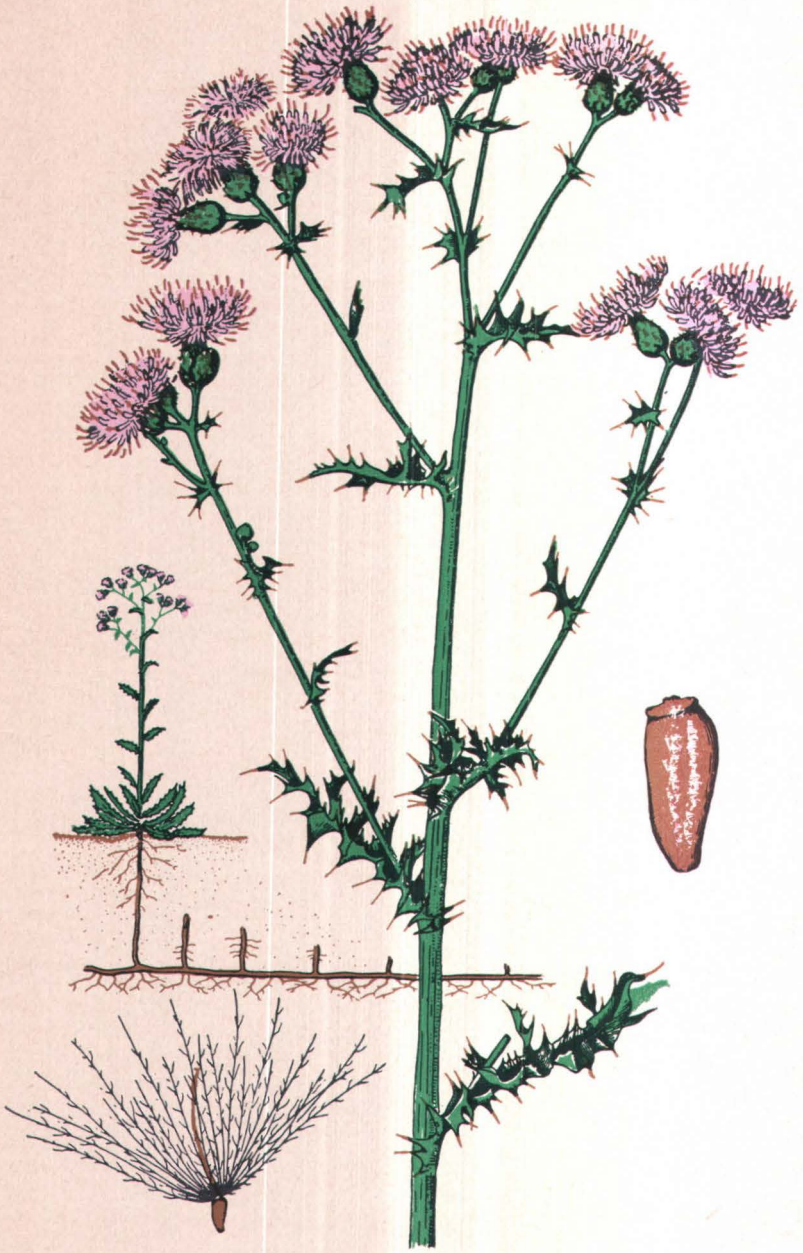
Canada Thistle

Rex Warren



Canada Thistle *(Cirsium arvense)*. Seed case magnified 7 diameters.

FEDERAL COOPERATIVE EXTENSION SERVICE ✓ OREGON STATE COLLEGE ✓ CORVALLIS

Printed and distributed in furtherance of Acts of Congress of May 8 and June 30, 1914. Cooperative Extension work in Agriculture and Home Economics, F. E. Price, director. Oregon State College and the United States Department of Agriculture, cooperating.

Extension Bulletin 519

Revised May 1959

CANADA THISTLE

(*Cirsium arvense*)
(Other names: Small flowered thistle, Perennial thistle, Creeping thistle)

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CANADA THISTLE is a native of southeastern Europe and adjacent Asia. It entered Canada and the United States in contaminated crop seed. Canada thistle is common throughout the Pacific Northwest. It is more common in Oregon on overflow land areas of the Willamette Valley, but can be found in most communities throughout the entire state.

Canada thistle grows from 1 to 4 feet tall and is distinguished easily from other Oregon thistles by its small head and creeping underground roots, which give rise to new plants. Male and female flowers are produced on different plants, but both must be present to produce fertile seed. As the patches commonly spread by root development, it frequently happens that all flowers in a patch may be of one kind, either male or female. Failure of such patches to set seed has led many people to believe that the plant is not spread by seed. In some cases, seed is not produced abundantly, but the seed produced usually has high germination.

Leaves are usually long and narrow with numerous cuts or identations along the margins. Each point between the cut ends in a short sharp spine and the edges are much ruffled. The underside of the leaf commonly is lighter green than the upper side. New shoots that rise from the roots do not flower the first year, but make rosettes flat on the ground in the fall.

Flowers are rose, purple, lavender, or white. Female flower heads fluff out more when ripe than male flower heads. Some years certain insect larvae feed on the flowers and seed of the thistle, and prevent seed from developing. The developing period lasts all summer. Buds, flowers, and seeds may be found on a plant at the same time.

Like other thistles the seeds are provided with down that aids in their spread by both wind and water. The down breaks off easily and leaves brown seeds, which are difficult to separate from grass or clover seed.

Lateral roots develop 8 to 10 inches below the ground surface. These lateral roots have buds 8 to 12 inches apart. These buds form new plants. Each lateral root eventually bends downward sharply and then becomes a vertical root that may go down 7 to 10 feet. Most of the feeding roots are in the subsoil. Canada thistle does not do well on soil with poor subsoils.

Methods of spread. Canada thistles are generally introduced into new areas by the use of impure crop seed. After the plant has been introduced to an area, it spreads by either seed or by roots. The seeds are carried by wind, water, livestock, and farm equipment. A few Canada thistles, by their spreading root system, soon become a large patch. The root fragments are spread by farm equipment used in seedbed preparation and cultivation. Gophers help spread the roots by carrying root sections into their food storage areas.

Noxious weeds. The Oregon seed law prohibits the sale for consumption in Oregon of forage or turf seed which contains Canada thistle. Most other states have similar laws which either prohibit the sale of such seed, or restrict the number of seeds of Canada thistle which can be in a pound of crop seed.

Acknowledgment: The author thanks Dr. W. R. Furtick, Farm Crops Department, and Dr. A. N. Steward, Curator of the Oregon State College Herbarium for reviewing the manuscript.

Chemical control. 2,4-D, Amitrol, and soil sterilants are effective in the control of Canada thistle. The chemical to use depends on the size of the Canada thistle infestation and the place where the weeds are growing. The most economical control program for large infestations of Canada thistle is selective spraying with 2,4-D. When this method is used, the infested fields should be planted to a crop which will permit the use of 2,4-D spray.

Spring sown grain is a good thistle competing crop. Seeding rates should be increased 10% to 25% for best results. The field should be fertilized heavily with nitrogen fertilizer. The amount will depend on the fertility of the field, but 40 to 60 pounds of nitrogen is usually an optimum amount. The fields should be sprayed with 1 pound of 2,4-D amine when the thistles are between the 6-inch stage and the prebud stage of growth. Sprays should be applied before the boot stage of the grain to lessen the chance of 2,4-D injury to the seeded crop. Thistle regrowth should be resprayed after the harvest of the seeded crop.

Better thistle control will be obtained by using at least 20 gallons of spray per acre. The rotation should be planned so that the infested field can be planted to grain crops for 3 or 4 years to permit respraying of the thistles.

For control in grass crops, spray when the thistles are in the same stage of development as recommended in the grain. Spray before the boot stage of the grass. Generally speaking, thistles can be controlled better in perennial grass fields than they can in grain fields. The grass provides more competition to the thistles.

Amitrol (ATA-ATZ) (3 amino 1,2,4 triazole) is an excellent chemical for the control of troublesome patches of thistles. Use 8 pounds of 50% Amitrol per acre with 20 or more gallons of water. Best results have been obtained by spraying when the thistles are from 6 inches tall to the bud stage of growth. After spraying, the area can be plowed or disked and planted to crops such as grain, corn, beans, etc. This method of spraying has resulted in over 95% control of the thistles. Fall spraying of thistles with Amitrol has given about 70% thistle control. Fall spraying with Amitrol is recommended when it is impractical to spray prior to planting the crop.

Better thistle control is possible with Amitrol when the spraying is done before plowing or disking. Plowing or disking before spraying disturbs the thistle root system, preventing a uniform emergence of thistles.

Soil sterilants. Soil sterilants, such as sodium chlorate, chlorate-borate mixtures, borate compound, and TBA, will eradicate Canada thistle. These chemicals cannot be used selectively in crop fields. When good thistle control is obtained with soil sterilants, no crop can be grown in the treated area for 2 to 10 years. The time depends on the chemical used, the rate of use, and the amount of moisture in the area.

In western Oregon, soil sterilant chemicals should be used in April. In eastern Oregon, better results are obtained by using soil sterilants in September or October.

Use 4 to 6 pounds per square rod of sodium chlorate, about 15 pounds of borate-chlorate mixture per square rod or 30 pounds of TBA (trichloro benzoic acid) per acre. Sodium chlorate is very soluble and can be applied as a spray or in dry form. However, sodium chlorate, when applied as a spray, and after the solution dries on plant material, clothing, or equipment, is very inflammable. It is safer to use sodium chlorate dry. Borate materials are relatively insoluble. It is easier to apply them in dry form. TBA is a liquid material applied at about 30 pounds in 40 or more gallons of water per acre. TBA will sterilize the soil for a shorter period than most other soil sterilants. County extension agents can provide more information on the selection and use of soil sterilants.

Control by cultivation. Canada thistle can be controlled by plowing infested areas deeply, early in the season and following with regular cultivations until all growth stops in the fall. Cultivations should be timed to permit 6 to 8 days green growth on the thistles before recultivation. This short growth period helps use the root food reserves, thus shortening the time required for eradication.

When controlling by cultivation, the soil becomes very fine, and can wash or blow away. In such a case, the cultivation method should be used only with proper erosion-preventing measures. A modification of the cultivation method, called "deferred fallow" works well in western Oregon and in the lower elevation areas of eastern Oregon. With this method the land should be plowed deeply in the fall, and oats and vetch seeded at twice the normal rate, and harvested for hay or silage the next spring. The land is then plowed and worked in the same way it was the previous year, until growth stops in the fall. In long-season areas, it is often possible to kill thistles by one year's cultivation. In short-season areas, it will require 2 years. If this method is used in eastern Oregon, fall wheat or rye should be seeded.

Canada thistle can be successfully cultivated and hoed from row crops. Checked-rowed corn lends itself to such control. Many badly infested fields have been freed from Canada thistle when planted to corn for 2 years in succession. Thistles are kept cultivated, sprayed, or hoed from the field. After 2 years the land can be used for other types of field crops.

Control by perennials. Alfalfa competes successfully with Canada thistle, and if a heavy stand can be obtained, will check the spread, and sometimes eliminate the weed. Canada thistle cannot make much headway in sod. Land may thus be seeded to sod-forming grasses and used for pasture. It may be necessary to cut the thistles to prevent blooming the first year, or spray with light rates of 2,4-D before the grass is in the boot stage of growth.

See your local County Extension Agent for further information on Oregon weeds and their control.