

Section II

Foliage & Seed Feeding & Mining Insects

CAPTURE FOR CONTROL OF INSECT PESTS OF POTATO

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This study was designed to evaluate Capture 2EC (FMC) for control of Colorado potato beetle (CPB) (Leptinotarsa decemlineata), green peach aphid (GPA) (Myzus persica) and twospotted spider mite (Tetranychus urticae) when applied to potato (Solanum tuberosum).

Plots were established in a field of 'Russet Burbank' potatoes planted 24 May near Prosser, WA. Standard planting, fertility and weed control practices were followed. Plant spacing was 6 inches with 34 inches between rows. Plot size was 4 rows by 20 feet (0.005 acre) and arranged in a randomized complete block design with 4 replications. Insecticides were applied 20 August at 11 am. Temperature was 23° C., relative humidity 68%, solar radiation 49 langleys, and winds less than 1 mph. Insecticides were applied with a R&D CO₂ pressurized sprayer at a rate of 26 gallons of water per acre using a hand-held boom with 4 (LF3) nozzles.

Evaluations were made on 23, 27, and 3 September by recording the number of Colorado potato beetle larvae and adults on 10 plants in the center, the number of green peach aphids on 5 leaves from 5 plants and the number of twospotted spider mites on 5 leaflets from 5 plants in the center 2 rows in each plot.

Results:

No phytotoxicity was observed.

Capture (0.06 lb(AI)/acre. There were significantly fewer Colorado potato beetles, green peach aphids and twospotted spider mites in the plots treated with Capture at 3 and 7 days after application as compared to the untreated check (Table 1). Fourteen days after application there were significantly fewer Colorado potato beetle larva as compared to the untreated check. Neither green peach aphids nor mites varied significantly from the untreated check at 14 days.

Capture (0.08 lb(AI)/acre. There were significantly fewer Colorado potato beetles, green peach aphids and twospotted spider mites in the plots treated with Capture at 3 and 7 days after application as compared to the untreated check (Table 1). Fourteen days after application only numbers of Colorado potato beetles differed significantly between this treatment and the untreated check. Green peach aphid and twospotted spider mite numbers were reduced but not significantly different.

Table 1. Effect of insecticides applied to 0.005 acre plots of 'Russet Burbank' potatoes on 20 August on Colorado potato beetles (CPB), green peach aphids (GPA), and twospotted spider mites (TSM). Prosser, WA. 1991.

| Treatment | lb(AI)/a | Mean No. CPB/10 plants | | | | | |
|-----------------|----------|------------------------|--------|--------|--------|--------|--------|
| | | 23 Aug | | 27 Aug | | 3 Sept | |
| | | larvae | adults | larvae | adults | larvae | adults |
| Capture 2EC | 0.06 | 0a | 0a | 0a | 0.8a | 0.5a | 3.4a |
| Capture 2EC | 0.08 | 0a | 0a | 0a | 1.3a | 0.5a | 3.8a |
| Untreated check | -- | 57b | 9.5b | 96b | 22b | 6.0b | 10.5a |

Means within a column followed by the same letter are not significantly different at the $P = 0.05$ level, Newman-Keuls studentized range test.

| Treatment | lb(AI)/a | Mean No. GPA/leaf and percent reduction from check | | | | | |
|-----------------|----------|--|-------|--------|-------|--------|-------|
| | | 23 Aug | | 27 Aug | | 3 Sept | |
| | | # | % red | # | % red | # | % red |
| Capture 2EC | 0.06 | 0a | 100 | 0a | 100 | 0.4a | 0 |
| Capture 2EC | 0.08 | 0a | 100 | 0.1a | 97 | 0.05a | 83 |
| Untreated check | -- | 6.4b | -- | 3.4b | -- | 0.3a | -- |

Means within a column followed by the same letter are not significantly different at the $P = 0.05$ level, Newman-Keuls studentized range test.

| Treatment | lb(AI)/a | Mean No. TSM/leaflet and percent reduction from check | | | | | |
|-----------------|----------|---|-------|--------|-------|--------|-------|
| | | 23 Aug | | 27 Aug | | 3 Sept | |
| | | # | % red | # | % red | # | % red |
| Capture 2EC | 0.06 | 0a | 100 | 3a | 86 | 26a | 28 |
| Capture 2EC | 0.08 | 0a | 100 | 2a | 90 | 12a | 67 |
| Untreated check | -- | 16.1 | -- | 21b | -- | 36a | -- |

Means within a column followed by the same letter are not significantly different at the $P = 0.05$ level, Newman-Keuls studentized range test.