

# Weed Awareness

Seven plants have been designated as “noxious weeds” Nebraska. Five of these can be found in Lancaster County:



**Musk Thistle**  
(1,040 reported infestations in 2002)



**Leafy Spurge**  
(307 reported infestations in 2002)



**Purple Loosestrife**  
(143 reported infestations in 2002)



**Plumeless Thistle**  
(12 reported infestations in 2002)



**Canada Thistle**  
(12 reported infestations in 2002)

## Where Do Weeds Come From?

Most weeds owe their beginning to seed in the soil. The soil acts as a seed storage reservoir and a growth medium for weedy plants.

The number of seeds in the soil is variable and may range from two seeds per pound of surface soil in grassland to 140 seeds per pound of surface soil in cropland. In western Nebraska an average cropland soil contained 114 seeds per pound of surface soil. On a per acre basis, the seed content approached 200 million seeds per acre.

In grasslands, a majority of the weed seed is located within one inch of the soil surface, while in cultivated soil, the majority of the seed is located in the upper six inches of soil.

### Loss of Seed From the Soil

Seeds are lost from the soil due to feeding by rodents and insects, decay or germination. The length of weed seed survival depends on the species, depth of burial and tillage. Seeds from some weeds may only survive a year when

buried in the soil, while others will remain viable for 30 years or more. As soils are cultivated, seeds are exposed to light and moved closer to the soil surface, stimulating germination. If weed seed production is prevented, weed seed can be lost from the soil at a rate of 25 percent per year in cultivated soil and 12 percent per year in undisturbed soil. **The quickest way to reduce seed numbers is to practice shallow tillage and prevent weeds from producing seed.**

In experiments conducted across Nebraska, weed seed decline was examined in continuous corn where atrazine was combined with cultivation for five consecutive years. After five years of preventing weeds from producing seed, the weed seed density was reduced 95 percent. During the sixth year, weed control efforts stopped and the weed seed density began to rapidly increase. **Weed control must be continually practiced to prevent an increase of weed seed content in the soil.**

### Introduction of Weed Seed Into the Soil

Seed is introduced to the soil through several avenues, with **the chief source being the production of seed by weeds allowed to mature.** Weed seed can also enter a field from outside sources, with the primary seed dispersal methods being wind, water, animals and man.

Man also introduces weed seed into cropland. As crop seed is planted, weed seed is often a contaminant. As a farmer combines his crops and moves from field to field, he may contaminate the entire farm with numerous weed seeds.

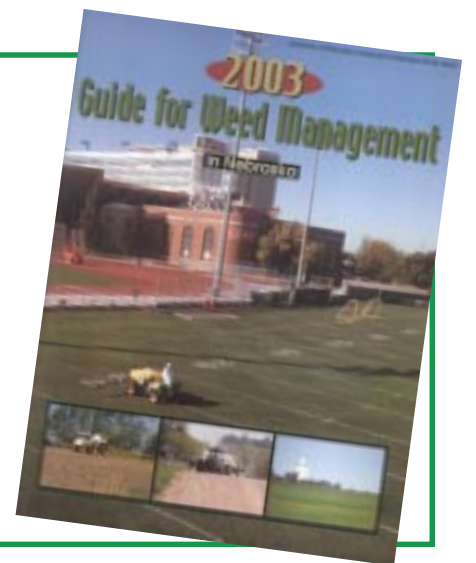
Many weed seeds pass through the digestive tracts of animals and remain viable. When manure is used to fertilize cropland, weed seeds are systematically introduced across fields.

Reference: NebGuide (G86-807-A) "Where Do Weeds Come From?" online at [www.ianr.unl.edu/pubs/weeds/g807.htm](http://www.ianr.unl.edu/pubs/weeds/g807.htm)

## “Guide for Weed Management in Nebraska” Updated for 2003

The University of Nebraska Cooperative Extension has updated its “Guide for Weed Management in Nebraska” (EC03-130) for 2003. The 148-page publication is available online at [www.ianr.unl.edu/pubs/fieldcrops/ec130.htm](http://www.ianr.unl.edu/pubs/fieldcrops/ec130.htm) or you may purchase a copy for \$3 at the UNL Cooperative Extension in Lancaster County office.

The guide features several new sections as well as the latest research-based updates to the existing information on weed control and herbicide efficacy for a range of Nebraska crops and cropping practices.



Another available resource is “Weeds of Nebraska and the Great Plains,” published by the Nebraska Department of Agriculture. For more information please contact: Nebraska Department of Agriculture, PO Box 94756, Lincoln, NE 68509 or call 471-2394.

## When Will Weeds Bloom?

When noxious weeds bloom depends whether you are in eastern Nebraska or western Nebraska or if the growing season is warmer or cooler than normal. Plants will bloom earlier in eastern Nebraska and earlier if the growing season is warmer. The concept of growing degree days was developed to predict the dates for growth stages for crops. Growing degree days can also be applied to other plants.

### Growing Degree Days

The concept of growing degree days (GDD) resulted from observations that plant growth and development are more closely related to an accumulation of temperature above a certain base than time alone. The base temperature is a threshold below which growth does not take place. A base temperature of 40° F is commonly used for cool-season crops and 50° F for warm-season crops.

GDD for a particular day are obtained by subtracting the appropriate base temperature from the average daily temperature. Thus, on a

day with temperature averaging 60° F, the GDD for a cool-season plant such as noxious weeds would be 60 - 40 = 20. For a warm-season crop such as beans, GDD would be 60 - 50 = 10.

### GDD and Stages of Growth of Nebraska Noxious Weeds

The Weed Control Superintendents in counties having an official Nebraska Weather Station were asked to record

the dates that 50 percent of the musk thistle, Canada thistle, plumeless thistle and leafy spurge reached their key stages of growth. These observations were made in 1995, 1996 and 1997. The observed dates that 50 percent of the noxious weeds reached each of its growth stages was matched up with 40° F GDD data from the weather stations arriving at an average GDD required to reach each growth stage. Following is the average GDD required to reach the

key growth stages for each of the observed noxious weeds and the date that this would occur in Lincoln in an average year.

### GDD by Stage of Growth and Lincoln Date

This information can be used to project the dates the noxious weeds would reach each of its growth stages in a normal year or a year that varied from normal by tracking the accumulated GDD for that year. Growing Degree Day information is available at Crop Watch Weather at [cropwatch.unl.edu/weather.htm](http://cropwatch.unl.edu/weather.htm)

### Average growing degree days for noxious weeds (by stage of growth) and date this would occur in Lincoln

	Musk Thistle	Plumeless Thistle	Canada Thistle	Leafy Spurge
<b>Bolting</b>	1,000 May 5	1,000 May 8		
<b>Bud</b>	1,300 May 26	1,600 June 23	1,300 June 23	
<b>Flower</b>	1,700 June 14	2,000 June 30	2,000 June 30	1,000 May 5
<b>Seed Dispersal</b>	2,300 July 1	2,600 July 14	2,600 July 14	
<b>Seed Filled</b>				1,600 Jun 16