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ages of 1/2, 1, and 2 pounds of acid per acre. One application was made in mid-June. Complete defoliation of western snowberry with no sign of recovery in 1949 resulted from the 1 and 2 pound rates of the amine and ester of 2,4-D and 2,4,5-T. The 1/2 pound rates of these formulations resulted in 90 percent defoliation; however, 10-15 percent of the defoliated plants had sent up new shoots by late September. While the prairie rose was not affected by any of the rates of 2,4-D, it was completely defoliated by all rates of 2,4,5-T. A mixed population of western snowberry, prairie rose, and silverberry (*Eleagnus comutata*) was treated in mid-June with two mixtures, viz; (1) 1 pound butyl ester /2,4-D? Ed./ and 1/2 pound 2,4,5-T, and (2) 1 pound butyl ester and 1 pound 2,4,5-T per acre. Complete defoliation of all three species, with no signs of recovery in 1949 resulted. The rates of 2,4-D and 2,4,5-T given in paragraph 1 were sprayed on western snowberry and silverberry in 1949.* In early June 1949 all plots of snowberry showed up to 15 percent regrowth. Plots of silverberry had not leafed out but the wood was not yet dried and was completely dead. (Contributed by the Dominion Experimental Station, Scott, Sask. 1949).

Effects of 2,4-D, 2,4,5-T, and their mixture, on woody growth. Corns, W. G. Green poplar (*Populus tremuloides*), Buckbrush (*Symphoricarpos occidentalis*), Roses (*Rosa acicularis*, *R. Arkansana*), Saskatoon (*Amelanchier rotundifolia*), Willows (*Salix Bebbiana*, *S. discolor*, *S. petiolaris*) along fence line were treated for first time. Experiments 1 and 2: 2,4-D (Green Cross butyl ester), 2,4,5-T (Naugatuck propyl ester), 2,4-D, 2,4,5-T mixture (A.C.P.#32 butoxy ethanol ester) applied on June 28 at rates 2 and 3 lbs. acid equivalent in 75 gallons of water and in 150 gallons water/acre. In Experiment 3, 2 lbs. 2,4,5-T and 4 lbs. 2,4-D in 75 gallons water/acre applied on July 15 to similar vegetation. In Experiments 1 and 2, top-growth of willows and Saskatoon was completely killed by each chemical at both rates. Damage was most rapid where the larger amount of water was used, but final results from use of 75 gallons were equivalent to those from 150 gallons/acre. Within 2-3 weeks top-growth of roses was completely killed by 2 lbs. 2,4,5-T, and within 3-4 weeks by same rate of Brush Killer per acre. Roses only partially affected by 3 lbs. of 2,4-D per acre. In all treated areas there was about 2 percent regrowth of roses, and no current regrowth of other species. Buck-brush and poplar showed variable response to all chemicals but, in general, 2,4,5-T at 3 lbs. per acre was the most effective against poplar. Results from Experiment 3 again showed superiority of 2,4,5-T against roses. Two pounds of 2,4,5-T per acre caused complete kill of top growth, while 4 lbs. of 2,4-D produced only 50-75 percent damage to roses. (Contributed by Department of Plant Science, University of Alberta).

Comparison of 2,4-D, 2,4,5-T, and ammonium sulfamate as second season applications for the control of Osage orange. Klingman, Dayton L. Original treatments June 2, 1948, of 12,000 ppm, 2,000 ppm, and 1,000 ppm. each of 2,4-D and 2,4,5-T, and 1/2 pound of ammonium sulfamate per gallon all applied at 160 gallons per acre and the results of the first season were reported in Abstract VI-1 of the North Central Control Conference Research Report, 1948. One-half of each 50-foot plot was again sprayed September 28, 1948, with the rates used in June, except that 4,000 ppm was substituted for the 12,000 ppm. All of the above rates and materials were again applied to the respective original plots on June 23, 1949. Notes taken May 29, 1949, were quite encouraging. Notes taken later in the season were not so optimistic. In general, early in the season all 2,4,5-T treatments of 2,000 ppm or greater killed 95 percent or better of the top growth killed and only moderate regrowth, while all treatments with 2,4-D were relatively ineffective. The 1,000 ppm treatments of 2,4,5-T gave 65 to 95 percent top kill, but all trees were sending out new shoots at the base. These shoots were killed by the spray June 23, 1949, but by September 29 most trees again had shoots from 6 to 48 inches tall. The 2,000 ppm 2,4,5-T by May 29 gave a differential in favor of the repeated treatments of the same chemical. In early June 1949 all plots of snowberry showed up to 15 percent regrowth.

year in that only one out of six trees showed regrowth at the base while the 1948 treatment only had five out of seven trees with regrowth. By September 26 there were some new shoots at the base of most trees. Shoots were most vigorous in plots having a single ^{spring} treatment in 1948. Plots given an initial treatment of 12,000 ppm and 4,000 ppm thereafter showed no advantage over those treated with 2,000 ppm 2,4,5-T by September 26, 1949. Ammonium sulfamate killed approximately three-fourths of the tops, with some advantage for the repeated fall treatments. The central portion of the trees was a dense mass of live shoots and leaves. (Contribution of the Division of Cereal Crops and Diseases, B.P.I.S.A.E., U.S.D.A.)

Effect of difference in drifting of high and low volume spraying of brush. Klingman, Dayton L. and Shafer, Neal E. In an experiment comparing various rates of application of 2,4,5-T and 2,4-D on Osage orange there were also included preliminary treatments in which lower volumes per acre were used. There was a rather strong drift directly parallel with the Osage orange hedge row, and the amount of vegetation killed past the end of the plots could be observed in the check next to the high volume (160 gallons per acre) and at the end of the experiment next to the low volume (16 gallons per acre) treatment. The actual distance of spray drift is not known, but the relative killing effects on leaves beyond the end of the treated plots was noted. In untreated plots next to the 160-gallon-per-acre volume, severe injury was noted 10 feet beyond the treated plot. Where the 16-gallon-per-acre volume was used, severe injury was observed to extend 50 feet beyond the treated plot. This would indicate that toxic quantities of the herbicides had drifted five times as far when applied in 16 gallons of water per acre as when applied in 160 gallons of water. Two weeks after spraying the low volume treatments looked equally as effective as the 160-gallons-per-acre treatments. The relative actual kill will be determined since these plots have since been bulldozed. (Contribution of the Division of Cereal Crops and Diseases, B.P.I.S.A.E., U.S.D.A., and the Department of Agronomy, Nebraska Agricultural Experiment Station, Lincoln, Nebraska).

Comparison of 2,4-D and 2,4,5-T for control of buckbrush (Symphoricarpos occidentalis). Klingman, Dayton L. The ethyl ester of 2,4-D and 2,4,5-T was sprayed in eight by ten foot plots of buckbrush June 4 and July 13, 1948, at rates of one to two pounds acid in 40 gallons of water per acre. Plots located near Lincoln, Nebraska. 2,4-D was greatly superior to 2,4,5-T for control of buckbrush, giving an average control of 64 percent and one percent, respectively, according to notes taken on June 2, 1949. 2,4-D sprayed June 4, 1948, at one pound gave 75 percent control, two pounds gave 66 percent; 2,4-D sprayed July 13, 1948, at one pound gave 55 percent control and two pounds gave 55 percent (biased upwards by only five percent control in one replication). Differences between rates and dates of application above were not statistically significant. 2,4,5-T treatments gave 2 percent or less control at all rates and dates. (Contribution of the Division of Cereal Crops and Diseases, B.P.I.S.A.E., U.S.D.A.).

Effects of 2,4-D sprays on eastern white pine (Pinus strobus L.) seedlings growing under hazelbrush. Hansen, Henry L. One of the important factors which must be considered in the application of herbicides to control brush on forest areas is the degree to which injury will occur to any desirable tree reproduction which may be present. Data relative to this problem were obtained from a series of plots at Itasca State Park, Minnesota, on which the hazelbrush was sprayed on July 19, 1949, using three different concentrations of a 2,4-D spray. The density of hazelbrush varied from 4,400 stems per acre on the plot with the least brush to 28,700 on the most brushy plot. At least 100 eastern white pine seedlings, varying from 1 to 7 years in age were found growing under the hazelbrush on each of the 10 one-acre quadrats. All sprayed plots had almost complete mortality of the white pine seedlings which had originated in the 1949 growing season (classed as 1-year seedlings).