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CONTROLLING LAWN WEEDS WITH CHEMICALS

by

V. H. Freed, Research Assistant  
Department of Farm Crops

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INTRODUCTION

Much back-breaking work in lawn weed control may be avoided by the use of the proper selective sprays. When these materials are applied to a stand of mixed plants they exert a toxic action toward certain species of plants without injuring others. There are a number of such selective sprays for weed control in turfs, each of which is effective on certain species. The purpose of this circular is to present information on some of the selective sprays that may be used in the control of lawn weeds.

SINOX

Weeds Controlled

The spray material known as Sinox (a water slurry of sodium ortho dinitro cresylate), which when dissolved in the proper proportion and mixed with ammonium sulfate, a common commercial fertilizer, forms a very effective spray for the control of certain weeds. The results of lawn weed control experiments at this station indicate that the Sinox-ammonium sulfate combination is generally effective on the following weeds:

Chickweed  
Spurry  
Small hop clover and Japanese clover  
Bedstraw and moss, and to a lesser extent broad-leaved plantain

This treatment can be used on most perennial grasses that are used for lawn or turf purposes, but is not recommended for shallow-rooted annual grasses or for some of the stoloniferous grasses with very shallow roots as they may be injured by the heavy applications necessary to control perennial weeds. Therefore, on such plants as buckhorn plantain, broad-leaved plantain and false dandelion, other sprays are usually recommended. The Sinox is intended for use on established lawns which have been infested with the common weeds listed above. Although established grass plants may have the tops injured by the spray, the effect is only temporary, as such plants are able to reestablish top growth quickly. If clover is desired in the lawn this spray should not be used.

### Directions for Using

1. Mow or clip the grass one to three days before the spray is applied. This reduces the leaf surface of the grass and allows the weeds to start new leaf growth which increases their susceptibility to the spray. The newly clipped leaf surfaces permit better penetration of the spray in the weed crowns and provide more complete coverage of the weed leaves with the spray.
2. Dissolve the Sinox at the rate of one pint to  $2\frac{1}{2}$  gallons of clean water.
3. Dissolve the ammonium sulfate separately at the rate of  $3\frac{1}{2}$  pounds of ammonium sulfate to  $3\frac{1}{2}$  gallons of clean water. Make sure that all the salt has gone into solution. The powdered form of the ammonium sulfate or very fine granular form will go into solution much more rapidly than the crystalline type of material. The water and the chemicals to be used must be clean and free from materials which might result in the clogging of the spray nozzle.
4. Pour the thoroughly dissolved ammonium sulfate into the Sinox solution slowly, stirring vigorously while the mixing is taking place. If the mixing is not properly done a precipitate or sediment occurs which makes it difficult to keep the nozzles clean. The amount of the sediment formed is greatly increased if one or the other of the chemicals is too concentrated when the mixing takes place, or if the undissolved Sinox is poured into the sulfate solution.
5. The thoroughly mixed solution can then be applied by any type of sprayer that discharges the solution in a fine mist as this gives the best coverages of the weed leaf surface. For small areas or for individual plants a small hand knapsack sprayer is very satisfactory. Any implement which delivers the solution in drops like those from a sprinkling can is not recommended because of the uneven and ineffective wetting of the weed leaf surfaces as well as loss of spray material.
6. The following table gives the amount of materials to be used on any given sized area.
  - a. One pint of Sinox in  $2\frac{1}{2}$  gallons of water and  $3\frac{1}{2}$  pounds of ammonium sulfate in  $3\frac{1}{2}$  gallons of water to make 6 gallons of spray solution will cover 375 to 400 square feet.
  - b. One-half gallon of Sinox in 10 gallons of water and 14 pounds of ammonium sulfate in 14 gallons of water will cover 1500 to 1600 square feet.
  - c. One gallon of Sinox in 20 gallons of water and 28 pounds of ammonium sulfate in 28 gallons of water will cover 3000 to 3200 square feet.
  - d. If larger areas are to be sprayed the quantities mixed should be in the same proportion as above. Where weed plants are in scattered patches or growing only in spots it may be necessary only to spot treat the weeds. This may be done with the above spray solution or some of the other recommended spray materials.

### Conditions for Spraying

Spraying should be done during clear weather as better results are obtained if a few days of clear weather follow the application of the spray. Successful treatment may be made from about the middle of March throughout the summer months, but the best results are usually obtained by spraying in the spring or early fall. The best range of temperatures is between 60° and 85° F. since the grass appears to be less susceptible to injury by the spray in cool weather than it does in the hot, dry weather of July and August. If clear, warm weather continues for several days after spraying, it is essential to sprinkle the lawn lightly after about two to four days following the spray. Light sprinkling should be continued every day for three or four days and then a heavy application of water should be made until the grass is growing vigorously again. The light application of water permits a prolonged chemical action between the spray and the plants. Should any serious burning of the grass leaves occur on places such as those that are badly tramped, heavy watering should be made immediately.

### After Treatment

If any of the weeds recover after spraying, that is in about two or three weeks, it may be desirable to spray such spots or individual plants again with a lighter application. For these second or later sprays the best mixture of chemicals is about one or two ounces of Sinox in a half gallon of water and one to two ounces of ammonium sulfate in a half gallon of water, using the same method of mixing and application as is recommended for the original solution.

For very young lawns the rate of application of this spray material should be cut down by one-half to a fifth, depending on the age and condition of the lawn. On lawns that are only a few weeks old and where heavy weed growth is appearing the rate of application should be also reduced to about one-fifth of the rate that has been listed. More solution may be safely used on somewhat older plantings, but it is necessary for the operator to use reasonable care and judgment in deciding on the concentration of the mixture best suited to the age and size of the grass and weed plants. As weeds are more easily killed when they are young seedlings, a small amount of solution is often effective on the young weed plants and is less likely to injure the grass. The ideal time to treat a lawn is when the weeds are first appearing; they are most easily killed at this time as less solution and material is required.

It is not advisable to fertilize the lawn before application of this spray. If it is necessary to fertilize this may be done after the application has been made, thus giving the grass an opportunity to grow rapidly and to compete with any new weed infestation.

For lawns infested with such weeds as cat's-ear or false dandelion and dandelion plants other sprays are recommended, since the Sinox-ammonium sulfate spray does not always give good results with this type of plant.

## OIL SPRAYS

### Weeds Controlled

Oil sprays have proved to be effective as selective herbicides on lawns and turfs in combating certain weed pests. The oil must be of the type of clear, white kerosene of a high degree of purity for this work. There are certain proprietary oils on the market that meet these requirements as well as does the clear, white kerosene, and they may be used interchangeably with this product. These oil sprays are effective against false dandelion, common dandelion, buck-horn plantain, annual bluegrass, and broad-leaved plantain.

Oil sprays should never be used on new lawns or on grasses which have shallow rooting systems or on stoloniferous grasses. The oil sprays will usually cause a somewhat severe burning of the grass, but with deep-rooted perennial grasses regrowth will be made in ten days or so provided a heavy watering and fertilizing follow the spray.

### Directions for Using

1. Four or five days before applying the spray, mow or clip the lawn and remove the cut material. With a suitable sprayer, such as a small knapsack sprayer, apply the oil spray at the rate of 1 to  $1\frac{1}{2}$  quarts of oil per 100 square feet of lawn in the afternoon.
2. The following morning water the lawn heavily to prevent undue injury to the grass and to stimulate its regrowth.
3. A week to 10 days following the spray application a light top dressing of nitrogen fertilizer such as ammonium sulfate should be made and the lawn watered heavily again. This will give the grass a chance to make quick regrowth.
4. If regrowth of the weeds occurs it may be desirable to make a light application at about one-half the rate as used above for treating these plants.
5. Where regrowth is not very heavy it is possible to treat individual plants or spot treat the plants making regrowth.

### Conditions for Spraying

Since some burning to the grass is an inevitable result of treating with oil, it is desirable to do the spraying either in the fall or in the spring so that the grass has a chance to recover under more favorable growth conditions. This will reduce the period when the lawn is unattractive. However, spraying may be done at any time. Best results are obtained in clear weather when the temperatures are not too high. Temperatures ranging from 60° to 75° F. are warm enough to obtain satisfactory results without resulting in undue injury to the grass. The oil sprays should never be used on young lawns or shallow-rooted grasses, nor should they be used where clover is desired in the lawn as the oil is very toxic to clover.

## ARSENITE SOLUTION

### Weeds Controlled

Sodium arsenite is also effective in the control of lawn weeds. This material is especially good against heavy infestations of common dandelion, false dandelion or cat's-ear, and buckhorn plantain. It is likely to burn the lawn severely, but a well-established grass will recover if properly handled.

### Special Precautions

The sodium arsenite solution is very poisonous and it should be handled with extreme care. In making up the solution the operator should avoid inhaling the dust that may arise from the powder as it is being used. The material should not be allowed to come in contact with the skin and if any is spilled on the clothes it is advisable to change the clothes and to wash them before using again. In handling the sodium arsenite it is advisable for the operator to grease his hands with vaseline or some other oily material.

Too heavy an application of this material to a lawn may result in severe injury or even in a temporary poisoning of the lawn soil. Therefore, care must be exercised in the application of this material and in the concentrations used.

Where there is danger of cats and birds being poisoned through the use of the arsenite solution, it would probably be best to use some other type of material in its stead. Where an especially heavy infestation of weeds occur and it is desired to use this spray material for the results that may be obtained with it, it may be necessary to rake the lawn and to make a light reseedling after application.

### Directions for Using

1. Carefully weigh out the dry sodium arsenite solution at the rate of  $2\frac{1}{2}$  ounces per gallon of water and apply to the lawn by the means of a knapsack sprayer or any other suitable spraying device as recommended above.
2. One gallon of this solution is sufficient to cover 250 to 275 square feet of lawn.
3. From 4 to 6 days following the application of this material to the lawn, water heavily to flush the material down into the soil.
4. If severe injury to the grass results, regrowth is encouraged by the addition of nitrogen and phosphorus fertilizer followed by heavy watering. The lawn may then be raked and a bit of new lawn seed started on the heavily injured grass areas to obtain a good stand again.

### Conditions for Spraying

The lawn need not receive any pretreatment for the use of the arsenical spray but it must again be emphasized that care be taken to avoid the use of too much spray material on the lawn. The arsenite spray should not be applied to the lawn too frequently since it results in the building up of arsenic which will eventually cause sterility of the soil and thereby prevent further growth of the lawn.

### SPOT TREATING LAWNS

Sometimes it is not desirable to treat the whole lawn when just a few scattered weed plants are found in it. Under such conditions the individual plants of dandelion, false dandelion or plantain may be spot treated with some suitable material. Both the arsenic solution and the oil treatments which have been discussed previously may be used for spot treating lawns. Common stove oil is recommended for the spot treatment although the clear white kerosene or the arsenic solution may be used. Stove oil is more effective than the kerosene and does not have the poison hazard of the arsenic.

When the oil is used, the plant need not be cut off before the treatment is made. An ordinary oil can is an efficient applicator for this type of material. A few squirts of oil are put on the crown of each plant, usually about from one-half teaspoon to one teaspoonful of oil to each plant. Within a few days the plant will die and eventually the turf will grow over the spot occupied by the weed.

Where the two percent sodium arsenite solution is used, it is well to cut off the crown of the plant before treatment, then using a sharp-pointed stick, wet the stick with the arsenite solution and thrust the stick down into the crown of the plant. This insures thorough contact of the arsenic solution with the crown and root of the plant.

This procedure of spot treatment is recommended where nearly all of the rest of the plant weeds have been killed out or where there are just a few scattered plants in the lawn. It may be used as a follow-up treatment on lawns that have been previously sprayed with one of the above-mentioned solutions.

A mixture of stove oil and old crankcase oil in a 1:1 proportion has proven quite effective in the control of dandelion and false dandelion.

Care must be taken that no undue amount of any of the materials used in spot treating a lawn is allowed to come into contact with the grass adjacent to the weeds as this may result in the killing out of the grass in that area.

### Sources of Material

The materials mentioned in this circular may be obtained usually from feed and seed dealers and other dealers handling agricultural materials. The oils for use on the lawn weeds may be obtained from any service station.