

**CANADA**  
**Department of Forestry**

# **GIRDLING, BASAL SPRAYING AND FRILLING OF MATURE ASPEN**

by  
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**FOREST RESEARCH BRANCH**

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Figure 1. Treated and untreated aspen crowns in August, 1956. From left to right: Basal spray, basal frills, axe girdle, and untreated.

# GIRDLING, BASAL SPRAYING AND FRILLING OF MATURE ASPEN

By R. M. WALDRON\*

Trembling aspen (*Populus tremuloides* Michx.) is largely an unwanted species in many localities in which it occurs. Its value may be low or negligible because of its abundance, inadequate markets, and a high incidence of decay. It is generally considered desirable to convert aspen stands to more valuable tree species through release of understoreys of planted or natural seedlings. This release may be brought about by

reducing or completely eliminating the aspen overstorey, using the most economical method available. The purpose of this paper is to report on the results of four methods of killing mature aspen, tested on the Riding Mountain Forest Experimental Area in Manitoba.

A single treatment was applied to each of four aspen stands which were more than 100 years old. In August of 1955 about 30 trees in each of three stands received one of the following treatments: axe girdling at breast height, basal

spraying with 2, 4, 5-T, and applying 2, 4, 5-T in basal frills. The chemical was applied as a solution in mixture with diesel oil at 8,000 p.p.m. In June of 1956 more than 100 trees on the fourth area were girdled with a "hand-girdler".† Average diameters of the trees on the treated areas ranged from 10 to 12 inches d.b.h.

At mid-August, during 1956 to 1959 inclusive, visual estimates were made of the percentage leaf kill of each tree. Examinations were carried out in the autumn of 1959 to determine the amount of suckering from treated trees.

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†Manufactured by the Utility Tool and Body Co. Inc., Marion, Wisconsin.

Results of the test are shown in Table 1. All methods resulted in complete mortality of the treated trees. Mortality and subsequent breakage occurred earlier among the aspen treated with 2, 4, 5-T as a basal spray and in basal frills than among those girdled. Breakage of stems following the chemical treatments occurred at between 15 and 25 feet and, following girdling, at the girdle.

In 1959 aspen suckers were generally no more prevalent on the

treated areas than on the adjacent untreated areas. It is not known whether the lack of increase in suckering was due to the treatments or to the presence of a very dense hazel underbrush. It was observed that in small openings which occurred in the underbrush cover, suckers appeared to be more numerous on treated than on untreated areas.

Local costs of labor and chemical will determine which method of killing aspen is the most

economical for a given area. Under the non-operational conditions that prevailed in this study, and using 1960 wage and material costs, the most economical treatment proved to be girdling at breast height with the "handi-girdler"; the total cost was about 5 cents per tree. Cost of 2, 4, 5-T applied in frills was only slightly less than that for axe girdling (7 and 8 cents per tree respectively). The basal spray treatment proved to be the most costly at 13 cents per tree. ●

**TABLE 1**  
**RESULTS OF FOUR METHODS OF KILLING ASPEN**

TREATMENT	Amount of Herbicide		Time req'd for treatment	Estimated reduction of original foliage (%)				Breakage of stems in August of each year (%)				Basis
	Chemical only	Solution										
	Ounces Per Tree	Ounces Per Tree	Minutes Per Tree	1956	1957	1958	1959	1956	1957	1958	1959	Number of Trees
2, 4, 5-T <sup>a</sup> BASAL BARK SPRAY	0.59	30.3	0.6	100	100	100	100	0	0	3	87	31
2, 4, 5-T IN BASAL FRILLS	0.25	12.7	1.0	77	100	100	100	0	0	0	79	29
GIRDLING AT BREAST HEIGHT (AXE)			3.6	3	59	97	100	0	0	0	0	33
GIRDLING AT BREAST HEIGHT ("HANDI-GIRDLER")			2.1 <sup>b</sup>	<sup>c</sup>	52	98	100	0	1	4	16	114

a 2, 4, 5-T—ester, 40% acid equivalent.

b Based on 24 trees only.

c No data.