemp (*Amaranthus tuberculatus* (Moq.) J. D. Sauer) and customary ragweed (*Ambrosia artemisiifolia* L.). Some weed science researchers provide extension resources for farmers and land managers by trialing a spread of weed control tools and tactics on a selected weed, publishing the results and providing recommendations for his or her future management. Other researchers may study the biology of weed seeds so as to work out how long weed seeds can remain viable during a soil. Much of this research is conducted at public land-grant universities.

### Herbicide application and Interaction

Another aspect of weed science research cares with generating knowledge about the active ingredients of herbicides. Specifically, evaluating the response of weeds and crops to different combinations of herbicides at varying rates, droplet sizes, and environmental conditions within different cropping systems containing different weed communities. Some herbicides become simpler when mixed together (synerism), while other herbicide combinations reduce the general control (antagonism). Some weed science researchers trial a spread of herbicides applications and combinations on weeds to gauge their impact on the weeds and crops. Most of this research is conducted by private companies.

### Herbicide fate and action

Another aspect of weed science cares with how herbicides move within the environment after they're applied. Some herbicides degrade very quickly in sunlight and may be made inactive before entering the plant while others can persist for years within the soil after they're applied, causing problems for future crops. Registering herbicides can cost many many dollars so as to demonstrate how the chemical moves and degrades within the environment it's applied. Most of this research is conducted by private companies so as to be ready to register their products purchasable.

### Professional societies

Many professional societies exist for weed scientists to publish research findings and support future research. The Weed Science Society of America (WSSA) may be a non-profit professional society that hosts annual conferences and regional conferences within the us also as provides guidance on the utilization of herbicides for instance, the WSSA created a categorization system of herbicides by mode of action that's adopted by all herbicide manufacturers to obviously communicate the way during which each herbicide product impacts plant physiology. By encouraging herbicide applicators to use different modes of action, this reduces the likelihood of herbicide resistant populations of weeds from occurring, thereby stewarding the long-term ability of those weed control products.

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