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SUMMARY OF INSECTICIDE FIELD TRIALS ON SHADE AND
SHELTERBELT TREES IN ALBERTA, 1972

Northern Forest Research Centre
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Edmonton

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SUMMARY OF INSECTICIDE FIELD TRIALS ON SHADE AND SHELTERBELT

TREES IN ALBERTA, 1972

by

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Canadian Forestry Service

Edmonton, Alberta

INTRODUCTION

Chemical efficacy field trials are being conducted in Alberta on pests of shade, ornamental and shelterbelt trees using a variety of pesticides. This report summarizes the results of the field trials carried out in 1972. The efficacy data for the candidate products are reported to the various chemical firms. The 1972 report by the Western Committee on Crop Pesticides (1) represents the most current and best recommendations for the control of specific pests in this region. Our trials are intended to provide technical data to support Canadian registration for the insecticides recommended in this report, and, most importantly, to obtain an effective low cost, low hazard control. Impact studies of the effect of the insecticides on small mammals, birds and other non-target insects inhabiting the ground were not undertaken. However, care was taken to assess the

(1) The Western Committee on Crop Pesticides is a western regional forum set up to encourage, promote and develop concepts relating to registration, extension research, industrial development and use of chemicals.

populations of non-target species and where feasible, measures were taken to prevent any possible ecological consequences. A shade and shelterbelt pest priority list was established for this region in 1972 based on a compilation by the Chemical Control Research Institute of regional pest priority problems requiring chemical control research. Populations of these pests were not always available for field trials, however the priority outline was followed when applying chemical controls. Occasionally changes in priorities were also made when the insecticides or the necessary equipment to apply them were not available. Field efficacy trials with 15 insecticides were conducted on 11 species of insects in Alberta in 1972. A total of 59 trials were conducted, of which 43 were spray applications with a mist blower unit (Solo), seven were bark paints and nine were soil drenches. The contact toxicity of nine insecticides were evaluated against leaf beetles, aphids, mirids and various sawfly species on 14 host trees and shrubs. Trial sites included shade, shelterbelt, wood lots and forested areas. Similarly, the systemic activity of 11 insecticides were tried on 4 host species.

The insecticide dosages applied are reported as active ingredients in all cases. Description of the field trial techniques, formulation of insecticides, observations and the results obtained are as follows.

RESULTS

BASUDIN 50 EC (diazinon) supplied by Green Cross

Trial 1. July 27/72, mist blower, 2.2 oz/gal. water, I to V instar

- larch sawfly Pristiphora erichsonii Htg., on larch,
Ellscoot, Alta. 15 trees; av. d.b.h. 2 in., av. ht. 16 ft.
Med. population, temp. 72, RH 76%, wind 4-8 mph., 24 hr.
check; 100% mortality, nil phytotoxicity.
- Trial 2. Aug. 2/72, mist blower, 0.5 oz/gal. water, leaf miner
Lithocolletis sp., on t. aspen, Duffield, Alta. 12 trees;
av. d.b.h. 1 in., av. ht. 8 ft. Med. population, temp. 72,
RH 56%, wind nil. 5-day check; 95% larval mortality, nil
phytotoxicity.
- Trial 3. Aug. 2/72, bark paint, 0.5-in. band/in. d.b.h., leaf miner
Lithocolletis sp., on t. aspen, Duffield, Alta. 12 trees;
av. d.b.h. 1 in., av. ht. 5 ft. Med. population, temp. 70,
RH 58%, wind 2-7 mph. 5-day check; 30% larval mortality,
nil phytotoxicity.
- Trial 4. Aug. 2/72, mist blower, 0.5 oz/gal. water, sawfly Neodiprion
pratti banksianae Roh. on lodgepole pine, Duffield, Alta.
1 colony only, temp. 72, RH 56%, wind nil. 1-hr. check;
100% mortality, nil phytotoxicity.
- Trial 5. Aug. 4/72, mist blower, 0.5 oz/gal. water, III-V, instar
sawfly Neodiprion pratti banksianae Roh. on lodgepole pine,
Calmar, Alta. 2 large ornamentals in cemetery. Med. popu-
lation, temp. 59, RH 84%, wind 2-4 mph. 2-hr. check; 95%
mortality, nil phytotoxicity.
- Trial 6. Aug. 15/72, soil drench, 0.4 oz/in. d.b.h., twig borer
Proteoteras willingana Kft., on box elder, Erskine, Alta.
10 trees; av. d.b.h. 3 in., av. ht. 9 ft., 10 similar con-
trol trees. Light population, temp. 76, RH 49%, wind
2-4 mph. 15-day check; results inconclusive, nil
phytotoxicity.

CYGON 2E® (dimethoate) supplied by Cyanamid

- Trial 1. June 27/72, mist blower, 0.4 oz/gal. water, spruce sawfly
Pikonema alaskensis (Roh.), on w. spruce, Bashaw, Alta.
1/10 acre, 42 trees; av. d.b.h., 2 in., av. ht. 8 ft. Med.
population, temp. 68, RH 45%, wind 5 mph. 14-hr check;
100% mortality, nil phytotoxicity.
- Trial 2. July 25/72, mist blower, 0.2 oz/gal. water, I-V instar larch
sawfly Pristiphora erichsonii Htg., on larch, Nojack, Alta.
16 trees; av. d.b.h. 2 in., av. ht. 10 ft. Light population,
temp. 65, RH 80%, wind nil. 5-hr. check; 100% mortality.
- Trial 3. Aug. 2/72, mist blower, 0.4 oz/gal. water, leaf miner
Lithocolletis sp., on t. aspen, Duffield, Alta. 12 trees,
av. d.b.h. 0.5 in., av. ht. 6 ft. High population, temp 70,
RH 58%, wind 2-7 mph. 5-day check; 95% larval mortality,
nil phytotoxicity.
- Trial 4. Aug. 2/72, bark paint, 0.2 in. band/in. d.b.h., leaf miner
Lithocolletis sp., on b. poplar, Duffield, Alta. 12 trees,
av. d.b.h. 0.5 in., av. ht. 5 ft. Med. population, temp. 70,
RH 58%, wind 2-7 mph. 15-day check; 85% larval mortality,
nil phytotoxicity.
- Trial 5. Aug. 2/72, bark paint, 0.2 in. band/in. d.b.h. leaf miner
Lithocolletis sp., on t. aspen, Duffield, Alta. 12 trees,
av. d.b.h. 0.5 in., av. ht. 5 ft. Med. population, temp 70,
RH 58%, wind 7-10 mph. 5-day check; 90% larval mortality,
no phytotoxicity.

- Trial 6. Aug. 4/72, mist blower, 0.4 oz/gal. water, leaf beetle
Altica populi Brown, on b. poplar, Calmar, Alta. 4 trees,
av. d.b.h. 3 in., av. ht. 10 ft. Med. population, temp. 58,
RH 83%, wind nil. 3-day check; 100% mortality, nil
phytotoxicity.
- Trial 7. Aug. 4/72, mist blower, 0.4 oz/gal. water, III-V instar sawfly
Neodiprion pratti banksianae Roh., on lodgepole pine, Calmar,
Alta. 2 large ornamentals in cemetery. Med. population, temp. 58,
RH 83%, wind nil. 3-day check; no living larvae found,
nil phytotoxicity.
- Trial 8. Aug. 15/72, soil drench, 0.15 oz/in. d.b.h., twig borer
Proteoteras willingana Kft., ON BOX ELDER, Erskine, Alta.
10 trees, av. d.b.h., 3 in., av. ht. 9 ft., 10 similar control
trees. Light population, temp. 73, RH 50%, wind 4-8 mph.
15-day check; results inconclusive, nil phytotoxicity.
- Trial 9. Sept. 13/72, mist blower, 0.4 oz/gal. water, aphids
Periphyllus negundinis Thos., on Manitoba maple, Acheson, Alta.
15 trees, av. d.b.h. 4 in., av. ht. 18 ft. Med. population,
temp. 51, RH 86%, wind 6 mph. 2-day check; 85% mortality, nil
phytotoxicity.

FURADAN ® 4.8 Flo. (carbofuran) supplied by Niagara

- Trial 1. Aug. 2/72, mist blower, 1.0 oz/gal. water, leaf miner
Lithocolletis sp., on b. poplar, Duffield, Alta. 12 trees,
av. d.b.h. 1 in., av. ht. 9 ft. High population, temp. 73,
RH 54%, wind 3-7 mph. 5-day check; 100% larval mortality, nil
phytotoxicity.

- Trial 2. Aug. 2/72, bark paint, 0.5 in. band/in. d.b.h. leaf miner Lithocolletis sp., on b. poplar, Duffield, Alta. 12 trees, av. d.b.h. 0.5 in., av. ht. 5 ft. High population, temp. 70, RH 58%, wind 2-7 mph. 5-day check; 80% larval mortality, nil phytotoxicity.
- Trial 3. July 20/72, soil drench, 0.4 oz/in. d.b.h. root borer Saperda calcarata Say. on b. poplar, L. Wabamun, Alta. 12 trees, av. d.b.h. 1 in., av. ht. 7 ft., 12 control trees. Med. population, temp. 70, RH 45%, wind nil. Final check in Dec./72; no living larvae found.
- Trial 4. Aug. 15/72, soil drench, 0.4 oz/in. d.b.h., twig borer Proteoteras willingana Kft., on box elder, Erskine, Alta. 7 trees, av. d.b.h. 3 in., av. ht. 10 ft., 9 similar control trees. Light population, temp. 73, RH 52%, wind 2-5 mph. 15-day check; results inconclusive, nil phytotoxicity.
- FURADAN 10G (®) (carbofuran) supplied by Niagara
- Trial 1. July 5/72, soil drench, 0.05 oz/in. d.b.h., root borer Saperda calcarata Say, on b. poplar, L. Wabamun, Alta. 12 trees, av. d.b.h. 1 in., av. ht 6 ft., 12 similar control trees. Med. population, temp. 72, RH 46%, wind 10 mph. Final check in Dec./72; no control indicated.
- Trial 2. Aug. 14/72, soil drench, 0.05 oz/in. d.b.h., twig borer Proteoteras willingana Kft., on box elder, Stettler, Alta. 12 trees, av. d.b.h. 3 in., av. ht. 10 ft., 12 similar control trees. High population, temp. 74, RH 60%, wind 2-6 mph. 15-day check; results inconclusive, nil phytotoxicity.

GALECRON ® 50EC supplied by Green Cross

- Trial 1. July 28/72, mist blower, 1.0 oz/gal. water, I-V instar larch sawfly Pristiphora erichsonii Htg., on larch, Ellscott, Alta. 1/10 acre plot, 15 trees, av. d.b.h. 2 in., av. ht. 14 ft. Med. population, temp. 62, RH 82%, wind nil. 3-day check; 90% larval mortality, nil phytotoxicity.
- Trial 2. July 28/72, mist blower, 1.0 oz/gal. water, leaf beetle Pyrrhalta decora Say., on willow, Ellscott, Alta., large willow clump in larch sawfly spray plot. Med. population, temp. 62, RH 82%, wind nil. 2-hr. check; 75% larval mortality, nil phytotoxicity.
- Trial 3. Aug. 3/72, mist blower, 0.5 oz/gal. water, mites Eriophyes sp., on American elm, Calmar, Alta. 1 ornamental tree in churchyard, High population, temp. 58, RH 83%, wind nil. 5-day check; no appreciable change in mite population or galls.
- Trial 4. Aug. 16/72, mist blower, 1.0 oz/gal. water, twig borer Proteoteras willingana Kft., on box elder, Bashaw, Alta. 1/10 acre, 15 trees, av. d.b.h. 5 in., av. ht. 16 ft., 15 similar control trees. Med. population, temp. 71, RH 47%, wind 6-8 mph. 15-day check; results inconclusive, nil phytotoxicity.
- Trial 5. Sept. 14/72, mist blower, 0.5 oz/gal. water, aphids Periphyllus negundinis Thos., on Manitoba maple, Acheson, Alta. 1/10 acre, 15 trees, av. d.b.h. 4 in., av. ht. 16 ft. Med. population, temp. 61, RH 70%, wind 8-15 mph. 4-day check; 15% mortality, nil phytotoxicity.

KELTHANE (R) EC (dicofol) supplied by Rohm & Haas.

Trial 1. Aug. 16/72, mist blower, 0.8 oz/gal. water, twig borer
Proteoteras willingana Kft., on box elder, Bashaw, Alta.
1/10 acre, 15 trees, av. d.b.h. 5 in., av. ht. 16 ft.,
15 similar control trees. Med. population, temp. 71,
RH 51%, wind 6-8 mph. 15-day check; results inconclusive,
nil phytotoxicity.

K-840 supplied by Uniroyal

Trial 1. July 27/72, mist blower, 0.25 oz/gal. water, I-V instar larch
sawfly Pristiphora erichsonii Htg., on larch, Ellscott, Alta.
15 trees, av. d.b.h. 2 in., av. ht. 14 ft. Med. population,
temp. 73, RH 68%, wind nil. 8-day check; IV-V instar larvae
found alive on sprayed trees.

Trial 2. July 27/72, mist blower, 0.25 oz/gal. water, sawfly
Nematus limbatus Cress., on willow, Ellscott, Alta. 1 small
willow shrub in larch sawfly plot. Med. population, temp. 73,
RH 68%, wind nil. 8-day check; no living larvae found;
nil phytotoxicity.

Trial 3. Aug. 2/72, mist blower; 1.0 oz/gal. water, leaf miner
Lithocolletis sp., on t. aspen, Duffield, Alta. 12 trees, av.
d.b.h. 1 in., av. ht. 8 ft. High population, temp. 74, RH 52%,
wind 2-7 mph. 5-day check; 60% larval mortality, heavy
phytotoxicity.

Trial 4. Aug. 2/72, bark paint, 0.5 in. band/in. d.b.h., leaf miner
Lithocolletis sp., on t. aspen, Duffield, Alta. 12 trees, av.
d.b.h. 0.5 in., av. ht. 3 ft. High population, temp. 72, RH 54%,
wind 2-4 mph. 5-day check; 15% larval mortality, nil phytotoxicity.

MALATHION 50 EC (Cythion) supplied by Niagara

Trial 1. June 28/72, mist blower, 3.0 oz/gal. water, spruce sawfly
Pikonema alaskensis (Roh.), on w. spruce, Hay Lakes, Alta.
52 trees, av. d.b.h. 1.5 in., av. ht. 7 ft. Med. population,
temp. 75, RH 55%, wind 5-7 mph. 1-hr. check; 100% mortality,
nil phytotoxicity.

META SYSTOX-R (R) supplied by Chemagro

Trial 1. July 6/72, soil drench, 0.15 oz/in. d.b.h., root borer
saperda calcarata Say., on b. poplar, L. Wabamun, Alta.
12 trees, av. d.b.h. 1.5 in., av. ht. 10 ft., 12 similar control
trees. Med. population, temp. 68, RH 70%, wind 8-10 mph.
Final check in Dec./72; results inconclusive.

Trial 2. July 6/72, bark paint, 0.2 in. band/in. d.b.h., root borer
Saperda calcarata Say., on b. poplar, L. Wabamun, Alta. 12
trees, av. d.b.h. 1.0 in., av. ht. 8 ft., 12 similar control
trees. Med. population, temp. 68, RH 85%, wind 3-6 mph.
Final check in Dec./72; some mortality noted.

Trial 3. Aug. 6/72, mist blower, 0.4 oz/gal. water, leaf miner
Lithocolletis sp., on t. aspen, Duffield, Alta. 12 trees,
av. d.b.h. 1.0 in., av. ht. 8 ft., 12 similar control trees.
Med. population, temp. 70, RH 58%, wind 2-7 mph. 5-day check;
90% larval mortality, heavy phytotoxicity.

Trial 4. Aug. 6/72, bark paint, 0.2 in. band/in. d.b.h., leaf miner
Lithocolletis sp., on t. aspen, Duffield, Alta. 12 trees,
av. d.b.h. 0.5 in., av. ht. 3 ft., 12 similar control trees.
High population, temp. 70, RH 63%, wind 7-10 mph. 5-day check;
90% larval mortality, light phytotoxicity.

Trial 5. Aug. 14/72, soil drench, 0.15 oz/in. d.b.h., twig borer

Proteoteras willingana Kft., on box elder, Stettler, Alta.

12 trees, av. d.b.h. 3 in., av. ht., 7 ft., 12 similar control trees. High population, temp. 68, RH 56%, wind 2-4 mph.

15-day check; results inconclusive, nil phytotoxicity.

Trial 6. Aug. 17/72, mist blower, 0.8 oz/gal. water, twig borer

Proteoteras willingana Kft., on box elder, Duhamel, Alta.

8 trees, av. d.b.h. 5 in., av. ht. 14 ft., 8 similar control trees. Light population, temp. 75, RH 61%, wind nil. 15-day

check; results inconclusive, nil phytotoxicity.

Trial 7. Sept. 14/72, mist blower, 0.4 oz/gal. water, aphids

Periphyllus negundinis Thos., on Manitoba maple, Acheson, Alta.

1/10 acre, 15 trees, av. d.b.h. 4 in., av. ht. 16 ft.

Med. population, temp. 60, RH 71%, wind 8-10 m.p.h. 24-hr.

check; 90% mortality, nil phytotoxicity.

SEVIMOL 4 (carbaryl) supplied by Union Carbide.

Trial 1. Sept. 13/72, mist blower, 1.2 oz/gal. water, aphids

Periphyllus negundinis Thos., on Manitoba maple, Acheson,

Alta. 1/10 acre, 15 trees, av. d.b.h. 4 in., av. ht. 16 ft.

Med. population, temp. 50, RH 84%, wind 4-6 mph. 48-hr.

check; nil mortality to aphids, nil phytotoxicity.

SEVIN 50 WP (R) (carbaryl) supplied by Niagara

Trial 1. June 26/72, mist blower, 3.25 oz/gal. water, spruce sawfly

Pikonema alaskensis (Roh.), on w. spruce, Stettler, Alta.

44 trees, av. d.b.h. 3 in., av. ht. 12 ft. Med. population,

temp. 74, RH 60%, wind nil. 1-hr. check; 100% mortality, nil

phytotoxicity.

- Trial 2. July 25/72, mist blower, 3.25 oz/gal. water, III-V instar larch sawfly Pristiphora erichsonii Htg., on larch, Nojack, Alta. 12 trees, av. d.b.h. 2 in., av. ht. 10 ft. Light population, temp. 57, RH 82%, wind nil. 2-hr. check; 90% mortality, nil phytotoxicity.
- Trial 3. Aug. 1/72, mist blower, 3.25 oz/gal. water, sawfly Neodiprion pratti banksianae Roh., on lodgepole pine, Duffield, Alta. 15 trees, av. d.b.h. 3.5 in., av. ht. 21 ft. Light population, temp. 62, RH 78%, wind 4-6 mph. 1-hr. check; 100% mortality, nil phytotoxicity.
- Trial 4. Aug. 16/72, mist blower, 1.0 oz/gal. water, pear slug Caliroa cerasi (L.), on cotoneaster, Edmonton, Alta. Hedge 2 ft. high x 18 ft. long. High population, temp. 78, RH 65%, wind nil. 2-hr. check; 100% mortality, nil phytotoxicity.
- Trial 5. Aug. 12/72, mist blower, 1 oz/gal. water, pear slug Caliroa cerasi (L), on pin cherry, Edmonton, Alta. 2 ornamentals, av. d.b.h. 3 in., av. ht. 16 ft. High population, temp. 66, RH 49%, wind nil. 10-hr. check; 100% mortality, nil phytotoxicity.
- Trial 6. Aug. 18/72, mist blower, 1.0 oz/gal. water, lace bugs Corythuca pallipes Parsh., on alder, Seba Beach, Alta. Patch of alder 5 ft. x 8 ft., similar control patch. High population, temp. 72, RH 49%, wind nil. 6-hr. check; 100% mortality, nil phytotoxicity.

Trial 7. Aug. 28/72, mist blower, 0.25 oz/gal. water, pear slug
Caliroa cerasi (L.), on cotoneaster, Edmonton, Alta.
Hedge 60 ft. long. High population, temp. 76, RH 43%,
wind nil. 2-hr. check; 100% mortality, nil phytotoxicity.

Trial 8. Aug. 28/72, mist blower, 0.25 oz/gal. water, pear slug
Caliroa cerasi (L.), cotoneaster, Edmonton, Alta.
Scattered ornamentals (including mtn. ash and hawthorn).
High population, temp. 78, RH 40%, wind nil. 24-hr. check;
100% mortality, nil phytotoxicity.

SUPRACIDE 40EC supplied by Green Cross

Trial 1. Sept. 13/72, mist blower, 0.4 oz/gal. water, aphids
Periphyllus negundinis Thos., on Manitoba maple, Acheson,
Alta. 1/10 acre, 15 trees, av. d.b.h. 4 in., av. ht. 16 ft.
Med. population, temp. 53, RH 72%, wind 4 mph. 48-hr. check;
90% mortality, nil phytotoxicity.

TEMIK 10G (aldicarb) supplied by Union Carbide

Trial 1. Aug. 15/72, soil drench, 0.05 oz/in. d.b.h., twig borer
Proteoteras willingana Kft., on box elder, Erskine, Alta.
9 trees, av. d.b.h. 3 in., av. ht. 9 ft., 9 similar control
trees. Light population, temp. 75, RH 47%, wind 4-8 mph.
15-day check; results inconclusive, nil phytotoxicity.

THIODAN 4E (endosulfan) supplied by Niagara

Trial 1. July 18/72, mist blower, 0.4 oz/gal. water, I-V instar larch
sawfly Pristiphora erichsonii Htg., on larch, Chisholm Mills,
Alta. 1/10-acre plot, 45 trees, av. d.b.h. 3 in., av. ht.
15 ft. Light population, temp. 64, RH 72%, wind 5-7 mph.
24-hr. check; 75% mortality, nil phytotoxicity.

Trial 2. July 19/72, mist blower, 0.8 oz/gal. water, I-V instar larch sawfly Pristiphora erichsonii Htg., on larch, Chisholm Mills, Alta. 1/10-acre plot, 30 trees, av. d.b.h. 2 in., av. ht. 10 ft. Med. population, temp. 68, RH 47%, wind 5-10 mph. 48-hr. check; 40% mortality, 4-day check; no living larvae found.

Trial 3. Sept. 12/72, mist blower, 0.8 oz/gal. water, aphids Periphyllus negundinis Thos., on Manitoba maple, Acheson, Alta. 1/10 acre, 15 trees, av. d.b.h. 4 in., av. ht. 16 ft. Med. population, temp. 60, RH 59%, wind 4-6 mph. 48-hr. check; 70% mortality, no phytotoxicity.

ZECTRAN 2E (R) supplied by Dow

Trial 1. July 13/72, mist blower, 0.8 oz/gal. water, spruce sawfly Pikonema alaskensis Roh., on w. spruce, Calmar, Alta. 240 trees, av. d.b.h. 3 in., av. ht. 10 ft. Med. population, temp. 54, RH 64%, wind 5-7 mph. 48-hr. check; 100% mortality, nil phytotoxicity.

Trial 2. July 13/72, mist blower, 1.2 oz/gal. water, aphids, Eriosoma americanum Riley & mites, Eriophyes sp., on American elm, Calmar, Alta. 2 ornamentals in church yard. High population, temp. 54, RH 64%, wind 5-7 mph. 4-day check; 100% mortality to aphids, trace only mortality to mites.

Trial 3. July 13/72, mist blower, 0.8 oz/gal. water, I-V instar larch sawfly Pristiphora erichsonii Htg., on larch, Calmar, Alta. 6 ornamentals, av. d.b.h. 2 in., av. ht. 10 ft. Light population, temp. 54, RH 64%, wind 5-7 mph. 2-hr. check; 100% mortality, no phytotoxicity.

- Trial 4. July 13/72, mist blower, 1.2 oz/gal. water, aphids
Aphidae, on black currant, Calmar, Alta. 2 ornamental
shrubs in churchyard. High population, temp. 54, RH 64%,
wind 5-7 mph. 4-day check; 95% mortality, no phytotoxicity.
- Trial 5. Aug. 17/72, mist blower, 1.0 oz/gal. water, twig borer
Proteoteras willingana Kft., on box elder, Duhamel, Alta.
8 trees, av. d.b.h. 5 in., av. ht. 16 ft., 9 similar control
trees. Med. population, temp. 75, RH 61%, wind nil.
15-day check; results inconclusive, nil phytotoxicity.
- Trial 6. Sept. 12/72, mist blower, 0.6 oz/gal. water, aphids
Periphyllus negundinis Thos., on Manitoba maple, Acheson, Alta.
15 trees, av. d.b.h. 4 in., av. ht. 16 ft. Med. population,
temp. 60, RH 59%, wind 2-6 mph. 48-hr check; 40% mortality,
nil phytotoxicity.

ADDITIONAL SAMPLING TECHNIQUE

In November 1972, 100 samples were collected at Hays, Alberta, as a follow-up check of the Chemical Control Research Program being carried out on the poplar bud-gall mite Aceria parapopuli (Keifer) in the prairie provinces. These samples were analysed in the laboratory and the resulting data submitted to Dr. R. F. DeBoo (C.C.R.I.), Ottawa, Ontario.

The field trials conducted on root collar borers were completed in late fall. The root collars of balsam poplar from 8 plots of 12 trees each (3 soil drenches, 1 bark paint, 4 controls) were dissected and

examined. A wide variance in the results was obtained due to soil type, compaction and insecticide dosage. Results with Meta-Systox-R were inconclusive on 3 soil drench applications while the bark paint (2 applications) showed fair control. Results with Furadan 10G were inconclusive while the Furadan EC showed 100% mortality in the Saperda and Buprestid species. Extensive field trials on both soil drenches and spray applications were conducted for box elder twig borer on Manitoba maple. In each plot damage appraisal was based on examination of 36-inch branch tip samples removed at random from the cardinal points of each of five trees. This appraisal was conducted on both the spray and control plots immediately before the trials and 15 days later on the spray plots only. The spray treatments were to be directed against the newly-hatched caterpillars, and development was monitored at several locations from mid-July to mid-August. However, it soon became apparent that the larvae had already penetrated into the newly formed buds, so the optimum time for treatment was lost. Systemic soil drenches and foliar sprays were applied at eight trial plots. The results after the fifteen-day mortality appraisal were inconclusive.

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APPENDIX: LIST OF INSECTICIDES

<u>No.</u>	<u>INSECTICIDE</u>	<u>TYPE</u>	<u>FORMULATION</u>	<u>SOURCE</u>
1	Basudin	Organo-phosphorous	50% E.C.	Green Cross
2	Cygon® (dimethoate)	Organo-phosphorous	20% E.C	American Cyanamid
3	Furadan®	Carbamate	48% E.C.	Niagara Chemical
4	Furadan®	Carbamate	10% G.	Niagara Chemical
5	Galecron® (C8514)	Miscellaneous	50% E.C.	Green Cross
6	Kelthane® (dicofol)	Chlor. hydrocarbon	E.C.	Rohm & Haas
7	K. 840	Miscellaneous	48% E.C.	Uniroyal
8	Malathion	Organo-phosphorous	50% E.C.	Niagara Chemical
9	Meta-Systox-R®	Organo-phosphorous	20% E.C.	Chemagro
10	Sevimol 4	Carbaryl	40% E.C.	Union Carbide
11	Sevin®	Carbaryl	50% W.P.	Niagara Chemical
12	Supracide®	Organo-phosphorous	40% E.C.	Green Cross
13	Temik®	Carbamate	10% G.	Union Carbide
14	Thiodan® (endosulfan)	Chlor. hydrocarbon	40% E.C.	Niagara Chemical
15	Zectran®	Carbamate	20% E.C.	Dow Chemical

E.C. = Emusifiable Concentrate

G. = Granular