INSECTICIDE TESTS ON POTATO

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MATERIALS AND METHODS:
Efficacies of 6 insecticides against Colorado Potato Beetle were evaluated on potatoes. All tests were in a field of "Russet Burbank" potatoes at Prosser, WA. Planting date was 12 April and standard planting, fertility, irrigation and weed control practices were followed. Plants were spaced 6" apart with 34" between rows. Plots were 4 rows wide by 20' long (0.005 acre) and treatments arranged in a randomized complete block design with 4 replications. Chemicals were applied with an R&D, CO_2 pressurized, backpack sprayer equipped with a hand-held, 4 nozzle boom at 25 gallons/acre, 30 psi. Spray water pH was 7.60. Control was evaluated by counting live larval and adult beetles on each of 10 randomly selected plants from the center 2 rows of a plot on designated days post-application. Data were analyzed using Duncan's multiple range test.

RESULTS - ADULT BEETLES:
Adult beetles counted per plant was always low, usually <<1. In no case was the number of adults between treatments or between treatment and check statistically different.

RESULTS - LARVAL BEETLES:
Capture 2EC, Pounce 3.2EC, Pydrin 2.4EC and RH-5849 2F: Treatments were applied 31 May and control evaluated 2,7,14,21, and 27 June. Capture, Pounce, and Pydrin reduced beetle numbers to near 0 by 2 June and maintained control through 27 June. Level of control among these 3 materials did not differ statistically. RH-5849, a slow-acting material, achieved a significant reduction in beetle numbers, relative to the check, by 7 June but did not achieve a level of control comparable to the other 3 materials until 27 June (Table 1A).

Scout 0.3EC and Pydrin 2.4EC: Treatments were applied 8 June and control evaluated 10,13,20 and 27 June. Scout and Pydrin achieved near 100% control by 10 June and maintained it through 27 June (Table 1B).

ABG-6263 WP and Pydrin 2.4EC: Insecticides were applied 10 June and ABG plots re-treated 18 June. Control was evaluated 13,17,20, and 27 June and 5 July. Statistically significant reductions in the number of beetle larvae were achieved by all rates of ABG, except the low rate for 1st and 2nd instars, by 17 June (Tables 1C, 1D). Since ABG, is a *Bacillus* formulation, some lag time with regard to insect kill is expected compared to a chemical insecticide. Re-treatment with ABG brought control of 1st and 2nd instar larvae to a level comparable to that of Pydrin and maintained reduced numbers of 3rd and 4th instars. Amount of defoliation was substantially reduced in all treated plots (maximum of 34% on 27 June with ABG at 1 lb/acre) compared to the check (95% on 27 June).

RESULTS - PHYTOTOXICITY:
No phytotoxic effects were observed with any insecticide.

Tables 1A,B,C,D. Effects on Colorado Potato Beetle (CPB) larvae of insecticide applications to 0.005 acre plots of "Russet Burbank" potatoes, Prosser, WA. 1988. Means within a column followed by different letters are significantly different ($p < .05$, Duncan's multiple range test).

Table 1A (5/31)* Treatment	lb AI/ acre	mean # CPB larvae per plant on sampling date: 2 June	7 June	14 June	21 June	27 June
Capture 2EC	**	0.0 a	0.0 a	0.0 a	0.0 a	0.0 a
Pounce 3.2EC	0.1	0.0 a	0.0 a	0.05a	0.0 a	0.0 a
Pydrin 2.4EC	0.025	0.3 a	0.2 a	0.0 a	0.03a	0.03a
Pydrin 2.4EC + Butacide	0.025 + 0.25	0.0 a	0.03a	0.0 a	0.03a	0.0 a
Pydrin 2.4EC	0.1	0.0 a	0.0 a	0.03a	0.0 a	0.03a
RH-5849 2F + Triton B-1956	0.2 + 0.03%	2.6 b	2.6 b	1.4 b	2.1 b	0.2 a
RH-5849 2F + Triton B-1956	0.3 + 0.03%	3.0 b	2.0 b	1.2 b	2.5 b	0.3 a
Check	--	3.0 b	6.3 c	8.0 c	7.4 c	3.5 b

Table 1B (6/8)* Treatment	lb AI/ acre	mean # CPB larvae per plant on sampling date: 10 June	13 June	20 June	27 June
Scout 0.3EC	0.015	0.03a	0.0 a	0.0 a	0.1 a
Scout 0.3EC	0.019	0.0 a	0.0 a	0.0 a	0.0 a
Pydrin 2.4EC	0.1	0.0 a	0.0 a	0.0 a	0.03a
Check	--	6.3 b	8.0 b	7.4 b	3.5 b

Table 1C (6/10)* Treatment	Rate/ acre	mean # CPB 1 & 2 instar/plant on sampling date: 13 June	17 June$	20 June	27 June	5 July
ABG-6263 WP+ Bond	1 lb + 125 ml	3.0 abc	2.3 ab	0.6 a	0.5 ab	0.0 a
ABG-6263 WP + Bond	2 lb + 125 ml	3.4 ab	1.4 bc	0.6 a	0.0 b	0.0 a
ABG-6263 WP + Bond	3 lb + 125 ml	1.9 bc	1.5 bc	0.6 a	0.03b	0.0 a
Pydrin 2.4EC	5.33 oz	0.0 c	0.0 c	0.0 a	0.0 b	0.0 a
Check	--	4.9 a	3.9 a	2.0 b	1.1 a	0.5 a

Table 1D (6/10)* Treatment	Rate/ acre	mean # CPB 3 & 4 instar/plant on sampling date: 13 June	17 June$	20 June	27 June	5 July
ABG-6263 WP + Bond	1 lb + 125 ml	3.4 a	6.6 b	2.9 a	0.7 a	0.1 a
ABG-6263 WP + Bond	2 lb + 125 ml	2.1 a	4.8 b	3.3 a	1.0 a	0.5 a
ABG-6263 WP + Bond	3 lb + 125 ml	2.3 a	3.8 b	1.2 b	1.0 a	0.7 ab
Pydrin 2.4EC	5.33 oz	0.0 b	0.0 c	0.0 c	0.03b	0.0 a
Check	--	3.6 a	10.7 a	5.4 d	2.4 c	1.1 b

* Date of treatment application. ** All 3 rates of Capture 2EC (.02, .04, .06 lb AI/acre) gave 100% kill of CPB larvae. $ ABG plots re-treated on 18 June.