

CANADA THISTLE PHENOLOGY. Frank Forcella and David Archer. North Central Soil Conservation Research Laboratory, USDA-Agricultural Research Service, Morris, MN 56267.

Natural and experimental populations of Canada thistle (*Cirsium arvense*) were monitored at separate sites in western Minnesota for two and four years, respectively. Both populations responded similarly to environmental cues, except during the establishment year for the experimental population. Otherwise, shoots consistently reached 20, 40, and 60% relative emergence at about 250, 400, and 600 GDD (base temp. = 0 C at 5 cm depth). Thereafter, shoot emergence could not be predicted reliably across sites and years. Heights of the tallest shoots consistently reached half their maximum heights at the summer solstice (21 June), but absolute heights varied annually. Shoot mortality during summer was 25% of the total emerged shoots, and its initial occurrence coincided with flower bud development. Appearance of the first visible flower bud preceded the summer solstice by 10 d, and first anthesis followed 20 d later. Canada thistle phenology is affected by site-specific factors: microclimate, which varies annually; and photoperiod, which does not. Both factors can be used alone and in combination to predict aspects of Canada thistle development.