

ABSTRACT OF THE THESIS

Seed Germination Characteristics

of Hieracium pratense,

a Successional Perennial.

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Field observations on Hieracium pratense (hawkweed) indicate that it becomes established from seeds the second spring after disturbance during old-field succession. Hawkweed is a perennial and its seeds mature and are dispersed in June. Germination of buried and dry-stored seeds of hawkweed was investigated over a one year period. Freshly harvested seeds showed some innate dormancy which was broken by a short period of after-ripening. Germination of dry-stored seeds in light remained high throughout the testing period, except at 5/15 C. Germination of seeds buried at 2, 5 and 15 cm was similar to those of the dry-stored seeds, except that germination at 5/15 C in light increased during the winter months. Laboratory stratification also resulted in increased germination at low temperatures. This indicates that germination is inhibited by low temperatures during autumn, but could take place in early spring after overwintering when soil temperatures are still low. Dark germination of dry-stored and buried seed remained low, except for an increase at 20/30 C after nearly a year. The burial experiments also indicated short term viability

of hawkweed seeds in the soil. High temperature drying had no harmful effect on hawkweed germination, but solutions of high osmotic potential caused a decrease in germination. Although the seeds are capable of germinating during summer months, low soil moisture at this time may prevent it. Increased far-red to red ratio of light passed through a vegetation canopy had little effect on the germination of seeds stored dry for one year. These results indicate inhibition of hawkweed germination and establishment during the first year of secondary succession and that conditions in the spring of the second year are favorable for germination.