



Growth regulating substances for the control of weeds in Kentucky bluegrass lawns  
by Jesse M Hodgson

A THESIS Submitted to the Graduate Committee in partial fulfillment of the requirements for the degree of Master of Science In Agronomy  
Montana State University  
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Abstract:

This Investigation consisted of a study of the chemical growth regulator 2,4-Dichlorophenoxyacetic acid as a selective herbicide for the control of weed in lawns. The most effective method and time of application were studied by comparing average percentage kills obtained when three rates and three concentrations were applied on three different dates during the growing season. The lawn weeds on which tests were conducted, were as follows. dandelion (*Taraxium officinale*), buckhorn plantain (*Plantago lanceolata*), common chickweed (*Stellaria media*), and mouse-ear-chickweed (*Corastium Vulgatum*). In addition to the field study, the effect of 2,4-D on the germination of the seeds of weed and crop species was determined in the laboratory.

Dandelion was found to be quite susceptible to 2,4-D. The earliest date of treatment (June 4) gave the best control. The difference in percentage kills of this and the other dates were significant as determined by statistical analysis. The heavier applications (.1 per cent concentration at 2 gallons per square rod and .2 per cent concentration at 1 1/2 gallons per square rod) gave the highest percentage kills but because of inhibition of the grass and the necessity of additional treatments to control new seedlings, the lighter applications (.1 per cent at 1 1/2 gallons per square rod) are more practical.

Buckhorn plantain was also found to be quite susceptible to 2,4-D. The percentage kills of the June 4 treatments were 11 per cent higher and differed significantly from the July 9 treatments. The heavier applications again gave better control of this weed, but as in the case of dandelion, the lighter applications would seem more economical.

Common and mouse-ear-chickweed showed definite resistance to the 2,4-D treatments. Applications made August 5, showed this to be the best time of application that was studied. Successive treatments of 2,4-D on chickweeds made within four weeks did not control this weed satisfactorily. The heavier applications (.2 per cent concentration at 1 1/2 gallons per square rod) in both tests of different rates and successive treatments, were the only treatments which were at all promising although they were still unsatisfactory for control.

2,4-D was found to inhibit germination of weed and crop seeds. Germination was inhibited by 2,4-D treatment for all species tested. The oats sprouted and developed chlorotic epicotyls, however seminal root development was definitely inhibited. Alfalfa, pigweed, Dutch white clover and Kentucky bluegrass were found to have viable seeds after the 2,4-D treatment.

GROWTH REGULATING SUBSTANCES FOR  
THE CONTROL OF WEEDS IN KENTUCKY BLUEGRASS LAWNS

by

Jesse M. Hodgson

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at

Montana State College

Approved:

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Bozeman, Montana  
November 1946

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Abstract

This investigation consisted of a study of the chemical growth regulator 2,4-Dichlorophenoxyacetic acid as a selective herbicide for the control of weeds in lawns. The most effective method and time of application were studied by comparing average percentage kills obtained when three rates and three concentrations were applied on three different dates during the growing season. The lawn weeds on which tests were conducted, were as follows: dandelion (Taraxicum officinale), buckhorn plantain (Plantago lanceolata), common chickweed (Stellaria media), and mouse-ear-chickweed (Cerastium Vulgatum). In addition to the field study, the effect of 2,4-D on the germination of the seeds of weed and crop species was determined in the laboratory.

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