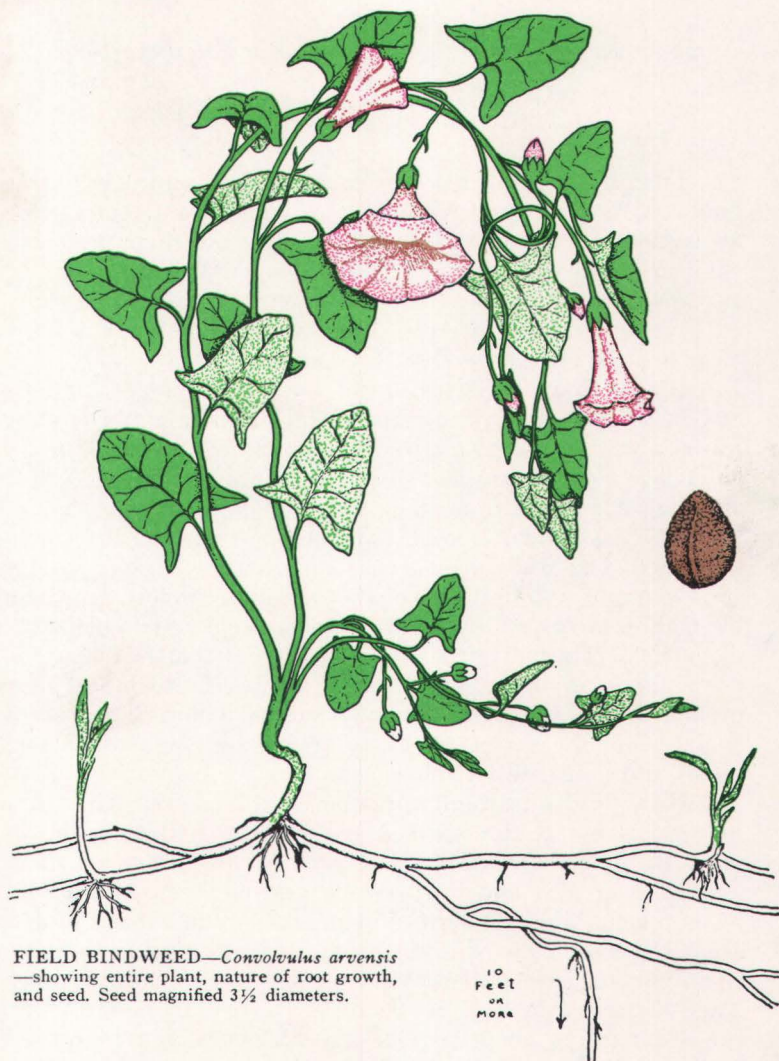


# FIELD BINDWEED



FIELD BINDWEED—*Convolvulus arvensis*  
—showing entire plant, nature of root growth,  
and seed. Seed magnified  $3\frac{1}{2}$  diameters.

10  
feet  
or  
more

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# Field Bindweed

(*Convolvulus arvensis*)

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(Illustrations by Cathrine Davis Young)

Field bindweed, oftentimes called wild morning glory, European bindweed, and creeping jenny, is a perennial weed found growing in all sections of Oregon. Field bindweed is a serious problem in the summer fallow wheat area of eastern Oregon. It is a nuisance in home gardens, orchards, and commercial vegetable areas.

Field bindweed prefers deep, well-drained land; however, it adapts itself to shallow, less productive lands.

**Plant characteristics.** Field bindweed spreads both by seed and a creeping root system. The stems are prostrate or twining. The leaves are more or less arrow-shaped, usually about 1 to 2 inches long. The flowers are bell-shaped, generally about an inch across, and the color varies from white to light pink. The seeds have a rough surface, dark brown in color, flattened on one side, and rounded on the other. The seeds are about  $\frac{1}{8}$  inch long. The main root system can penetrate well-drained soils as much as 20 feet. In addition to the main root system, there is an underground system of lateral root-like stems (rhizomes) from which new sprouts arise. These rhizomes are a factor in the rapid spread of bindweed patches. This underground lateral system is normally located within 2 feet of the soil surface and the stems are easily spread by cultivators, moldboard plows, and similar tillage implements.

**How field bindweed spreads.** Field bindweed seed, because of its size, is not readily cleaned from wheat, barley, vetch, and pea seed. Field bindweed is spread into new areas through the use of impure crop seed and by livestock grazing from infested to clean areas. Plants, when established in an area, produce many seeds. These seeds can live in the soil as long as 30 years, waiting for favorable conditions for germination. A few plants soon result in dense patches. Their creeping root systems are rapidly spread by tillage implements.

**Restrictive seed laws.** Forty-six states, the District of Columbia, and Canadian provinces, have laws prohibiting or restricting the use of crop seed containing field bindweed seed. Laws also regulate the sale of feed containing field bindweed seed.

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This bulletin is revised from and is to supersede EB 520, "Morning-glory," by Lawrence Jenkins and E. R. Jackman. The author thanks Dr. Kenton L. Chambers, Curator of the Herbarium, and Dr. W. R. Furtick, Associate Professor of Farm Crops for reviewing the manuscript.

## Control

**Chemical.** Chemical control methods depend on the extent of the field bindweed infestation, the use of the land where the field bindweed is growing, and whether or not the area can be irrigated.

*2,4-D.* Selective spraying with 2,4-D is the cheapest and most practical control method for extensively infested areas. Wheat, oats, barley, corn, and grasses can be selectively sprayed for field bindweed control. 2,4-D sprays must be timed carefully to control field bindweed without damage to grain or grass crops. Small grains and grasses have two sensitive growth periods to 2,4-D—one during the seedling stage; the second during the late boot and flowering stage.

For best control with 2,4-D, field bindweed should be sprayed during the early blossom stage of growth. The growth rate of spring grain and field bindweed are enough alike that selective spraying of bindweed is practical. For selective spraying use  $\frac{3}{4}$  to 1 pound of 2,4-D per acre. Five to 40 gallons of water should be used per acre.

The 2,4-D sprays can be better timed for spraying field bindweed when the infested area is sprayed during the summer fallow season. The infested field should be cultivated until the middle of July. Field bindweed should be sprayed with 3 pounds of 2,4-D about August 1 when it is in the early blossom stage of growth. Amine and acid formulations of 2,4-D give better control of field bindweed than do the ester formulations. This is apparently due to less volatilization during hot, dry weather. For best field bindweed control with 2,4-D, the infested area must be sprayed each year. During the grain season spraying can be done before harvest or immediately following harvest.

*TBA and PBA.* The so-called benzoic acids (TBA or PBA: trade names, Trysben, Benzac 1281, Zobar, and Benzac 354) are effective for nonselective control of field bindweed. These chemicals are active through the root systems of the plant. Under eastern Oregon conditions benzoic acids can be applied any time field bindweed patches can be located. Best results are obtained in western Oregon when these chemicals are applied during May, or any time prior to irrigation on irrigated land. Five gallons (10 pounds of TBA or 20 pounds of PBA) usually eradicates field bindweed. Occasionally 7-10 gallons are needed for complete eradication. Use 10-40 gallons of water per acre. For spot spraying use 1 quart of chemical in 3 gallons of water for each 1,000 square feet sprayed.

Field bindweed patches are more easily located for spraying during the summer fallow year. However, good control has been obtained from treatments made after harvest. Benzoic acids remain active in the soil and kill field bindweed seedlings for at least 2 years after treatment. Following the 5-gallon treatment, wheat and barley grow normally 4 years after treatment. About a 50% crop is obtained 2 years after treatment.

Field bindweed seed will live many years without germinating. Users of soil sterilant chemicals should watch field bindweed infested lands for new seedlings. These seedlings are from dormant bindweed seeds which germinate after the herbicide has disappeared from the soil. They can be easily controlled with selective 2,4-D sprays, if they are sprayed 4 to 6 weeks after appearing.

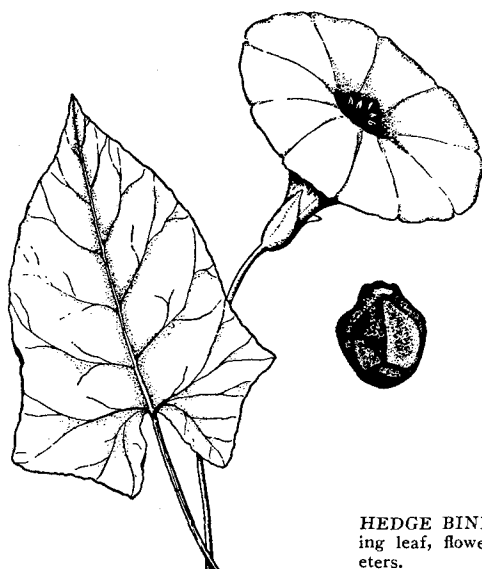
**Chlorate.** Sodium chlorate or borate-chlorate mixtures are effective for controlling small patches of field bindweed. Treatment rates for chlorate should be 4-5 pounds per square rod; for polybor-chlorate 10 to 12 pounds per square rod. Borates and chlorates have longer effects on soil than do the benzoic acids and are harder on soil structure. Chlorates often cause serious soil erosion. Chlorates should be applied under eastern Oregon dryland conditions in September or October, and under western Oregon conditions in April. Chlorates, because of fire hazards, should be applied dry. Clothes and equipment should be carefully washed following the application of chlorates.

**Tillage.** Field bindweed can be eradicated by a thorough tillage program. Best results are obtained by early spring plowing, followed by thorough cultivation after the field bindweed shows 7 to 10 days' green regrowth. Eight to 10 cultivations are needed the first year. The tillage program must be followed for at least 2 years. Tilled areas should be fall seeded to protect the land from erosion during the winter months. The cover crop can be harvested for grain, silage, or pasture. After removing the cover crop, the land should be re-plowed and cultivated throughout the second summer. The selective use of 2,4-D and benzoic acid sprays are more practical than tillage for the control of field bindweed.

## Hedge Bindweed

(*Convolvulus sepium*)

Hedge bindweed is another species of bindweed similar to field bindweed, but the flowers and leaves are twice as large. It is less aggressive and is easier to control. 2,4-D and benzoic formulations are effective chemical methods. Use the same methods recommended for field bindweed.



HEDGE BINDWEED—*Convolvulus sepium*—showing leaf, flower, and seed. Seed magnified 3 diameters.