

# FIELD BINDWEED

(*Convolvulus arvensis* L.)



State Noxious Weed List: **No.**

Field bindweed (creeping jenny) is a member of the morning glory family and is well-adapted to the North Dakota climate and environment. Field bindweed is a native of Europe and western Asia and was introduced to this country during colonial days when it was referred to as devilgut. Field bindweed primarily is a problem in the dryland farming areas of the Great Plains and Western states. Field bindweed is found in both cropland and pasture and rangeland in North Dakota.

Identification and growth form:

Field bindweed is a long-lived perennial that produces a dense ground cover. The twining stems vary from 1.5 to 6 feet or more in length. Leaf size and shape are variable, but generally the leaves are 1 to 2 inches long, smooth and shaped like an arrowhead. Flowers are funnel-shaped, about 1 inch diameter and white or pink. The flower stalk has two small bracts located 0.5 to 2 inches below the flower. The bracts, along with leaf shape and smaller flower size, distinguish field bindweed from hedge bindweed.

Field bindweed also may be confused with wild buckwheat because of similarities in leaf shape and vining habit. However, wild buckwheat is an annual rather than a perennial and has a very small (about 1/8 inch diameter) greenish-white flower.

Roots of established plants may extend 20 to 30 feet laterally and be excavated as deep as 30 feet below the surface. Buds along the root system can send up shoots that start new plants. The root system contains a large quantity of carbohydrates that provide energy for both above- and below-ground plant growth. Buds located all along the root can send up new shoots or establish a new patch when roots are cut and moved, such as from cultivation.

Seeds of field bindweed vary from dark to brownish gray and are about 1/8 inch long. The fruit is a small, round capsule that contains up to four hard-coated seeds that can remain viable for at least 50 years. Field bindweed produces numerous seed in growing seasons with high temperatures and low rainfall and humidity.

Field bindweed can be spread by seed, root fragments carried by farm implements, infested soil adhering to the roots of nursery stock, root growth from infested areas and by animals.

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## Why is this plant a concern?

Field bindweed has a deep root system that competes with crop plants for water and nutrients. Vines climb on plants and shade crops, cause lodging of small grains and

make harvesting difficult by clogging machinery. Dense field bindweed infestations may reduce crop yields by 50 percent to 60 percent. Land infested with field bindweed is reduced in value.

## How do I control this plant?

Established field bindweed is difficult to control. An effective control program should prevent seed production, kill roots and root buds, and prevent infestation by seedlings. This plant is very persistent and a successful control program must be more persistent.

The best control of field bindweed is obtained with a combination of cultivation, selective herbicides, and competitive crops or forage grasses.

**Chemical.** Long-term control of field bindweed from herbicides depends on movement of a sufficient amount of herbicide through the root system to kill the roots and root buds. This requires use of systemic (movement throughout the plant) herbicides. Examples of herbicides that will reduce field bindweed infestations are products that contain dicamba (various), Facet L (quinclorac), Tordon (picloram) and glyphosate (various).

Successful control of field bindweed requires a long-term management program. A herbicide applied once never will eliminate established stands; rather, several re-treatments are required to control field bindweed and keep it suppressed. Because of long seed viability and tremendous food reserves stored in the roots, repeated chemical and/or mechanical control measures must be used.

Herbicides should be applied when field bindweed is growing actively and stems are at least 12 inches long. Herbicide performance can vary greatly due to environmental conditions in which the plants have been exposed. Plants growing under moisture or

heat stress usually have smaller leaves with a thicker cuticle and slower biological processes than plants growing in more favorable conditions. As plant stress increases, herbicide uptake and translocation decreases, which in turn decreases herbicide performance. This is the reason why field bindweed is harder to control in the more semiarid area of central and western North Dakota than in the eastern region.

**Cultural.** Intensive cultivation controls newly emerged seedlings, may kill young field bindweed infestations and contributes to control of established stands. Timely cultivations deplete the root reserves of established plants and stimulate dormant seeds to germinate.

Intensive cultivation alone is not practical because crops cannot be grown during the tillage period, and repeated tillage exposes the soil to erosion. However, applying herbicides in combination with cultivation has been successful in reducing both field bindweed infestations and the number of tillage operations.

**Biological.** Two non-native insects have been released to control field bindweed with minimal success to date in North America. The bindweed gall mite (*Aceria malherbae*) is microscopic in size and feeding by nymphs causes galling of field bindweed stems. The larvae of the bindweed moth (*Tyta luctuosa*) feed at night on field bindweed flowers and leaves. Several native insects occasionally feed on this weed but damage to the plant has not been long-lived. No insect has been released to feed on field bindweed roots, which would be the most likely method of success in controlling this weed.