

AGRICULTURAL EXPERIMENT STATION
Oregon State College
Wm. A. Schoenfeld, Director
Corvallis

Circular of Information No. 219

May 29, 1940

CONTROLLING LAWN WEEDS WITH
SINOX--AMMONIUM SULFATE SOLUTION

by

L. E. Harris
Assistant Agronomist

Many lawn weeds may be controlled by proper use of a spray solution containing a mixture of a thick, pasty yellow, commercial dyestuff called Sinox (sodium-di-nitro-ortho-cresol) and the commercial fertilizer, ammonium sulfate. Each of the chemicals is soluble in water. At the proper concentration, they will mix readily. Experiments on control of lawn weeds have been tried for the past year and the results with this combination are better than those of any other chemical used.

The advantages of ammonium sulfate in this combination are that it activates the Sinox in its ability to kill weeds more effectively and the heavy application of the ammonium sulfate fertilizes the grass and keeps it growing rapidly.

While this method is not completely worked out, it offers a very satisfactory method for lawn weed control. Several factors need further study, and the Agricultural Experiment Station is continuing experiments in lawn weed control.

The types of weeds that can be treated include buckhorn plantain, broad-leaved plantain, false dandelion, common dandelion, hop clover, Japanese clover, moss and most **all** broad-leaved and soft-leaved types of weeds. It has been more effective on both plantains, such as buckhorn and broad-leaved plantain, than on the common and false dandelions. However, there have been a number of trials in which the dandelion plants were very effectively controlled. It has been more effective on the troublesome mouse-ear chickweed than it has on the common chickweed. The spray is definitely injurious to the clovers. Treatments should not be made on lawns consisting entirely, or in part, of white clover if it is desired to retain the clover. It will kill most of the clover plants.

Directions for use follow:

1. The Sinox and ammonium sulfate must be dissolved separately.
2. Dissolve approximately one-third pound of Sinox in one gallon of water.
3. Dissolve one pound of ammonium sulfate in one and one-half gallons of water. This solution should be stirred thoroughly to make sure that all of the sulfate has gone into solution.

4. Pour the thoroughly dissolved sulfate into the Sinox solution.
5. Stir vigorously while the mixing is taking place. If the mixing is not done properly, a precipitate or sediment occurs which makes it difficult to cover the vegetation thoroughly. The amount of precipitate 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.
6. The well-mixed solution can then be applied by a hand knapsack sprayer or any other small sprayer that discharges the solution in a fine mist which gives the best coverage of the leaves.

This two and one-half gallons of solution is enough to cover approximately 250 square feet where an over-all spraying is necessary. Where the weed plants are in scattered patches or growing only in spots, it is then desirable to spray only the weed plants or weedy patches by thoroughly wetting the leaf surface.

Spraying should be done during clear weather as the results are better if there are a few days of good sunshine following application. Successful treatments were made last year from the first part of May throughout most of the summer. Early spring and late summer applications are also effective under clear weather conditions as weeds are also susceptible at those times. The effect of the spray is more severe on the grass during hot weather than cool weather, but in every case where the grass was burned down with the combination, it quickly recovered in a few days and the grass was much better than before treatment. If the clear, warm weather continues for several days, it is desirable to lightly sprinkle the lawn after about three or four days following the application. If the evaporation is rapid, the spray dries on the leaves and reaction with vegetation cannot take place until moisture is added. With the addition of water by lightly sprinkling the area, further chemical reaction continues and the weed plants are killed at deeper levels. Light sprinkling should be continued every day for three or four days and then heavy applications of water should be added until the grass is growing vigorously. Should any serious burning of the grass leaves occur, heavy watering should be given.

After two or three weeks following the application, some weed plants will recover and new seedling weeds may start growing. It is then desirable to mix up a solution of Sinox alone at one and one-half to two ounces in one gallon of water and spray the new growth by thoroughly wetting the entire leaf surface. This method proved to be very satisfactory last season and in nearly every trial at least 95 per cent of the weeds were eliminated by this method. For some lawns, it may be necessary to continue this "spotting" operation for weed plants that persist in their recovery.

The success of this treatment depends, in part, on the type of lawn. A lawn that has a good grass cover will respond to the treatment better than one where the grass is extremely thin. The effect of the ammonium sulfate is to fertilize the grass to the point that it grows rapidly over the area that was occupied by the weeds. This prevents new weed seedlings from becoming established. Results were usually poor when applications were made on lawns that were made up mostly of weeds. Seedling weeds usually appear more rapidly than the scattered grass plants can develop cover on such lawns.

The method outlined above is intended for use on old, established lawns and where the weeds have been growing for considerable time. Established grass plants, even though the leaves and other vegetation may be burned down, have the ability to send up new shoots and start growing again. For treatment of new lawns, such as those that have been seeded for only a few weeks or less than a year, it is very necessary that the rate of application be reduced considerably. Young seedlings of any type of plant, including grasses, are more easily injured than old, established plants. The roots of a seedling are near the surface of the soil and burning of the leaves may cause permanent injury. Successful treatments can be made, however, on new lawns, but the rate of application of the solution should be cut down to one-half gallon to 250 square feet, or approximately one-fifth of the amount recommended above for well-established lawns. More solution may safely be used on somewhat older plantings, but it is necessary for the operator to use reasonable care and judgment in deciding on the concentration of mixture best suited to the age and size of grass and weed plants. Weeds are more easily killed when they are young seedlings; consequently, a small amount of solution works very effectively on young weed plants.

From limited observations during this season, it is not advisable to fertilize the lawn grass heavily just before application of the Sinox-ammonium sulfate is made. Any plant that has had generous amounts of nitrogen fertilizer is very "succulent" and soft and is easily injured by a chemical spray. This condition is more pronounced in young grass, and it is possible that where a spray is added to the grass a few weeks following heavy applications of nitrogen fertilizer during the winter or spring, permanent injury may result to the grass plants. It is, therefore, neither advisable nor necessary to add fertilizer to a new lawn before this weed spray is used because the ammonium sulfate in the mixture furnishes all the nitrogen fertilizer that is required.
