

UPON NEUTRALIZING THE ODOUR OF *NOMIUS PYGMAEUS* (DEJ.), THE STINK BEETLE (COLEOPTERA: CARABIDAE).

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During certain summers, and especially when the smoke of forest fires on Vancouver Island is driven by a west wind, any section of the City of Vancouver may be plagued with *Nomius pygmaeus* (Dej.), the stink beetle, which, for its size, is probably one of the most powerfully obnoxious creatures in the world. One individual, crushed or injured in a room, will render that room uninhabitable for two weeks, and the smell persists for months. In late August, 1951, a number of reports was received by the Department of Zoology, of these beetles occurring in homes; one such enquiry came from a physician who was attending a woman for a slight head wound and from her hair he removed a stink beetle; he felt that the stench could not possibly arise from such a slight wound and wondered if the beetle had been attracted by the wound. Another report, from North Vancouver, was of three beetles found on steps just outside a basement door over a period of two days; the beetles had not been injured in

any way but were rendering the basement most foul by their mere presence.

From various sources, three beetles were obtained uninjured and a number of chemicals, including activated charcoal, tested as possible deodorants. None was effective except those containing active chlorine such as sodium hypochlorite, ordinary household bleach and chloride of lime. A few drops of sodium hypochlorite on the cork of a test-tube will deodorize the smell of a beetle in the tube in ten minutes, leaving only a faint musty odour: further exposure renders the beetle as inoffensive as any ordinary pinned carabid.

For the treatment of rooms where beetles had been crushed, it was recommended that household bleach be used in an ordinary fly sprayer. For outside premises, dusting with fresh chloride of lime was recommended. The citizens reported that the treatment was successful and the stink of the beetle was neutralized almost completely in a short time.

PRELIMINARY ORCHARD TRIALS WITH SYSTEMIC INSECTICIDES¹

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At the Summerland laboratory work on systemic insecticides was commenced in 1950. Prestox 3 (30 per cent schradan³) was applied to Delicious apple trees as a "pink" spray at one quart per 100 imperial gallons against the European red mite, *Metatetranychus ulmi* (Koch). It compared

favourably with the standard recommendation of one pound of 15 per cent. parathion. Seasonal averages in terms of mites per leaf were Pestox 3, 0.6, and parathion, 0.2. The untreated trees carried 14.8 mites per leaf in late May and had to be sprayed. In August, Systox (32.1 per cent. diethyl S-ethylmercapto-ethyl thiophosphate)⁴ at one quarter-pint was applied to Delicious apple trees to control the two-spotted spider mite, *Tetranychus bimaculatus* Harvey. A comparison with 15 per cent. parathion, one pound is given in Table I.

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TABLE I

Effect of summer applications of acaricides against the two-spotted spider mite on apple; materials applied by a conventional hand-gun sprayer on August 27, 1950.

Acaricide	Amount per 100 gal.	Average number mites per leaf			
		Before spraying		After spraying	
		Aug. 27	Sept. 1	Sept. 9	
Systox, 32.1%	0.25 pt.	24.3	0.3	0.9	
parathion, 15%	1 lb.	23.6	0.2	0.9	
check	no treatment	13.0	10.6	4.8	

In 1951, formulations were changed; schradan and Systox were supplied as 45% and 50 per cent. liquid concentrates respectively. Both materials were applied as "pink" sprays to control the clover mite, *Bryobia praetiosa*

Koch, on Newtown apple trees. Schradan, at one quart, caused slight marginal leaf injury, but Systox, at one-quarter pint, caused no sign of phytotoxicity. Results from two orchards are summarized in Table II.

TABLE II

Effects of "pink" application of acaricides against the clover mite on apple; materials applied by conventional hand-gun sprayer in May, 1951.

Orchard No. 1

Acaricide	Amount per 100 gal.	Average number mites per leaf				
		May 25	June 8	June 21	July 4	Aug. 9
Systox, 50%	0.25 pt.	0.0	0.0	0.0	0.0	0.6
schradan, 45%	1 qt.	0.0	0.0	0.0	0.1	0.6
parathion, 15%	1 lb.	0.0	0.0	0.1	0.4	12.8
check	no treatment	0.6	0.6	3.4	8.4	(sprayed July 4)

Orchard No. 2

		May 23	June 6	July 16	Aug. 7
		Systox, 50%	0.25 pt.	0.0	0.1
parathion, 15%	1 lb.	0.0	0.1	0.5	4.0
Aramite, 15%	2 lb.	0.1	0.1	3.6	19.1

Another experiment was carried out to determine the effects of systemic insecticides applied as "pink" sprays against mites that overwinter as adult females. In the southern Okanagan in 1951, most of the mites had moved

from their winter quarters and had started to deposit eggs by the time apple flower buds were in the pink or balloon stage. For most effective results at this period, an acaricide should have either a long residual

action against active stages or an ovicidal action and, in addition, a high initial toxicity to the adult mites. Systox appeared to have the necessary requirements because it has long residual action. It was applied as a pink spray to Delicious apple trees infested with the yellow mite, *Eotetranychus flavus* (Ewing) (formerly called the Willamette mite, *Tetranychus willamettei* McG.). Aramite (15 per

cent. beta-chloroethyl-beta-(p-tertiary butylphenoxy)-alpha-methyl ethyl sulphite),⁶ the acaricide that is presently being recommended for control of the yellow mite in British Columbia orchards, was used at two pounds as a comparative material. The numbers of mite-injured leaves, recorded early in September, are summarized in Table III.

TABLE III

Effects of "pink" application of acaricides against the yellow mite on apple; materials applied by a conventional hand-gun sprayer in May, 1950.

Acaricide	Amount per 100 gal.	Percentage leaves injured in Sept.
Systox, 50%	0.25 pt.	0
Aramite, 15%	2 lb.	14
check	no treatment	92

Although aphid colonies were not counted, there was an obvious difference in the numbers of colonies on the two plots. On August 1, all plots except the one sprayed with Systox were heavily infested with both the woolly apple aphid, *Eriosoma lanigerum* (Hausm.), and the green apple aphid, *Aphis pomi* Deg. On the Systox plot there were no woolly apple aphids and only a few green apple aphids.

Systox Residues

Systox was applied to McIntosh and Newtown apple trees as a "pink" spray by an automatic concentrate sprayer at one quart per acre. At harvest, samples from both varieties were sent to Geary Chemical Co., New York, for chemical analysis. The McIntosh apples contained 1.8 parts of pure Systox per million and the Newtown apples less than 0.2 parts per million.

Conclusions

1. A 30 per cent schradan emulsible concentrate applied at the pink stage

of apple bud development, at one quart per 100 gallons, was approximately equal in effectiveness to one pound of 15 per cent. parathion wettable powder against the European red mite.

2. As a "pink" spray, 45 per cent. schradan at one quart was superior to one pound of 15 per cent. parathion against the clover mite, but caused slight marginal injury to Newtown apple foliage.

3. Against the two-spotted spider mite, Systox (32.1 per cent.) at 0.25 pints per 100 gallons was equal in effectiveness to 15 per cent. parathion at one pound.

4. As a "pink" spray, Systox (50 per cent.) at 0.25 pints was more effective against the clover mite than 15 per cent. parathion at one pound.

5. As a "pink" spray against the yellow mite, Systox (50 per cent.) at 0.25 pints gave excellent control throughout the season and, in addition, controlled the woolly apple aphid and the green apple aphid.