

Public Abstract

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Title: Biology and Management of Cut-leaved Teasel (*Dipsacus laciniatus* L.) in Central Missouri.

Cut-leaved teasel is a biennial weed that invades roadsides and low disturbed areas. The objective of this research was to determine growth characteristics, herbicide efficacy, and seed production of teasel.

Growth characteristics were evaluated in plants under field conditions. Variables measured for each plant included: dry weight of leaves, stems, seedheads, taproot, and leaf area. Herbicide efficacy experiments were conducted for two years and two sites with visual injury estimated following treatments. Treatments included four modes of action: amino acid biosynthesis inhibitors, growth regulators, acetolactate synthase (ALS) inhibitors, and cell membrane disrupters. Seed production was evaluated in plants under two levels of intraspecific competition in two locations for two years. Total seedhead per plant, seeds per primary seedhead and total seed production per individual plant was estimated.

Rosette growth included larger and fewer leaves compared to plants in the reproductive stage. Rosettes stored resources in the taproot, increasing the size (length, diameter, and weight). Reproductive stage plants used resources from the large root system. Most of the herbicides were effective for teasel control (>90%), except the ALS inhibitors sulfosulfuron and sulfometuron-methyl (<80%). Combinations of 2,4-D with other growth regulator herbicides did not increase the efficacy compared to 2,4-D alone. Imazapyr was the herbicide that reduced subsequent emergence of teasel. Seed production reached 33,500 in plants growing alone and was affected by location, year and growth habit. Primary seedheads produced more than 1000 seeds. Improved knowledge of the biology of teasel and herbicide efficacy will contribute to designing future management strategies.