

CONTROL OF

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BERMUDA GRASS

and

JOHNSON GRASS

with

T C A

(TRICHLOROACETATE)

Circular 506

EXTENSION SERVICE
Shawnee Brown, Director

OKLAHOMA A. & M. COLLEGE
Stillwater, Oklahoma

CONTROL OF BERMUDA GRASS AND JOHNSON GRASS with TRICHLOROACETATE *

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The sodium and ammonium trichloroacetates are a group of compounds relatively new in chemical weed control. They have been given the group abbreviation of TCA. Preliminary tests indicate that TCA, when properly applied, may be useful in the control of Bermuda grass, Johnson grass, and other perennial grasses. It will also kill annual grasses and annual broad-leaved weeds, but it is not effective on bindweed or most other broad-leaved perennials.

WHEN TO APPLY

TCA gives best results when the soil is moist and when there is only a moderate amount of rainfall during the period immediately following the application. Treatment during dry, hot weather, when there is very little moisture in the soil, has given poor results. Excessive rainfall has resulted in unsatisfactory control because of the leaching of the chemical.

The best time for treating Bermuda seems to be in late June or July. August and September are also satisfactory for treating this grass if there is sufficient moisture in the soil.

The tests indicate that June and July are good months for treating Johnson grass. The plants should be about 12 to 18 inches high when treated.

One treatment, if properly applied and if conditions are favorable, will usually be sufficient for Bermuda grass. Johnson grass seems to be more difficult to kill and will likely require some treatment for complete eradication.

* The information contained in this circular is based largely upon tests conducted by the Oklahoma Agricultural Experiment Station in 1947 and 1948. The results of these tests are reported in Experiment Station Cir. M-180, by W. C. Elder, Assistant Agronomist in Charge of Research in Weed Control. The author also expresses appreciation to E. L. Whitehead, Extension Horticulturist, and J. C. Garrett, Assistant Horticulturist in Charge of Landscaping, for valuable suggestions in the preparation of this manuscript.

AMOUNTS TO USE

The trichloroacetates are dissolved in water and applied as a liquid spray in amounts sufficient to thoroughly cover the plants. A three-gallon knapsack sprayer is convenient to use in treating small areas. The chemical may also be applied with a water sprinkler.

For Bermuda grass, mix $1/2$ to $2/3$ pound of TCA active ingredient with $1/2$ to 1 gallon of water, and spray uniformly over an area 1 sq. rod in size.*

For Johnson grass, use $2/3$ to 1 pound of TCA active ingredient in $1/2$ to 1 gallon of water per sq. rod.

For annual grasses, use $1/8$ to $1/4$ pound of TCA active ingredient to $1/2$ gallon of water per sq. rod.

For larger areas, apply the chemical at the rate of 100 pounds of TCA active ingredient in 50 to 100 gallons of water per acre.

SUGGESTIONS FOR USE OF TRICHLOROACETATE

The cost of trichloroacetate is \$60 to \$75 or more an acre at the present time. Consequently, it is not likely that large areas of Bermuda grass or Johnson grass will be treated.

One of the possible uses of TCA is around the edges of gardens to prevent Bermuda grass from spreading into the cultivated areas. TCA might also be used to kill Bermuda on small areas where gardens, shrubbery, or flowers will be planted the following season. **It should not be used around shrubbery nor on soils where the roots of plants, shrubs, or trees are growing.** TCA may be applied on very small patches of Bermuda grass or Johnson grass in cultivated fields or around edges of fields.

Small patches of Johnson grass occur in many alfalfa fields. It presents a serious problem in areas where alfalfa seed is produced. These small patches of Johnson grass can be eradicated with TCA. Where the chemical comes in contact with alfalfa plants it will cause injury. Some investigations which have been made indicate that old stands of alfalfa will recover from the effect of TCA and make normal growth. More research data,

* 1 sq. rod is an area $16\frac{1}{2}$ by $16\frac{1}{2}$ feet.

however, is needed before this practice can be definitely recommended.

EFFECT ON THE SOIL

The length of time that TCA sterilizes the soil will depend somewhat on weather conditions. The effect of the chemical will remain longer in dry weather than in periods of heavy rainfall. It is usually safe to plant crops on treated soil 90 to 100 days after the treatment is applied.

PRICKLY PEAR CACTUS

The Kansas Experiment Station¹ reports that the trichloroacetates give promise of providing an effective means of control of prickly pear cactus. Best results were obtained by mixing 1/2 to 3/4 pounds of the chemical with 1 gallon of water and spraying the plants in mid-July. Very little retreatment was necessary for complete eradication. The chemical should be applied when the soil is moist.

PRECAUTIONS

TCA may cause slight irritation of the skin if it comes in direct contact with the hands. This can be avoided by wearing rubber or leather gloves.

TCA causes some corrosion of spray equipment.

Do not treat soil where the roots of shrubs, trees, or other plants are growing.

TCA is not considered to be poisonous or inflammable, but the directions on the container should be followed carefully.

For best results, TCA should be applied when the soil is moist. Excessive moisture, however, causes rapid leaching of the chemical.

¹ Kansas Experiment Station Circular 255, "Control of Noxious Perennial Grasses with the Trichloroacetates". January, 1949.