RESIDUAL NAPROPAMIDE AND ITS EFFECT ON WESTERN LARCH AT THE COEUR D' ALENE NURSERY'

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INTRODUCTION

The success ratio for producing shippable 1-0 western larch (8cm, height and 2mm, caliper) at the Coeur d'Alene Nursery is about 50,.. In an attempt to increase this success ratio, trials were initiated to determine if increased growth could be gained by manipulating the following: 1) the length of time between fumigation and sowing, 2) land use between fumigation and sowing, or 3) use or non use of diphenamid (the mildest preemergence herbicide currently in use at this nursery).

This is how the study began, however, there was an unexpected result.

METHODS AND MATERIALS

The trials were sown in a single field with a uniform soil type. Different portions of the field had received the following treatments:

1. Soil fumigated in August of 1980. This is the standard practice. We will refer to these as "fumigated trials."

2. Soil fumigated in August of 1979. Ground was fallow all of 1980. We will refer to these as "1 year old fumigation trials."

3. Soil fumigated in August of 1979. Sown to crop of western larch spring 1980, for 1-0 ship. The sowing was inadvertently treated with napropamide at 1.5 lbs. AI/AC immediately after sowing and again on June 9. The seeds germinated and began to grow, but as temperatures increased, most died. Symptoms of problems before actual mortality were short purple tops and root systems which were nubbed off about one inch below ground line. We will refer to these as "napropamide trials."

'This publication reports research involving pesticides. It does not contain recommendations for their use, nor does it imply that the uses discussed have been registered. All uses of pesticides must be registered by appropriate State and/or Federal agencies before they can be recommended.

Fumigation in all cases was with 67°: methyl bromide, 33 chloropicrin at 350 lbs./AC.

Two twenty foot lengths of bed were sown per treatment on May 1, 1981, using western larch lot number 0438. One twenty foot length of bed in each treatment was treated with diphenmaid (at 4 lbs. AI/AC) immediately after sowing and on a 4 week schedule thereafter. The other twenty foot length of bed in each treatment received no diphenanid.

RESULTS

These trials were not installed to allow for statistical analysis. However, the following differences were observed:

NUMBERS OF TREES/BED FOOT - There was a marked difference in the number of trees/bed foot by September 22, 1981. Napropamide trials had about half the number of trees/bed foot (54) as either the one year old fumigation trials (100) or the fumigated trials (123). There was no difference between diphenamid and no diphenamid treatments when compared on the same ground use pattern (see Table 1).

TREE SIZE - Six samples of ten bed run trees were due from each treatment on September 22, 1981. These sixty trees were measured for height and caliper and the following differences noted:

a) Trees produced on the napropamide trials were the shortest (4.4 cm), followed by the one year old fumigation trials (11.8 cm) and fumigated trials (13.0 cm).

b) Trees grown without diphenamid were taller than trees sprayed with diphenamind regardless of other treatments (see Table 1).

There did not appear to be any difference in caliper as a result of any of the treatments.

NUMBER OF SHIPPABLE TREES - The trees were lifted on March 1981, and the following differences noted:

Number of shippable trees was primarily a function of tree height.

Shippable trees produced by treatment are as follows in descending order;

fumigated trials w/o diphenamid	790
1 year old fumigation trials w/o diphenamid	722
1 year old fumigation trials with diphenamid	560
fumigated trials with diphenamid	360
napropamide trials w/o diphenamid	82
napropamide trials with diphenamid	43

CONCLUSIONS

One extra year between the time of fumigation and sowing does not appear to be a limiting factor on 1-0 western larch at the Coeur d' Alene Nursery. Use of diphenamid appears to limit the size and number of shippable trees. Napropamide used one year prior to sowing definitely limits the number and size of shippable trees produced.

It appears that western larch is very sensitive to preemergence herbicides.

TABLE 1

TREATMENT	MEAN TREES/ BED FT.	MEAN HEIGHT cm	MEAN CALIPER mm	NUMBER SHIPPABLE TREES
FUMIGATED TRIALS				
w/diphenamid	122	10.6	1.8	360
w/o diphenamid	124	15.3	2.0	790
MEAN	123	13.0	1.9	
1 YEAR OLD FUMIGATION TRIALS				
w/diphenamid	106	10.7	1.9	560
w/o diphenamid	92	12.8	1.7	722
MEAN	99	11.8	1.8	
NAPROPAMIDE TRIALS				
w/diphenamid	52	2.3	1.2	43
w/o diphenamid	56	6.5	1.7	82
MEAN	54	4.4	1.4	