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CORN: *Zea mays* L. 'Pioneer P0157R'

EVALUATION OF FOLIAR APPLIED INSECTICIDES FOR CONTROL OF ADULT CORN ROOTWORM IN CORN, 2015B

Terry A. DeVries

South Central Agricultural Laboratory

University of Nebraska-Lincoln

202 W. Fairfield St., P.O. Box 66

Clay Center, NE 68933

Phone: (402) 762-3536

Fax: (402) 762-3017

Email: tdevries1@unl.edu

Robert J. Wright

Department of Entomology

University of Nebraska-Lincoln

213 Entomology Hall

Lincoln NE 68583-0816

Email: rwright2@unl.edu

Western corn rootworm (WCR): *Diabrotica virgifera virgifera* LeConte

Southern corn rootworm (SCR): *Diabrotica undecimpunctata howardi* Barber

The efficacy of foliar applied insecticides was evaluated against adult corn rootworm (CRW) populations in field corn near Clay Center, NE during 2015. Adult CRW populations consisted of > 95% WCR and < 5% SCR. Experimental design was a RCB with four replicates. Plot size was 8 rows x 30 ft length with 30-inch row spacing. 'Pioneer P0157R' corn hybrid was planted on 10 Jun with a 4-row JD 7300 Maximerge vacuum planter. Target seeding rate was 30,700 seeds per acre. Initial CRW egg hatch was confirmed on Jun 08. Adult CRW emergence was first witnessed on Jul 10. Pre-treatment adult CRW counts were recorded on ten primary corn ears per plot immediately prior to treatment applications on Aug 05. Foliar applied insecticide treatments were broadcast over the plant canopy in a 15 GPA water solution via 20-inch nozzle spacing @ 30 psi on Aug 05. Plant growth stage was R1. The total number of adult CRW was recorded on ten primary corn ears per plot 1DAT (Aug 06), 5DAT (Aug 10), and 7DAT (Aug 12). Plots were machine harvested on Oct 27. Percent moisture and lbs of grain were recorded and corrected to 56 lbs/bu @ 15.5% moisture to evaluate yield levels. Data were analyzed by PROC MIXED with mean separation using differences of least square means (P = 0.05).
Adult CRW populations were moderate to high throughout the duration of the trial. All treatments significantly reduced adult CRW populations 1DAT compared to the untreated check. Furthermore, Brigade 2EC and Warrior II 2.08CS treatments also significantly reduced adult CRW populations 5DAT compared to the untreated check. Grain yield levels were not significantly influenced by the application of a foliar insecticide against adult CRW. This research was supported by industry gifts of pesticide and research funding.

Treatment[a]/ Formulation	Rate-amt form/acre	Yield[c]	Avg. No. of Adult CRW/Primary Ear			
			Pre-Treatment[c]	1DAT[b]	5DAT[b]	7DAT[b]
Brigade 2EC	5 fl oz	223.9	0.93	0.03 a	0.43 a	1.80 ab
Warrior II 2.08CS	1.92 fl oz	213.3	0.85	0.00 a	0.30 a	0.90 a
Asana XL	9 fl oz	209.6	0.85	0.00 a	4.13 b	2.65 b
Asana XL	6 fl oz	202.7	0.85	0.10 a	4.18 b	4.05 c
Untreated Check	---	215.3	0.85	1.43 b	4.38 b	3.83 c
	P	0.3900	0.9903	<0.0001	<0.0001	0.0003

[a]Treatments were broadcast over the plant canopy in a 15 GPA water solution via 20-inch nozzle spacing @ 30 psi.

[b]Means in column followed by the same lower case letter are not statistically different using the differences of least square means (MIXED; p|t|>0.05).

[c]Means in column are not statistically different using the differences of least square means (MIXED; p|t|>0.05).

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Brand	Formulation	Common Name	Composition	Manufacturer
Brigade	2 EC	bifenthrin	2-methylbiphenyl-3-ylmethyl (1*RS*,3*RS*)-3-[(*Z*)-2-chloro-3,3,3-trifluoroprop-1-enyl]-2,2-dimethylcyclopropanecarboxylate	FMC Corporation 1735 Market Street Philadelphia, PA 19103
Warrior II with Zeon Technology	2.08 CS	lambda-cyhalothrin	reaction product comprising equal quantities of (*R*)-α-cyano-3-phenoxybenzyl (1*S*,3*S*)-3-[(*Z*)-2-chloro-3,3,3-trifluoropropenyl]-2,2-dimethylcyclopropanecarboxylate and (*S*)-α-cyano-3-phenoxybenzyl (1*R*,3*R*)-3-[(*Z*)-2-chloro-3,3,3-trifluoropropenyl]-2,2-dimethylcyclopropanecarboxylate	Syngenta Crop Protection, LLC P.O. Box 18300 Greensboro, North Carolina 27419-8300
Asana	XL	esfenvalerate	(α*S*)-α-cyano-3-phenoxybenzyl (2*S*)-2-(4-chlorophenyl)-3-methylbutyrate	Valent U.S.A. Corporation P.O. Box 8025 Walnut Creek CA 94596-8025