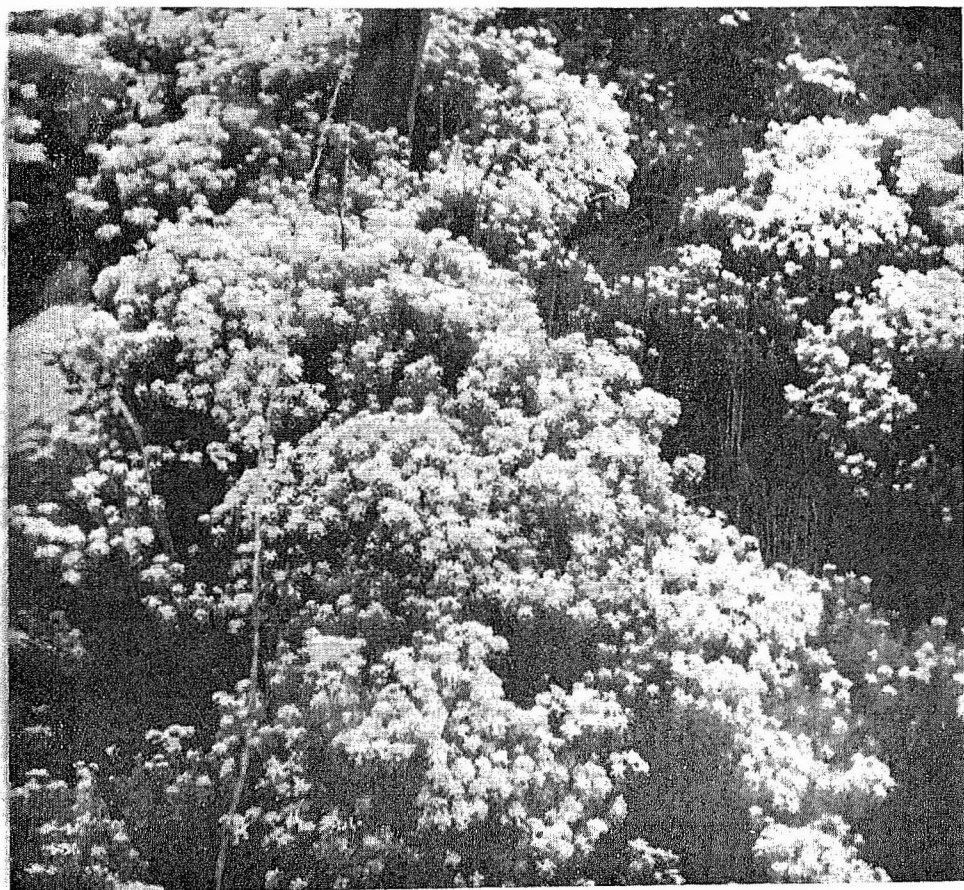


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Perennial Weeds and Their Control



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FOREWORD

Just as silt may pile up behind a large dam and gradually make it less and less useful, perennial weeds in Montana are slowly but surely choking many valuable agricultural lands out of production. In fact, perennial weeds annually cost Montana farmers millions of dollars. They reduce yield and quality of crops, increase dockage because of weed seed in grain, increase labor and equipment costs in handling crops, harbor diseases and insects, and reduce land values.

Unless Montana farmers become more acutely aware of the weed menace and cooperate in fighting it, the cost of control will be prohibitive. While some progress has been made in recent years through cooperative action by farmers under the state weed control law, many more control districts are needed in fighting the weed hazard.

The control of weeds costs money, but the expense today is insignificant compared with what it will be in a few years if weeds are allowed to tighten their grip on productive crop lands.

While eradication is the ultimate goal in the battle against weeds, the immediate objective is to bring them under control. Eradication may be accomplished in areas where the infestation is light and the patches small. But for large areas where the infestation is heavy and involves hundreds of acres, control is the most logical approach to the problem.

Probably the chief reason why a weed control program is not started is that farmers fail to identify perennial weeds until they have become established. Therefore, most of the common perennial weeds are illustrated and described in this bulletin as an aid in their identification.

While annual weeds are a problem, good cultural methods and crop rotation will reduce them. Perennial weeds being more difficult to control present a serious threat to profitable returns from Montana farms. For this reason this publication is confined to the 15 most important perennial weeds found in the state—blue lettuce, Canada thistle, dogbane, Russian knapweed, leafy spurge, morning glory, poverty weed, quackgrass, ragweed, showy milkweed, skeleton weed, perennial sow thistle, Goatweed (St. Johnswort), toad flax and white top.

Montana Extension Service in Agriculture and Home Economics N. E. Beers, Director, Montana State College and United States Department of Agriculture cooperating. Distributed in furtherance of Acts of Congress, May 8, 1914, as amended by Act of June 26, 1953 and June 30, 1914.

Perennial Weeds and Their Control

by

H. E. Morris, Extension Botanist
Arthur F. Shaw, Extension Agronomist

Control

Prevention is the most satisfactory method of control. The first step is to use crop seed which is absolutely free of weed seed and is of high purity and germination. **Cheap seed is the most expensive item used on the farm.**

Cut or properly spray weeds before they go to seed to reduce the possibility of new outbreaks. This is particularly true along water courses where irrigation streams carry seed long distances to infest cultivated fields. Do not feed hay and grain carrying weed seeds on cropland.

Organization

Community action is necessary for control of perennial weeds distributed over areas involving more than one farm. Under the provisions of the Montana Weed Law, county commissioners may authorize organization of a weed control district when owners of 51 per cent of the agricultural land within any designated area sign a petition requesting a weed district. The weed law provides for appointment of a board of weed supervisors to supervise use of machinery, control methods and to compel control if necessary. Under this system of operation the county may share in the cost of controlling perennial weeds.

Cultivation

Cultivation is the most economical and effective method of controlling perennial weed infestations larger than one-fourth acre in size.

The job must be well done. Cut off all the new sprouts with successive cultivations so you'll starve the underground roots. A cultivation program may vary from 1 to 3 years, depending upon species of weed and growing conditions.

Plowing

Plow the area of perennial weed infestation at least 6 inches deep in the fall or early spring. Deep plowing in the fall usually delays emergence in the spring until the ground is dry enough for cultivation. Deep plowing in the fall, following a season of delayed cultivation, is advisable when controlling Canada thistle, morning glory, Russian knapweed, whitetop and leafy spurge.

Implements

Effective implements are single blade eradicator and duckfoot cultivators. Be certain these implements are well-built and sturdy enough to stand hard usage and do a clean job of cutting off 100 per cent of the shoots.

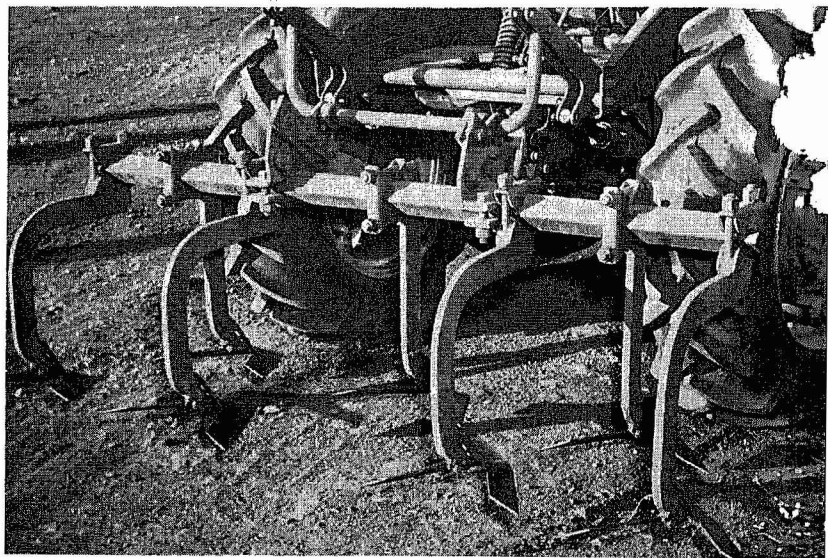


Figure 1

Equip the duckfoot cultivator (figure 1) with 12- to 18-inch sweeps which provide at least a 3-inch overlap of the cutting area. Without the proper overlap some shoots are sure to be missed. Keep cutting edges of cultivator shoes or blades sharp at all time.

Depth of Cultivation

Cultivate 3 to 4 inches deep for a good job of control. Shallower cultivation may require an additional operation during the season but the power requirement for each operation is materially reduced over that of deeper operations.

Clean Cultivation or Black Fallow

To control quackgrass and perennial sow thistle, clean cultivation or black fallow is advised. Keep the land entirely free of top growth for the entire growing season. Continue cultivation at frequent intervals (about every week or 10 days) until growth definitely stops in late fall. Normally a minimum of two seasons is required for successful control.

Delayed Cultivation

Delayed cultivation is advised for the control of most perennial weeds infesting cultivated land. Exceptions to this include quackgrass and perennial sow thistle. These are more effectively controlled by continuous cultivation or black fallow. With delayed cultivation, do each operation at 21-day intervals and continue throughout the entire growing season. Cultivate on the same day every third week. This allows 8 to 14 days of growth of the weeds after they emerge. Do not allow plants to grow beyond this period. To do so is less effective in starving the root system.

Under dryland conditions perennial weed growth may be slowed down because of lack of soil moisture. This would allow the 21-day interval to be extended, but always cultivate within 8 to 14 days after emergence of new growth.

One year of delayed cultivation has practically eliminated Canada thistle while two years have been required for whitetop. In most cases plan on a 3-year delayed cultivation program for control of leafy spurge, Russian knapweed and wild morning glory.

Delayed Cultivation and Crop Rotation

Following one season of clean or delayed cultivation, competitive crops grown in a six-year rotation have been successful in controlling many perennial weeds infesting irrigated land. Three years of alfalfa followed by one year each of spring wheat, a culti-

vated row crop and barley, is a common sequence. Alfalfa may be seeded with barley as a nurse crop.

If there is a persistent stand of weeds at the end of row crop (or fifth season) continue cultivation through the sixth year. Then begin the rotation sequence as outlined.

When seeding alfalfa, prepare a firm seedbed and seed only under conditions that will assure quick establishment of a stand. A high level of fertility benefits the crop and places the weeds at a disadvantage. Apply 200 pounds of a 10-20-0 fertilizer prior to seeding alfalfa with barley as a nurse crop.

Cultivation, Cropping and Chemical Combinations

Use several methods for best results in controlling perennial weeds. Cultivation, cropping and selective chemical treatments combined into a definite farming program reduces the perennial weed infestation and allows uninterrupted crop production. Selective chemical treatment during the period of crop production retards weed growth. After harvest follow with chemical treatment or cultivation. Serious infestations of Canada thistle and whitetop have been eradicated within 2 to 4 years by combining these practices.

Here are three different combinations of control methods for the control of most perennial weeds. They are as follows:

1. Two-year program:

First Year

- A. Apply 2 pounds 2,4-D per acre at bud stage.
- B. Plow within 14 days after first new growth appears.
- C. Cultivate every 21 days until time to seed fall wheat.
- D. Seed fall wheat.

Second Year

- A. Apply 1 pound 2,4-D per acre **before** early boot stage of wheat.
- B. **After harvest** apply 2 pounds 2,4-D per acre or cultivate remainder of season.

2. Grass Pasture Program:

- A. Plow early and prepare seedbed.
- B. Seed recommended pasture grasses. Mow when necessary to prevent weeds from going to seed.
- C. Apply 2,4-D at $\frac{1}{2}$ pound per acre when needed following establishment of stand.
- D. Apply 1 to 2 pounds 2,4-D per acre annually—bud stage of growth of weed.
- E. Use recommended fertilizer program for grass pasture.

3. Crop Rotation Program for Irrigated Lands:

First Year

- A. Plow—prepare seedbed—seed spring grain.
- B. Apply 1 pound 2,4-D per acre **before** early boot stage.
- C. Cultivate immediately after harvest or retreat with 2,4-D at 1 to 2 pounds per acre.

Second Year

- A. Repeat 1st year's operation.

Third Year

- A. Prepare seedbed—sow alfalfa without nurse crop.
- B. Mow over seedling alfalfa.

Fourth and Fifth Years

- A. Mow for hay.

Sixth Year

- A. Mow first cutting for hay.
- B. Plow under second cutting for green manure.

Seventh Year

- A. Return to grain.

Permanent Pasture

The seeding of a permanent pasture will hold most weeds in check if eradication is not complete following the cultivation program. Govern the selection of grasses and legumes by the supply of irrigation water. On well-drained soils, with ample irrigation water, a good grass legume mixture such as alfalfa and smooth brome, will do an effective job of control and produce a good volume of forage. Use a maximum of 24 pounds per acre of the mixture.

Chemical Control

The use of "soil sterilants" and "selective" herbicides to control and eradicate perennial weeds is being thoroughly investigated. Chemical treatments used alone for eradication are usually more expensive and less effective than combined cropping, spraying and cultivation. However, where large infestations of perennials occur on right-of ways, ditches, and non-tillable areas, repeated applications of the selective type chemical, 2,4-D, is the most practical means of control. Seed non-tillable areas to a perennial grass as soon as possible.

Soil sterilants are advised for spot treatment of small infestations and for inaccessible places such as ditch banks, fence rows and roadsides. Successful control with chemicals is dependent upon the material used as well as the method, time, rate and uniformity of application.

Because of the sterilizing effect of "soil sterilants" plant growth will be slowed down for a period of 2 to 5 years, depending on soil and climatic conditions and rate of application. The longer the duration of sterility, the greater the effectiveness in eradication of perennial weeds. It is preferable to leave the treated area undisturbed for two years or more. If you apply soil sterilants on irrigated land, don't irrigate the treated area for at least two crop seasons.

2,4-D

2,4-D (2,4-dichlorophenoxyacetic acid) has been used for the control of perennial weeds in Montana the past 8 years with widely variable results. This 2,4-D is not a "soil sterilant," but rather is a "selective" herbicide in that it affects most broadleaved species of plants and not the grass-type. It provides seasonal control of perennial weeds at a low cost.

Most commercial 2,4-D products on the market contain 4 pounds of parent acid per gallon. Check the label for content.

A rate of 1 to 2 pounds of 2,4-D per acre is suggested for control of most broadleaved perennial weeds. Leafy spurge and goatweed require a minimum of 3 pounds of acid per acre for effective control, or 6 to 8 pounds of parent acid per acre when only one application each year is made. Apply the chemical when plants are in the bud stage of growth. Extra treatments may be needed early in the fall to control new growth. Plan two treatments per season for 3 or 4 seasons. Follow-up treatments on seedling growth.

The conditions which contribute to the effectiveness of 2,4-D are: (1) adequate soil moisture to promote rapid growth and succulent plant tissue; (2) susceptibility of plant to 2,4-D; (3) stage of growth when treated; and (4) relatively warm temperatures.

Use extreme caution to avoid drift of 2,4-D spray or dusts on to susceptible crops and ornamentals.

Chlorates

Sodium chlorate and "Atlacide,"* a commercial chlorate, are soil sterilants for weed eradication purposes. Apply either as a spray or in the dry form. When applied as a spray, mix 2 pounds of sodium chlorate or "Atlacide" to 1 gallon of water. **Be careful in**

the use of chlorates to prevent fire. Apply from September 1 to October 15.

On soils high in alkali, organic matter or nitrates, the results may be variable and in some cases unsatisfactory.

See table on page 11 for suggested rates of application for the most important perennial weeds.

Borax

Borax is now a commonly used material for perennial weed eradication. For agricultural use, borax comes in a granulated form for hand or machine broadcast application. "Borascu"* is a commercial product containing borax. Apply borax materials in the fall—September 1 to October 15—in the dry form.

Borax is non-poisonous to man and livestock and is non-inflammable. Consequently, it presents no hazard, and is recommended for perennial weed control around playgrounds, buildings, bulk petroleum supply stations, or areas where sodium chlorate is considered impractical.

See table on page 11 for suggested rates of application for the most important perennial weeds.

Sodium Chlorate-Borax Combinations

For control of the more borax-tolerant species such as wild morning glory, Canada thistle, leafy spurge, Russian knapweed and quackgrass, best results have been obtained when borax is fortified with sodium chlorate. "Chlorax" and "Polybor-chlorate" are two commercial materials which contain a combination of sodium chlorate and borax. These materials are water soluble and fall spraying—September 1 to October 15—is advised.

The fire hazard is eliminated in the combination and the toxic effects are considered more lasting than when sodium chlorate is used alone.

See table on page 11 for suggested rates of application for the most important perennial weeds.

CMU

A new chemical in the class of soil sterilants is CMU (3-(p-chlorophenyl)-1, 1-dimethylurea). It is effective at lower rates of application than chlorate, borax or combinations of the two. At present the cost of treating is only slightly less than chlorate or borax materials. CMU is **not recommended** for use on agricultural

*Inclusion of trade-named products used in this publication is for illustrative purposes only.

land because of its undetermined long sterility effect. It may be applied to control perennials in waste places, around buildings or in any area where vegetative growth is not desired.

CMU is a wettable powder applied as a spray, but requires agitation in the tank to keep the material in suspension. When spraying, avoid drift of material to areas where vegetative growth is desired. Clean spray equipment thoroughly after using to avoid possible contamination of other herbicides when applied.

See accompanying table for suggested rate of application.

TCA

Sodium TCA (trichloroacetic acid) is recommended only for the control of quackgrass or other annual or perennial grasses. It is considered to be non-selective. TCA acts principally through the root system and the application can be made directly to the soil. On cultivated land, best results have been obtained when TCA was applied at 85 to 120 pounds per acre ($\frac{1}{2}$ to $\frac{3}{4}$ pound per square rod) to quackgrass stands immediately after cultivation. Shallow plowing to expose roots, one-way discing or cultivating with a spring-tooth is preferred prior to application. On undisturbed sod, use the heavier rate of application. The fall of the year is best for treatment under moderately good moisture conditions.

TCA is soluble in water—mix 4 pounds of TCA with 1 gallon of water and apply accordingly to the recommended rate.

Following spray application, thoroughly flush equipment after use.

This herbicide will burn the skin and eyes when contact is prolonged, but it washes off easily with water. Obtain medical attention if it gets in the eyes. Wash contaminated clothing before using again.

Suggested Rates of Application for Sodium Chlorate, Borax, Chlorate-Borax Combinations and CMU

Weed to be eradicated	Sodium Chlorate ¹ lbs./sq. rod	Borax lbs./sq. rod	Chlorate- Borax ² lbs./sq. rod	CMU lbs./sq. rod
Blue lettuce	4	20	8	¼
Canada thistle	6	20	8	¼
Dogbane	4	20	6	
Goatweed (St. Johnswort)	2	Not Recommended	4	
Leafy Spurge	9	20	8	¼
Poverty weed	4	Not Recommended	8	¼
Quackgrass	6	Not Recommended	8	¼
Ragweed, perennial	4	20	8	¼
Russian knapweed	6	Not Recommended	12	½
Showy Milkweed	4	20	8	
Skeleton weed	4	20	8	
Sow thistle, perennial	6	20	8	¼
White top	9	20	10	½
Wild morning glory (Field Bindweed)	6	20	8	¼
Yellow Toadflax	2	8	8	¼

¹"Atlacide" is less effective than sodium chlorate. When Atlacide is used, increase the rates given in table for sodium chlorate by one-third.

Control Methods

(Alternative practices that may be effectively applied. Select the practices that best fit your situation. See text for detailed instructions for each practice.)

Name of Weed	Continuous Cultivation	Delayed Cultivation	Cultivation and Rotation	Cultivation, Chemicals and Rotation	Chemicals		
					2,4-D	Soil Sterilants	TCA
Blue Lettuce		X	X	X	X	X	
Canada thistle		X	X	X	X	X	
Dogbane			X	X		X	
Goatweed (St. Johnswort)				X	X	X	
Knapweed, Russian		X	X	X	X	X	
Leafy Spurge		X	X	X	X	X	
Morning Glory		X	X	X	X	X	
Poverty Weed			X	X	X	X	
Quackgrass	X		X			X	X
Ragweed, Perennial			X	X	X	X	
Showy Milkweed		X	X			X	
Skeleton Weed		X	X	X	X	X	
Sow Thistle, Perennial	X		X	X	X	X	
White Top		X	X	X	X	X	
Yellow Toad Flax			X			X	

X—indicates practice is applicable.)

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Sterilants

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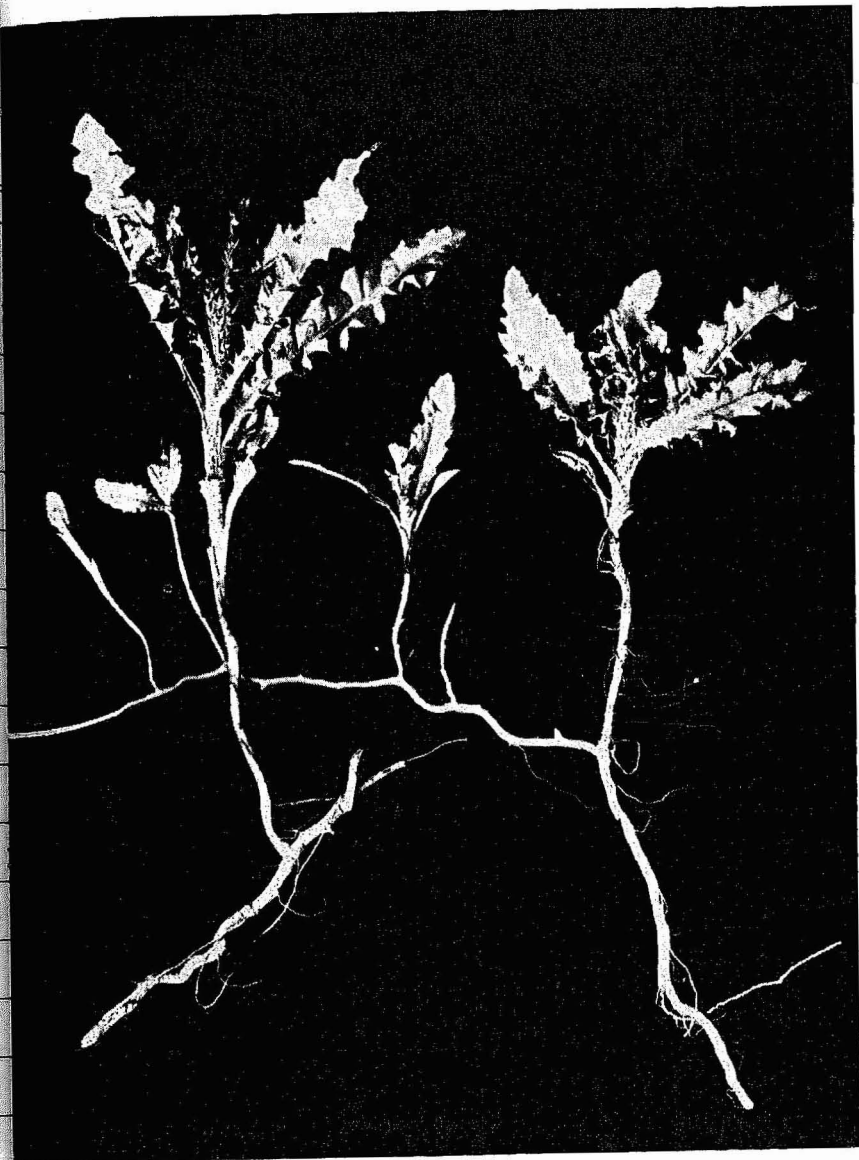
X

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X



Rootstalk



Blue Lettuce

Blue Lettuce

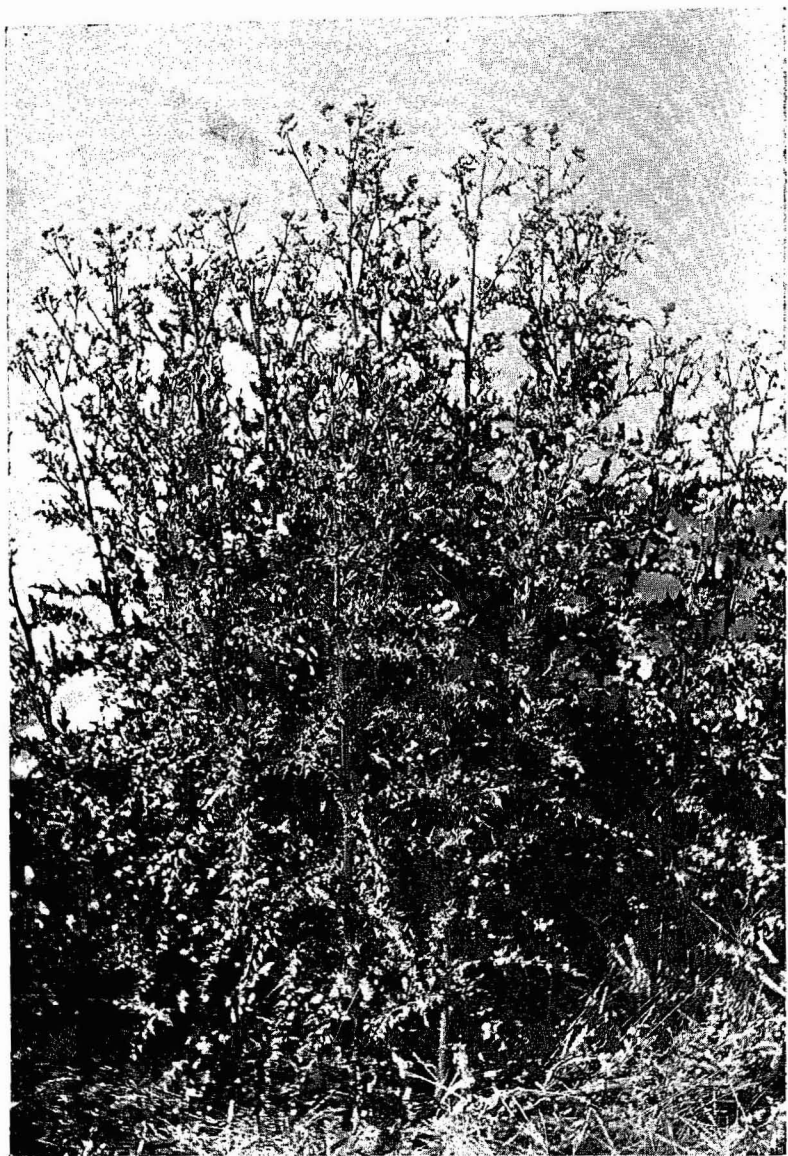
Lactuca pulchella (Pursh) DC

Other names—Wild lettuce; showy lettuce; milkweed.

Description—A perennial milkweed growing in dense patches after it becomes well established. The stems are two to three feet high with smooth leaves covered with a thin white coating or bloom. Leaves variable, oblong to narrow in outline, lower ones often deeply cut, with segments turned backward; upper ones without a petiole and partly clasping the stem. The plant is filled with a bitter, milky juice. Flowers, blue or purple, several to the plant, about $\frac{3}{4}$ to 1 inch in diameter, shaped like those of a small dandelion. The plants produce many root stocks which extend horizontally underground and send up numerous shoots. In this way patches are formed so dense as to crowd out other vegetation.

The plants bloom in July and August. The seeds are about $\frac{1}{4}$ inch long, bottle shaped, red when immature, grayish to purplish when ripe, flattened, ridges running lengthwise down each face, making the whole seed look dull and purple. The tip of the seed bears a long white umbrella-like plume which is usually absent on seeds found in commercial grain.

Blue lettuce is propagated by seeds, by roots and by rootstocks. The plant is native to Montana. It is increasing rapidly in cultivated fields in nearly all parts of the state, and it will continue to do so until a more determined effort is made to control it.



Canada Thistle

Canada Thistle

Cirsium arvense (L.) Scop.

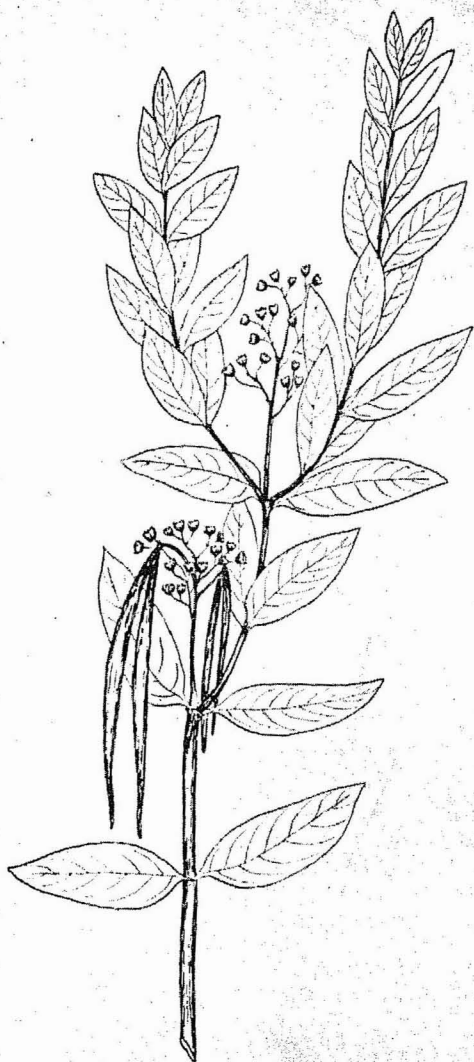
Other names—Creeping thistle; small-flowered thistle.

Description—Perennial, growing 3 to 6 feet high, leaves spiny, clasping the stem, and very irregular and wavy of margin, green in color on both sides. Usually found in patches varying in extent from a few square feet to an acre or more. In these patches most other vegetation is crowded out. The plants branch freely at the top, and are covered with flowers $\frac{1}{2}$ to $\frac{3}{4}$ inch in diameter, usually purplish in color, the top-most buds blooming first. Some plants bear male flowers only, which form no seeds; other plants bear female flowers only, which, if pollinated, produce many seeds. The male flowers are slightly larger than the female flowers, and it is often difficult for an untrained observer to distinguish between them.

Canada thistle propagates by both seed and root stalks. The root stalks may penetrate the ground for several feet. Pieces of the root stalks usually develop new plants under favorable conditions. It is difficult to control.

The plants bloom in July, August, and September. The seeds are borne in the heads of the female plants. They are about $\frac{1}{8}$ inch long, light brown, curved or straight, elongated oblong, smooth, somewhat flattened, marked with longitudinal lines. The top is cup-shaped, having a narrow rim with cone-shaped points in the center. The white pappus borne on the tip of the seed breaks off very easily and is very seldom present when the seed is found in commercial grain.

Canada thistle is an introduced weed in Montana, but it now occurs in every section of the state, being more abundant in the irrigated sections.



Dogbane

Dogbane

***Apocynum cannabinum* L.**

Other name—Indian hemp.

Description—Dogbane is a perennial plant reproducing by seeds and underground rootstocks. It usually grows on the banks of irrigation ditches and along streams. It is an erect plant, 2 to 4 feet tall with light yellowish-green smooth foliage. The leaves are oval, 2½ to 4 inches long, short stalked, and yellowish-green in color. The flowers are small, white, and borne in terminal clusters. The entire plant contains a milky juice. The seeds are produced in long, slender, dark reddish brown pods. There are two pods for each flower. The pods burst open when ripe, allowing the seeds to escape, and drift with the wind because of the soft, silky bristles attached to the seed.



Goatweed

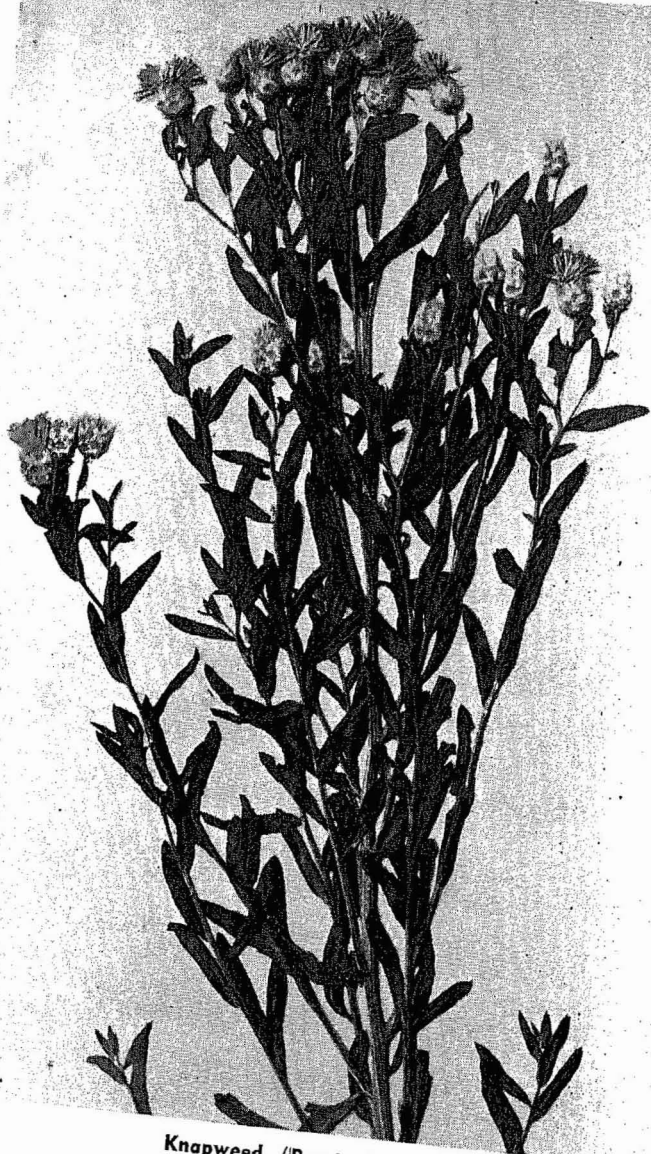
Goatweed

***Hypericum perforatum* L.**

Other name—St. Johnswort.

Description—Goatweed is a smooth, freely branching erect perennial herb which reproduces by seed and short rootstocks. It grows 1 to 3 feet high and is woody at the base. The leaves are numerous, opposite, light green in color, narrow, $\frac{1}{2}$ to 1 inch long, and $\frac{1}{8}$ inch in width. They are stemless, somewhat narrowed at each end, with small dark dots on the margins. The flowers are yellow in color, about $\frac{2}{3}$ to 1 inch in diameter. The mature fruit breaks into three parts at maturity, liberating many small, pitted, dark-brown seeds.

Goatweed is native to Europe, and introduced into the United States. It occurs in several districts of Montana. Under certain conditions cattle and sheep are poisoned by eating goatweed.



Knapweed (Russian)

Knapweed (Russian)

Centaurea repens L.

Other name—Turkestan Thistle.

Description—Russian knapweed was introduced with imported Turkestan alfalfa seed. It may be distinguished from most other perennial weeds by its lilac-colored flowers in small round heads, and by the tough dark brown or black perennial roots.

The leaves on a mature stem are small, narrow, with smooth surfaces and edges, and without a pronounced midrib or stalk. Short, stiff hairs cover the leaf and stem. The leaves get smaller as they approach the head. The whole stem is hard, tough, and practically inedible when dried in hay. The young stems are covered with long, soft, gray hairs or nap, which remains on the lower part of the stem. This nap does not appear on the branches of the flowering stalks.

The first leaves which appear in the spring are large, thick, grayish-green, much longer than wide, with rounded teeth on the margin and covered with nap. These leaves are very unlike the leaves on the upper part of a mature plant.

The lilac-colored flowers are borne in small, almost spherical heads, $\frac{3}{8}$ to $\frac{1}{2}$ inch in diameter. The flowers somewhat resemble those of Bachelor's Buttons, only smaller. The small heads and the absence of thorns or prickles, distinguishes the knapweed from any thistle.

The seeds are about $\frac{1}{8}$ inch long, approximately twice as long as broad, chalky white, sometimes having a tinge of yellow, slightly wedge-shaped, marked with fine longitudinal lines.

Russian knapweed has gained a foothold in many counties in Montana and due to its persistence, its capacity to spread, its density of growth, its presence in hay and pasture, the farmers of the state must learn to farm in the presence of this noxious weed.



Leafy Spurge

Leafy Spurge

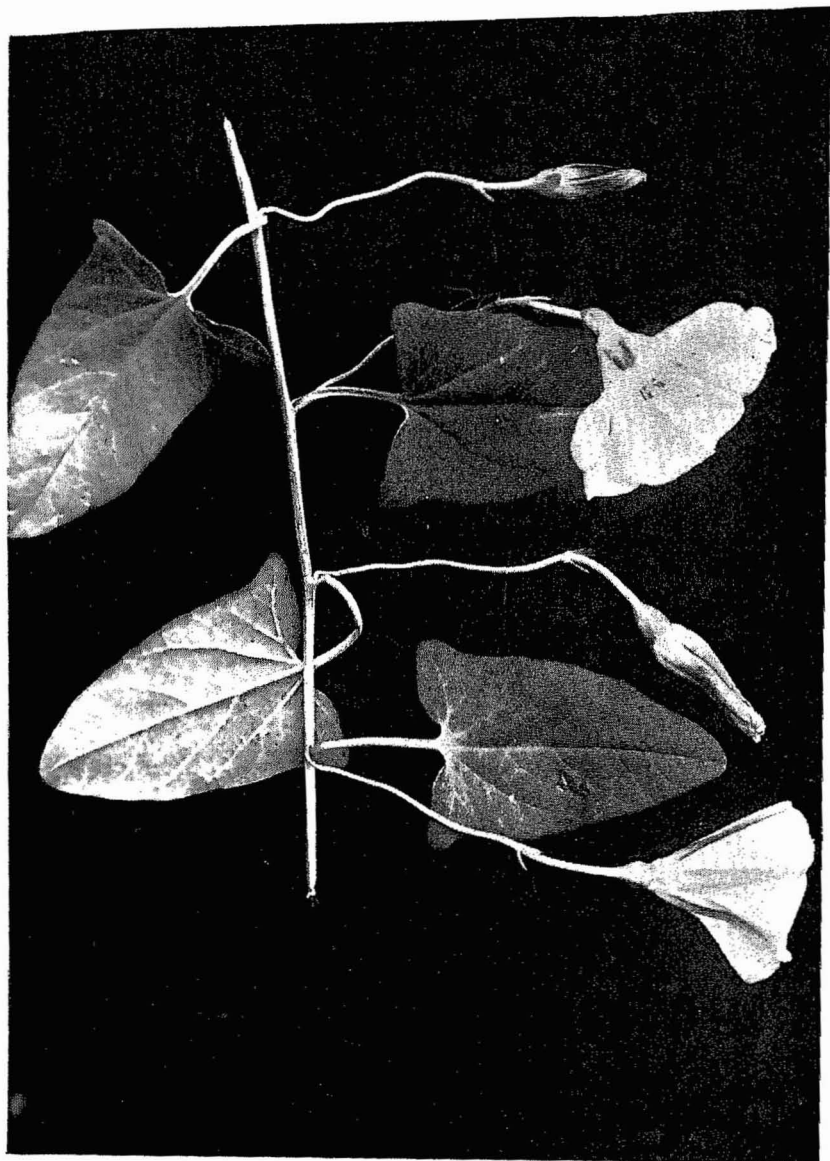
Euphorbia esula L.

Description—Leafy spurge is a long-lived perennial herb with a milky sap. It propagates both by seed and by underground roots. The roots are reddish-brown in color and may penetrate the soil four feet or more. It usually occurs in clumps or patches.

The stem is usually unbranched except for the branched flower cluster, erect, and from 1 to 3 feet tall. The leaves are bluish-green in color, long, narrow, (about $\frac{1}{4}$ inch wide), and have an entire (untoothed) margin and are arranged alternately on the stem. During the late summer the leaves become brownish-orange in color. The plant is among the first to resume growth in the spring.

The flowers are very small, inconspicuous, greenish-yellow when young, becoming more yellow as they mature. They occur in small clusters with rounded leaves, and resemble dense tufts of small leaves more than ordinary flowers. They occur mostly in umbrella-like clusters at the tops of the stems.

The seeds are light gray, smooth, and about twice the size of an alfalfa seed. They are borne in a three-sided capsule.



Morning Glory

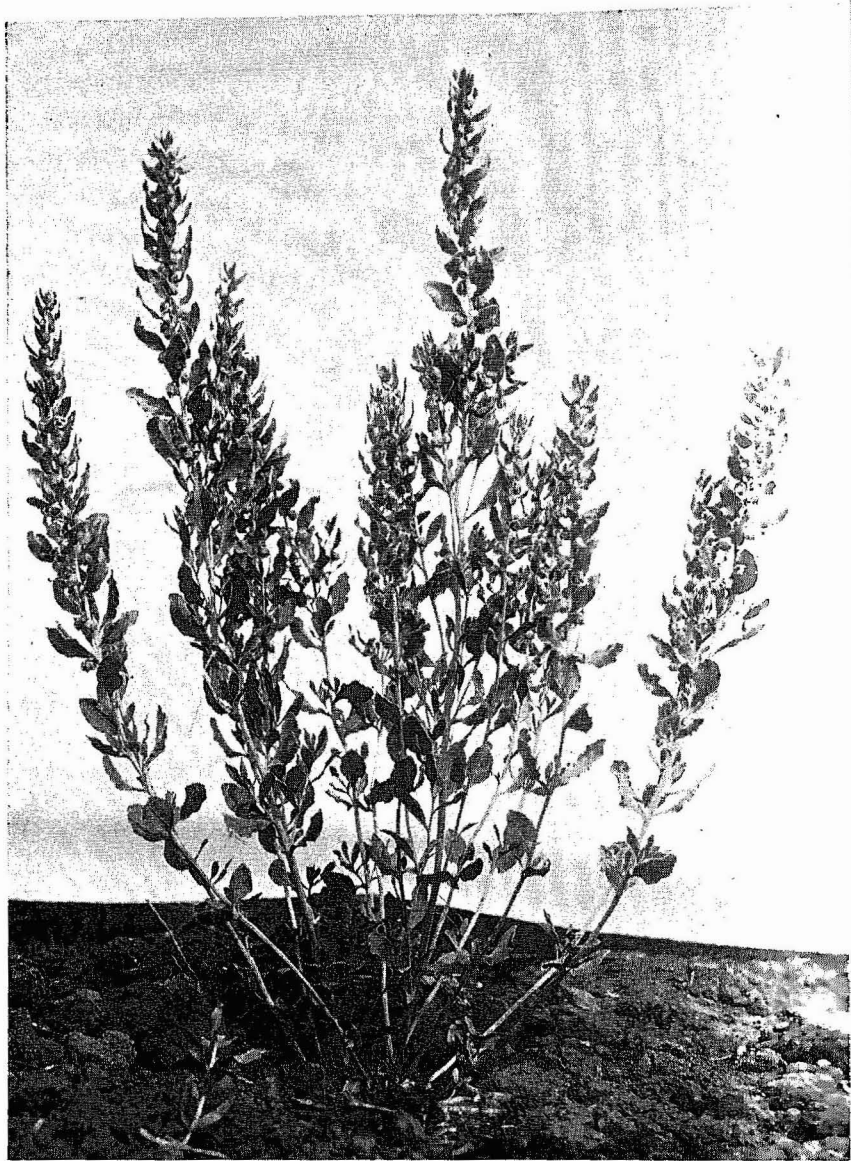
Morning Glory (Wild)

Convolvulus arvensis L.

Other names—Small-flowered morning-glory; field bindweed; European bindweed; love-vine; creeping Jenny.

Description—Wild morning-glory is a perennial plant usually growing in patches. The small pink or white funnel-shaped flowers are about 1 inch in diameter and often grow in pairs. They close up in the evening and during rainy weather. The leaves are shaped like blunt-pointed spearheads. Long cord-like roots grow out in all directions and form buds which send up new shoots. New plants may start from any part or piece of the root.

The seeds (two to four) are produced in round capsules. They are about 1/5 inch long, dull black to dark brown, oval, one face convex, the other angled with flat sides, surface coarsely roughened. Wild morning-glory is one of the worst weeds in Montana.



Poverty Weed

Poverty Weed

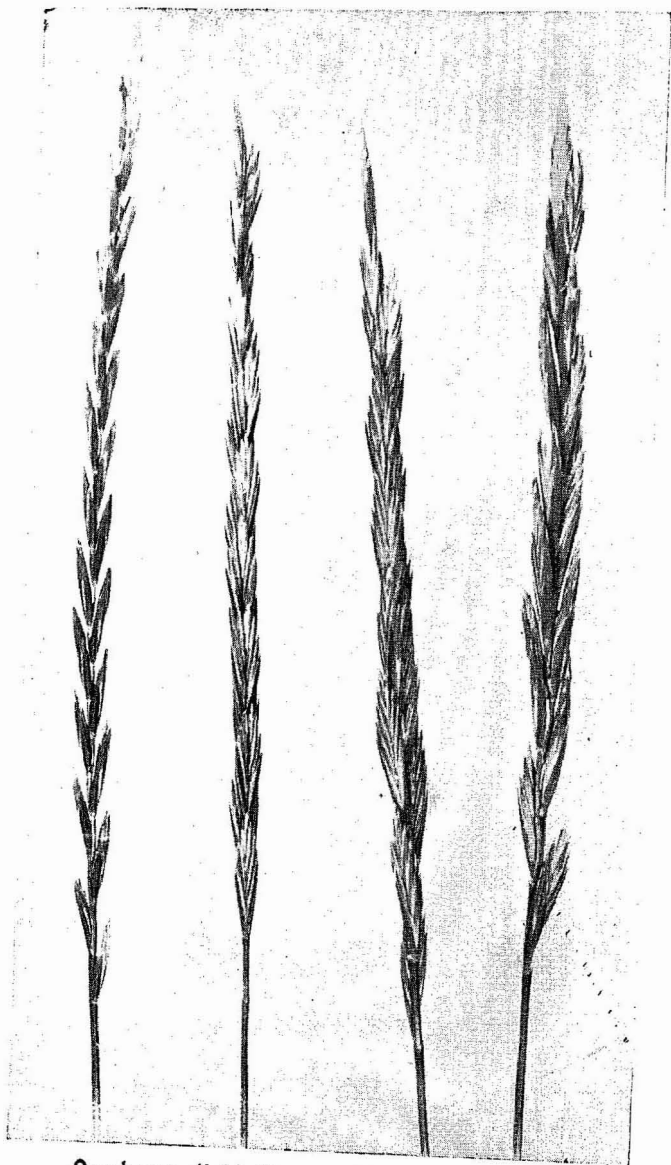
Iva axillaris Pursh.

Other names—Salt sage; small flowered marsh-elder.

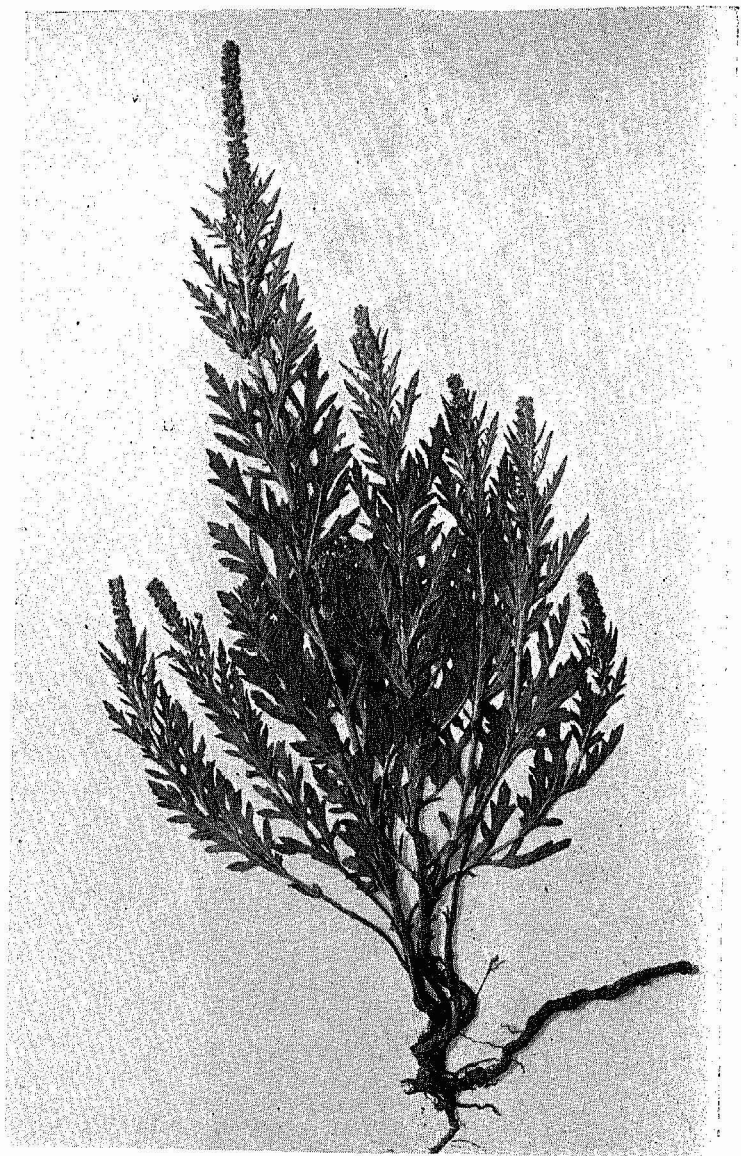
Description—Poverty weed is a coarse perennial herb with a rank, unpleasant odor. It is pale green in color and grows in dense patches. The stems are 8 to 18 inches high and branch very little. The leaves are small, numerous, and have no petiole. The small greenish flower heads are borne in the axils of the upper leaves. Poverty weed develops an extensive system of horizontal roots by which it spreads and makes eradication more difficult.

The seeds are about $\frac{1}{8}$ inch long; color variable, olive green, brown to almost black; pear shaped, slightly flattened, striated lengthwise, often keeled on the sides and slightly curved toward the base.

The pest is well named poverty weed. The damage done is directly in proportion to the area and value of the land it covers for it forms a pure stand, crowding out all other vegetation. It seems to have a slight preference for either alkali or heavy land, though it occurs in the best of soil. Few farmers will give the time and effort necessary to eradicate it.



Quackgrass (left) Western Wheatgrass (right)



Ragweed

Ragweed

***Ambrosia psilostachya* DC**

Other names—Perennial Ragweed, Western Ragweed.

Description—Ragweed is a perennial plant which reproduces by seeds and rootstock. It has erect stems 12 to 40 inches tall. The leaves are mostly alternate, rough, deeply lobed, and from 2 to 5 inches long. Both leaves and stems are covered with short, stiff hairs, giving the plants a gray-green color. The flowers are inconspicuous, greenish, and borne in small heads. They are of two kinds; male (staminate) and female (pistillate) and both are borne on an individual plant. The male heads are in spike-like racemes and the female heads occur at the base of the staminate racemes. The fruit is about $\frac{1}{8}$ inch long, and a more or less pear-shaped but with a row of prickles near its summit and a central point at its apex.

Perennial ragweed is native to Montana. It is generally confined to the irrigated areas of southeastern Montana. It is one of the late summer hay fever plants.

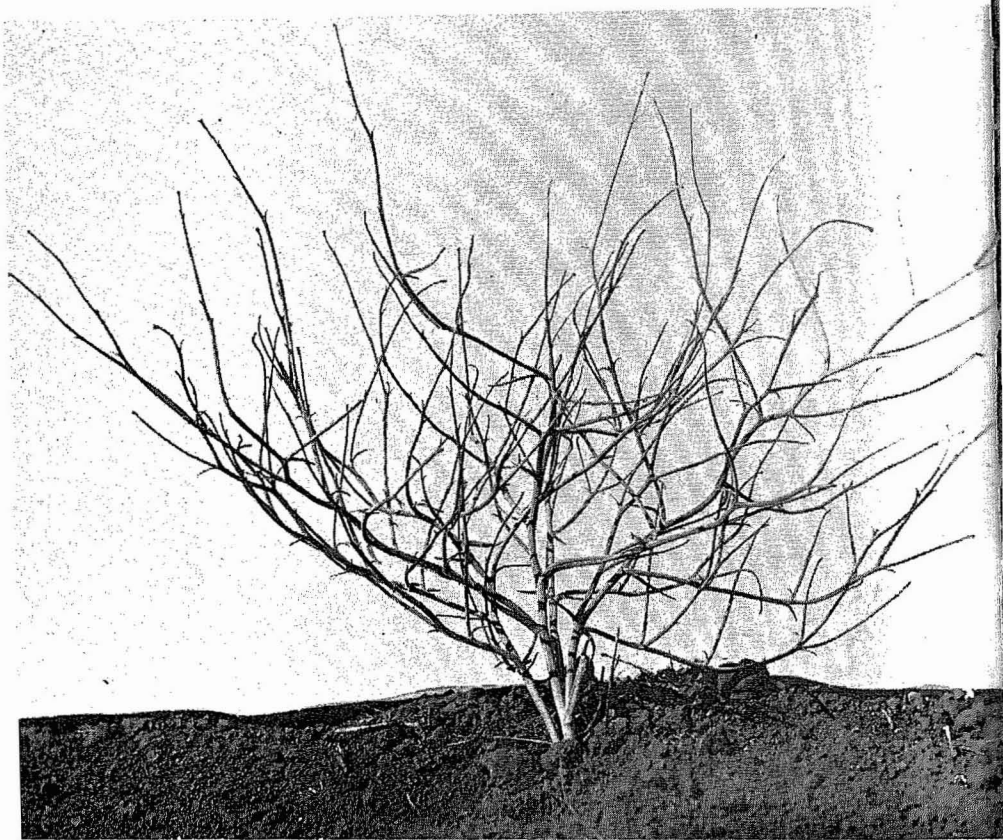


Showy Milkweed

Showy Milkweed

Asclepias speciosa Torr.

Description—Showy milkweed is a perennial which reproduces by seed and rootstock. It grows from 3 to 5 feet tall. The leaves are opposite, large, broad, heart-shaped, and covered with fine white hairs. Bruised leaves and stems exude a white milky juice. The flowers are medium large and greenish-purple in color. The pods are 3 to 4 inches long. The seeds are flattened, dull brown, about $\frac{1}{4}$ inch long with a parachute of hairs. It generally grows on ditch banks, in pasture land, and not infrequently in cultivated fields. It is poisonous to livestock, but it is distasteful and is not often eaten by stock.



Skeleton Weed

Skeleton Weed

Lygodesmia juncea Don.

Other names—Rush pink, wild asparagus.

Description—Skeleton weed is a perennial plant and appears leafless, the leaves being very small and scale-like. It grows 6 to 24 inches high. The branches of the plant are slender, hard, rough, wiry, and contain a milky juice. The flowers are about $\frac{3}{4}$ inch in diameter, light purple, and appear from July to September.

The seed is about $\frac{1}{5}$ inch long, very slender and dull in color, and is easily blown about by the wind.

Skeleton weeds usually occur on non-irrigated, sandy or sandy-loam soil, under some conditions competing seriously with cultivated crops.

It spreads by wind-borne seeds and underground roots.



Sow Thistle

Sow Thistle (Perennial)

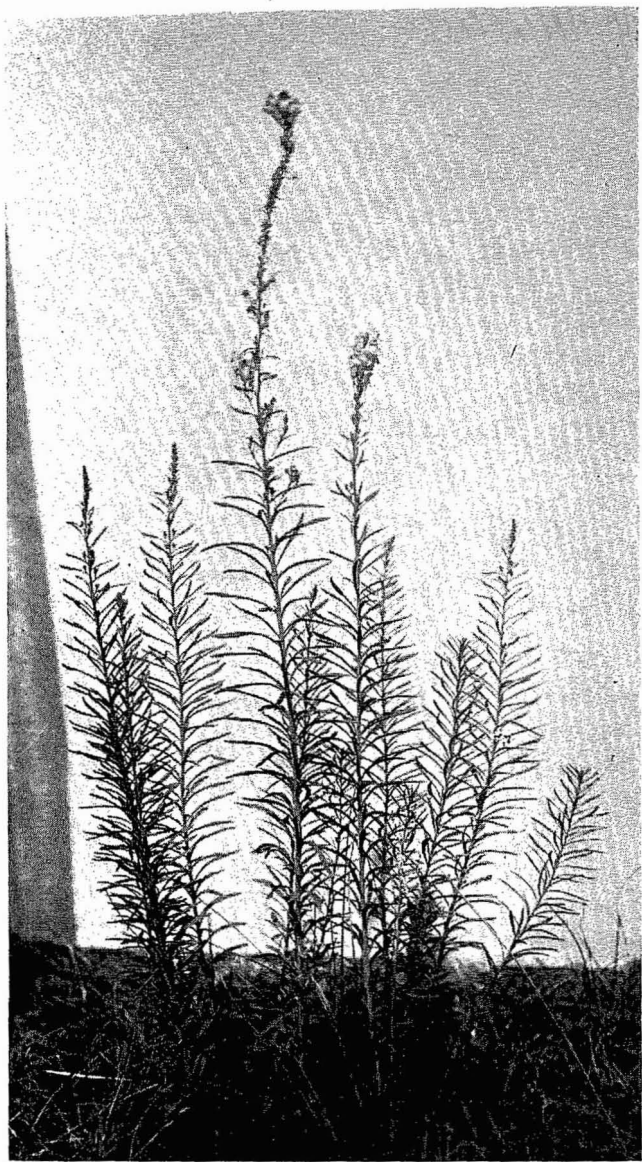
Sonchus arvensis (L.)

Other names—Field sow thistle; creeping sow thistle.

Description—Perennial sow thistle grows 2 to 5 feet high in dense patches. The leaves are more or less toothed and often the teeth look sharp and spiny, but they are rather soft and, compared with Canada and prairie thistles, they are relatively harmless. The flowers resemble those of the dandelion in size and shape. This perennial has many horizontal roots which send up new stems freely. The seeds are about $\frac{1}{8}$ inch long, dull, dark reddish-brown, oblong, slightly flattened, ridged lengthwise and wrinkled transversely. They bear a tuft of reddish-brown hairs. The seeds are carried naturally by wind.

There are two related weeds, common or annual sow thistle (*Sonchus oleraceus* L.) and annual prickly sow thistle (*Sonchus asper* (L.) Hill). These are annuals, without horizontal roots, and have small flowers $\frac{3}{4}$ to 1 inch in diameter.

The sow thistles belong to the chicory family which is characterized by the presence of a milky juice and flowers like dandelions.



Yellow Toadflax

Toadflax

Linaria vulgaris Hill.

Other names — Butter-and-eggs, flaxweed, wild snapdragon, Jacobs-ladder.

Description—Toadflax is a persistent perennial which is propagated by seed and rootstocks. The stems are erect, slender, and leafy. The leaves are stalkless, numerous, long, narrow, and more or less pointed at both ends. Flowers are nearly 1 inch long, showy, pale yellow and orange, somewhat resembling snapdragons. The seeds are 1/12 inch in diameter, including the wing, dark brown to black in color, flat, round, or oval, disc-like, somewhat roughened and surrounded by a circular wing as broad as the seed itself.

Toadflax was introduced from Eurasia. It occurs generally throughout Montana. The plant is frequently grown as an ornamental. It escaped from ornamental plantings and has become a serious weed in many places.



Whitetop

White Top

Cardaria draba (L.) Desv.

Other name—Hoary cress.

White-top is a member of the mustard family, Cruciferae. Other common weeds belonging to this family are fan-weed, hares ear mustard, field mustard, etc.

Description—White-top is an erect perennial, six inches to 2 feet in height. The leaves are $1\frac{1}{2}$ to 3 inches long, irregularly toothed to almost entire length, grayish-green in color. The upper stem leaves are sessile while the basal leaves are more slender and narrowed into a short stalk.

The flowering branches bear numerous showy, small greenish-white to white flowers about $\frac{1}{8}$ inch in diameter. The plant in flower has a flat-topped appearance. The pod is somewhat heart-shaped, two-valved, and has a short persistent point at the apex. It often becomes prominently veined at maturity. The seeds are dark-reddish, brown, flattened, and about the size of alfalfa seed, rounded at one end and narrowed to a point at the other. The seeds will remain viable in the soil for many years. The seeds are very difficult to separate from those of alfalfa or red clover.

The root system consists of well-developed horizontal roots, which spread the plant horizontally and which penetrate vertically many feet.

White-top seems to prefer slightly alkaline conditions, although it thrives under a variety of soil conditions.

Wherever white-top becomes established it takes complete possession of the soil. Control of this weed is very difficult, and requires persistent effort.

Poisonous Plants

The plants poisonous to livestock as listed in Montana Agricultural Experiment Station Circular 197 probably should be considered as perennial weeds. Some of these are abundant on the prairies, others on the foothills and still others in the mountainous areas. One or more of these plants occurs in every county of the state.

Comparatively little experimental work has been done in controlling these weeds, and much more information is needed regarding their reaction to herbicides. At the present time the aim of the stockman is to avoid them at the dangerous period in managing his livestock enterprise.

Condensed Information on Poisonous Plants

Plant	Animals Affected	Where Found	Dangerous Season	Part of Plant Dangerous	Remarks
Deathcamas	Sheep, cattle	Open hillsides and meadows	Early Spring	Whole Plant	Cause of heavy sheep losses in early spring
Tall larkspur	Cattle	High mountain and foothill pasture	Spring and early summer	Whole Plant	Principal cause of cattle losses in high pastures
Low larkspur	Cattle (very seldom)	Open pastures, meadows	Spring and early summer	Whole Plant	Unimportant
Lupine	Sheep	Open pastures and hillsides	Summer	Whole plant, especially seeds and pods	Most important of all plants affecting sheep
Loco	Horses, cattle, sheep	Open country east of Continental Divide	Early fall, summer, spring	Whole plant	Very important, definitely associated with management of pastures
Horsebrush	Sheep	Open range only in southwest Montana	Spring	Whole plant	Produces photo sensitization, or "swelled head"—important in limited area
Cocklebur	Cattle, Sheep	Creek banks and reservoirs and wet pastures	Spring and early summer	Two leaved seedlings	Important in limited areas