

GROWTH AND DEVELOPMENT OF CUT-LEAVED TEASEL. Diego J. Bentivegna and Reid J. Smeda. Graduate Research Assistant and Associate Professor, Division of Plant Science. University of Missouri. Columbia, MO. 65211.

Cut-leaved teasel (*Dipsacus laciniatus* L.) is a biennial plant that was introduced into the US for use in the textile industry and has become a significant problem weed. It was declared a noxious weed in MO in 2000. Even though it is not a significant problem in agronomic crops, it is important along roadsides, cemeteries and other undisturbed areas. The objective of this research was to determine characteristics of growth and resource location from emergence to seedset for teasel. Field research was conducted from 2004 to 2005 at two locations in central Missouri. Seeds of teasel were germinated in the greenhouse and seedlings with the first set of true leaves were transplanted into polypropylene pots in early April, 2004. At bi-monthly to monthly intervals, ten plants were harvested at each location. Variables measured for each plant included: dry weight of leaves, stems, capitulum, taproot, and secondary roots; length and diameter of the taproot, and total leaf area. The absolute growth rate (GRA) was calculated as the difference of dry weight between two successive samples divided by the time elapse between them. The relative growth rate (GRR) was calculated using the following equation  $R = (\ln W_1 - \ln W_0) / t_1 - t_0$ . Teasel biomass reached a peak at the end of the first season and at seed production during the second year. The maximum GRA of above ground growth (2.2 to 4.9 g./day) was in August to September, 2004 and in May to June, 2005 (2.4 to 4.8 g./day). The total amount of above ground biomass per plant for 2004 was almost half that attained in 2005. The largest GRR values were measured during the first 7 months (0.1 to 0.15) following seedling establishment. During the same period, the GRR for roots was also maximum (0.10 to 0.12) compared to the remainder at the plant's life cycle. Plants formed a rosette during the first year; hence leaves were the primary contributor to above ground biomass in 2004. However, in 2005, stems and seedheads comprised >75% of the primary plant biomass. Maximum total leaf area was similar in both years; however, leaves were larger and fewer in number in 2004 compared to 2005. For root growth, length, diameter, and dry weight of the taproot increased considerably in 2004, but remained relatively constant from late fall to senescence of the plants. Maximum resource storage in the taproot was October to November of 2004. Little accumulation of root biomass in 2005 suggests that photosynthetic activity by leaves was put into reproductive growth. Teasel exhibited an aggressive growth habit following establishment that excluded or reduced competitiveness of other species. In the first year, the development of a large rosette and taproot provided a competitive advantage over other species, especially in late fall and early spring. In the second year of growth, plant resources were used to optimize reproduction prior to plant senescence.