

POTATO (RUSSET): *Solanum tuberosum* L., ‘Ranger Russet’**Lygus Control in Potato, 2016\***Silvia I. Rondon<sup>1,2</sup> and Daniel I. Thompson<sup>1</sup>

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*Lygus* spp.Potato | *Solanum tuberosum*

Lygus bug | Miridae spp.

The objective of this study was to evaluate the efficacy of registered insecticides for control of lygus bugs in the Columbia Basin. ‘Ranger Russet’ potatoes were planted into single rows on 32-inch centers with 9-inch plant spacing on 20 Apr 2016. Plots were 4 rows wide and 25-ft long (7.6 m) with a 5 ft (1.5 m) buffer between plots. The potato crop was established by withholding water until emergence and then irrigating with 1-inch (2.5 cm) overhead irrigation using a standard center-pivot irrigation system to replicate commercial growing practices in the region. Each treatment was replicated four times, and plots were arranged in an RCB. Foliar treatments were applied using a CO<sub>2</sub> powered boom sprayer with TeeJet AI8002 nozzles at 40 psi, and 30 gpa (280.6 l/h). Dyne-Amic (Helena Chemical Co.) was applied at 0.25% vol/vol to all treatments. Lygus populations were sampled using an inverted 25.4 cc low noise handled leaf blower (Echo 165 MPH 391 CFM). Twelve plants were sampled. On each sampling date, samples were taken from the center rows and placed into a fine mesh bag secured at the end of the device with a thick rubber band. Samples were transferred into a one gallon resealable plastic bag and placed at 8 °F for 48 h to kill insects before sorting. Lygus populations were assessed by estimating the number of lygus per plot by week; lygus adults and immatures were counted separately. Lygus data were log transformed (mean + 1) and were arcsine transformed prior to the ANOVA and

*F*-protected LSD ( $P \leq 0.05$ ) to distinguish treatment mean differences.

There was moderate lygus pressure during the trial. As the population began to rise in mid-Jun, the first application was made. A day before the beginning of the trial, prespray estimates for *Lygus* spp. in all plots combined were  $15.2 \pm 2.3$  and  $11.2 \pm 1.5$  lygus adults and nymphs per plant, respectively. There is no preestablished threshold for *Lygus* spp. in the Columbia Basin. In general, Lygus nymph counts increased steadily in the untreated plots. By 8 DAT, some significant differences were observed (Table 1); nymph counts were lower compared with the check in all plot treatments except Sevin XLR; however, all counts increased at 15, 22, 29, and 35 DAT. Nymph counts in the Vydate Cl-V and Permethrin plots were significantly lower compared to the check. Similarly, lygus adult counts increased steadily in the control plots. Adult counts were significantly lower in Permethrin and Asana treatments compared to Sevin XLR. By 35 DAT, all treatments except Sevin XLR showed a significantly lower population of lygus adults compared to the check.

These results suggest a short-term effect of pesticides at reducing either lygus nymphs or adults. Vydate Cl-V and Permethrin kept immatures and adults at lower levels while Beleaf and Asana XL kept only adults at low levels at 35 DAT. No phytotoxicity symptoms were observed following any of the insecticide treatments.

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Table 1

Treatment/formulation	Rate form/acre	Immature <i>Lygus</i> spp./plant					
		1 DAT 17-Jun	8 DAT 24-Jun	15 DAT 29-Jun	22 DAT 6-Jul	29 DAT 13-Jul	35 DAT 20-Jul
UTC	–	9.0	4.3 a	35.8 a	32.0 ab	75.8 a	41.0 a
Vydate CI-V	24 fl oz	0.5	0.3 c	4.0 b	13.3 b	19.5 c	17.0 b
Permethrin-L	8 fl oz	1.5	0.8 bc	10.8 b	16.8 b	32.0 bc	19.3 b
Beleaf-L	2.8 oz	0.8	1 bc	19.5 ab	35.8 ab	43.0 b	34.5 a
Asana XL	9.6 fl oz	1.8	1.3 bc	16.0 b	31.0 ab	46.5 b	29.8 ab
Sevin XLR	32 fl oz	6	2.8 ab	35.3 a	77.5 a	74.3 a	44.0 a
	<i>F</i> value	2.49	7.97	7.18	4.81	15.74	7.381
	<i>Pr&gt;F</i>	0.078	0.0008	0.001	0.0080	0.0001	0.0011

Means in a column followed by the same letter are not significantly different ( $P > 0.05$ , *F*-protected LSD).

Table 2

Treatment/formulation	Rate/acre	Adult <i>Lygus</i> spp./plant					
		1 DAT 17-Jun	8 DAT 24-Jun	15 DAT 29-Jun	22 DAT 6-Jul	29 DAT 13-Jul	35 DAT 20-Jul
UTC	–	14.8 a	1.8	4.5	8.8	23.3 ab	45.5 a
Vydate CI-V	24 fl oz	4.5 c	2.5	4.3	9.8	18.8 ab	21 c
Permethrin	8 fl oz	4.3 c	2.3	4.3	8.3	13.8 b	22.8 c
Beleaf	2.8 oz	7.8 bc	4.0	5	9.8	15.5 ab	28.5 bc
Asana XL	9.6 fl oz	3.5 c	4.8	3.3	10.5	12.8 b	22.3 c
Sevin XLR	32 fl oz	11.0 ab	2.8	5.5	11.25	26.5 a	42 ab
	<i>F</i> value	12.31	1.87	0.40	0.38	4.198	10.106
	<i>Pr&gt;F</i>	0.0001	0.16	0.84	0.85	0.0138	0.0002

Means in a column followed by the same letter are not significantly different ( $P > 0.05$ , *F*-protected LSD).