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Starving & Poisoning Creeping Jenny

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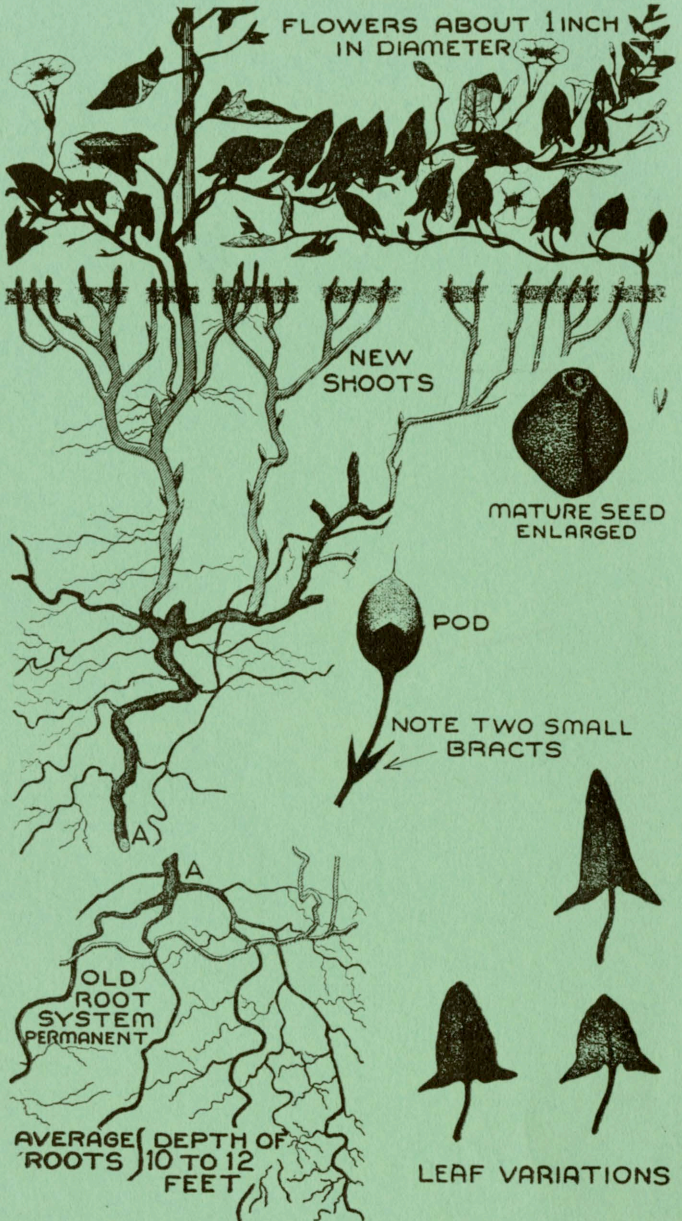
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STARVING & POISONING Creeping Jenny



All deep rooted perennial weeds, such as creeping jenny (field bindweed) illustrated, store food reserves in their deep permanent roots shown in black. This leaflet shows how to starve those roots.

Eradication of CREEPING JENNY (FIELD BINDWEED) and other Deep Rooted Perennial NOXIOUS WEEDS

Experiments have shown that noxious perennial weeds like Creeping Jenny, Leafy Spurge, Russian Knapweed, Perennial Peppergrass can be economically eradicated in South Dakota by use of the following methods:

1. The Root-Starving Method.
2. The Root-Starving-Rye Method.
3. The Chemical Method.

The method chosen will depend on the particular situation. For instance: (1) If the area is relatively small, the **Root-Starving Method** may be used, (2) If the area to be treated is extensive and a return from the land is needed during the period of treatment, the farmer will use the **Root-Starving-Rye Method**, (3) If area is small or if it cannot be cultivated such as fence rows, stony land, road sides, or ditch banks the **Chemical Method** can be used to advantage.

The Root-Starving Methods

The eradication of noxious deep rooted perennial weeds by the **root-starving methods** is based on the principle of exhausting or "starving" the root system. This is done by letting the roots exhaust their food reserves to develop new top growth to a certain point and cutting off (by cultivation) this new top growth before the plants reach the proper stage to restore the food supply in the roots.

The timing in this program is extremely important. A general rule is that it is reasonably safe to let the weed grow about **eight days** after the first plants appear above the ground. About a week will generally elapse between cultivations and the time when the first plants emerge. **Cultivations, therefore, at first, will be spaced about two weeks apart.** Later, after root food reserves are low, and growing conditions less favorable, cultivations will be less frequent.

Success depends upon never missing a cultivation at the proper time. (Perennials can, of course, be eradicated by "keeping the land black." Experiments have shown, however, that the number of cultivations can be reduced by about one-half by the adoption of the **Root-Starving Method.**)

The Root-Starving Method

(For relatively small areas. Land not used for crop during treatment.)

FIRST YEAR PROGRAM

(1) The cultivator must be equipped with sweep-type shovel with three to four inches overlap and adjusted in such a way as to cut all the vertical roots in the swath. The blades must be kept sharp.

) Start first year cultivation two weeks after the weed starts in the spring. This first cultivation may be plowing five to six inches deep.

(3) Cultivate four inches deep at intervals of two weeks during the growing season (or as often as necessary to prevent the plants from growing above ground for more than eight days after the first plants reappear above ground following the previous cultivation.)

(4) The last cultivation (or plowing) should be five inches deep. Leave land rough or plant to rye as a cover crop to prevent erosion by wind or water.

SECOND YEAR PROGRAM

(Same as first year)

THIRD YEAR PROGRAM

If the weed has been eradicated return to regular rotation, otherwise continue with system described below.

The Root-Starving-Rye Method

(For larger areas when return from the land is needed during period of treatment.)

FIRST YEAR PROGRAM

Same as (1), (2) and (3) above, under the **Root-Starving Method**.

The last cultivation in the fall should be five inches deep. Seed winter rye (with grain drill) at the rate of 2 to 2½ bushels per acre, between September 25 to October 5. (Note: The heavy rate is required to obtain the necessary heavy shade and smothering effect the following spring.)

SECOND YEAR PROGRAM

(1) Harvest rye for grain as early as possible. (If a combine is used be sure to employ a straw spreading device so as to avoid trouble later in cultivating. If the grain is bound, remove the shocks immediately, allowing no time for the weed to recover before resuming cultivations.)

(2) Cultivate every two weeks (or as often as necessary to prevent plants from growing above ground for more than eight days after the plants reappear above ground following the previous cultivation, as in the first year program.

(3) Seed to winter rye in the fall as previously described.

THIRD YEAR PROGRAM

Continue the program the third year and longer if necessary to obtain eradication.

The Chemical Method

Chemicals can be advantageously used on small patches, fence rows, stony land, road sides, ditch banks and other areas unsuited to tillage. Sodium chlorate has been found to be the most practical for weed eradication.

Sodium chlorate can be applied either as a spray or in the dry form.

Advantages and disadvantages of each method follow:

SPRAY METHOD

Advantages

Less danger of loss by wind or water
Less chemical required per square rod

Disadvantages

Is a hazard
Requires rubber footwear
Requires sprayer
Requires much water

DRY METHOD

Advantages

May be spread by hand, eliminating need for spray equipment
Machine spreaders inexpensive.

Disadvantages

Requires more chemical per square rod
Not satisfactory on steep slopes if rain follows soon

The Application of Chemicals

SPRAY METHOD

1. **Number of applications:** Two or three required for eradication.
2. **How to apply:** Sprinkler, Spray rig, Knapsack sprayer.
3. **First application:** Apply middle of August to middle of September or at any time in late summer or early fall which is from one to three weeks after a good rain causing good vegetative growth. Rate of application is from 100 to 150 gallons per acre using $1\frac{1}{2}$ to 2 pounds of chemical to one gallon of water.
4. **Second Application:** Apply following season when sufficient growth has occurred, using same precautions as listed under directions for first application. Rate of application is 100 gallons per acre, using $1\frac{1}{2}$ to 2 pounds of chemical to one gallon of water.
5. **Mop-Up:** Mop-up on surviving plants in September or October by Spot treatment, using same precautions as listed under directions for first application. Use same strength of solution as described above.
6. Under no condition should land be disturbed while under chemical treatment or until weed is completely eradicated.

Uniform distribution important: In either case it is desirable to use only $\frac{1}{3}$ or $\frac{1}{2}$ the amount per rod at a time and cross the original line of travel so as to get uniform distribution.

Spot chemical treatment

Scattered plants can be killed by applying a small amount (1 tablespoonful) of sodium chlorate around the base of the plants. Dry or wet applications may be used but generally dry applications are more convenient for "spot treatment."

Precautions

Pure sodium chlorate when wet or before it comes in contact with organic matter is safe to handle. But when it becomes mixed with organic matter it becomes readily inflammable and is nearly as explosive as gun powder. Clothes that have become wet at spraying time should be removed and washed immediately. Chlorate saturated clothing when dry may be ignited by friction. Wear rubber boots when applying chlorate sprays. When using dry chlorate do not let it come in contact with grease or oil.

Prevention of Re-Infestation

The areas which have been treated require close attention to several factors to insure success.

The factors are:

- (1) The few remaining plants may be widely scattered. Check the area thoroughly for escape plants and spot treat with a chemical.
- (2) Watch for young plants which have come from seed germinating after the old plants have all been killed. This is probably the most serious danger to re-infestation.

(3) Check the seed supply carefully for weed seed when seeding new land or land cleared of the weed.

(4) Be sure that no barnyard manure which contains seed of noxious weeds is hauled on to clean land.

(5) If livestock is pastured on clean or cleared land be sure the feed being used is free from the noxious weed seeds.

Cost of Eradication of Creeping Jenny

(Prewar figures used)

1. Cultivation Method: (Nebraska Experiment Station Research)

With standard tillage equipment the cost per acre per cultivation will average from 30 to 35 cents. Therefore, if 15 to 20 cultivations are necessary during the two-year period the total cost would be \$5 to \$7.

These figures include costs of fuel, oil, interest on investment, depreciation, repairs, and operators wages. The total cost of operating the equipment was 70 cents per hour.

The Creeping Jenny stand was reduced 98 to 100 percent by two year's cultivation in above tests.

2. Chemical:

The price of sodium chlorate varies with season, amounts purchased and transportation costs. If the cost is 9 cents per pound, the cost for the chlorate alone varies from \$40 to \$60 or more per acre.

3. Equipment:

(1) Small two to five gallon knapsack sprayer; with galvanized tank, \$3 to \$5, with brass tank, \$7 to \$9

(2) Steel barrel sprayer: \$35 to \$40

(3) 100 to 200 gallon tank with motor: \$200 to \$400

(4) Dry chlorate applicators: \$4 to \$50

(5) Field Cultivators: \$85 to \$150

Comments

It costs more to "keep" Creeping Jenny and other perennial weeds than to eradicate them. Extensive research indicates that Creeping Jenny decreases yield from 40 to 50 percent, or more. Therefore, if non-infested land yielded 14 bushels of wheat per acre, infested land would yield only seven bushels. The cost of keeping the weed, therefore, may be said to be seven bushels of wheat per acre per year.

* * * *

The **Root-Starving-Rye Method** will require a longer time for eradication than the **Root-Starving Method** alone because of less intensive cultivations. Two full summers of the **Root-Starving Method**, followed by rye is very efficient.

* * * *

Sodium chlorate is the best known chemical for eradication of perennial weeds. Certain other chemicals are being used experiment-

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REFERENCE

C. J. Franzke and A. N. Hume, "Field Bindweed," S. D. Exp. Sta. Bul. 305.

ally but they are not ready for general recommendation. Borax is also being tested at the present time. It is safe to use. Apply Borax dry using 20 pounds per square rod. Further applications may be necessary. The sterilization effect on the soil has not been definitely established.

* * * *

Areas treated with sodium chlorate may remain sterile for two or three years or until the chlorate is leached out or decomposed.

* * * *

The cost of chemical treatment averages about five times that of intensive cultivations. This and the undesirable effect of the chemical on the soil restricts its use to small patches and uncultivated areas.

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Perennial peppergrass is more resistant to chlorates. Therefore double the ordinary rate of application as described in the directions in this circular.

* * * *

Sorghum, sudan grass, corn and oats have greater tolerance to chlorate-treated land than barley or wheat.

* * * *

Creeping Jenny seedlings may continue to emerge in large numbers for at least 10 years after the original stand has been eradicated. This is especially true in a field where the weed has been established a long time. These seedlings must not be allowed to grow more than 30 days between cultivations when the land is not in a good stand of close drilled or inter-tilled crop.

* * * *

Alfalfa in a heavy close stand is the most suitable perennial crop for controlling bindweed seedlings after the eradication of the old weed plants. Crested wheat grass, in adapted areas is also an efficient competitor of perennial weeds.

* * * *

Do not be discouraged if all plants are not killed by a single application of the chemicals. In fact, a practical method is to try to kill 90 to 95 per cent by the first application and then follow up with sufficient applications to complete the job.

It costs MORE To KEEP WEEDS Than it does To ERADICATE THEM

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