

BIOLOGY AND MANAGEMENT OF CUT-LEAVED TEASEL. Diego J. Bentivegna and Reid J. Smeda, Graduate Research Assistantship and Professor, Division of Plant Science, University of Missouri, Columbia, MO 65211.

Cut-leaved teasel is an exotic and highly invasive weed along roadsides and unmanaged areas. It is a biennial, growing as a rosette in the first year followed by a reproduction stage during the second year. Among the negative effects, teasel reduces diversification of species, decreases traffic visibility and alters soil moisture levels. The objectives were to identify emergence periods, growth aspects, total seed production, and effects of chemical management. Teasel emergence was counted up to one year after placing seeds at two locations. Teasel growth was evaluated over a life cycle on 10 plants at two locations, with the following parameters measured for each plant: aboveground and belowground biomass; total leaf area. Fifteen plants under two levels of intraspecific competition were used to measure the seed production at two locations over two years. Herbicides were spread in naturally infested sites at labeled rates in two locations and for two years, with injury visually estimated up to two months later. Four different modes of action were used: amino acid biosynthesis inhibitors, growth regulators, acetolactate synthase inhibitors, and cell membrane disruptors. Principally, teasel emergence occurred in only two months (April and October), with 32.5 % of sown seed emerged. Teasel exhibited two peaks for above-ground biomass; in September of the first year (rosette leaves); and during June in the second year (leaves, stems, and seedheads). Maximum aboveground and belowground biomass was 392 grams plant⁻¹ and 82 g plant⁻¹, respectively. Plants stored resources in the taproot only the first year. Maximum leaf area per plant was 15,050 cm² and peaked with the time of optimum biomass production. Single plants produced from 6 to 36 seedheads, with total seed production averaging 12,600 seeds in plants growing alone. In contrast, plants with intraspecific competition reduced seed production to 4,300 seeds plant⁻¹. The principal seedhead produced from 880 to 1,300 seeds. Glyphosate, 2,4-D, 2,4-D + triclopyr, 2,4-D + picloram, 2,4-D + clopyralid, dicamba, imazapyr, metsulfuron-methyl, and paraquat provided optimum control (>90%) of rosette plants. Control with sulfometuron-methyl was only 80%, and control with sulfosulfuron was insufficient (<33%). Application of herbicides at the end of April and October (after seedlings emergence) appears optimal for control of new and established plants.