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CORN: *Zea mays* L. 'Golden Harvest G14H66-GTA'

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

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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 4 rows x 30 ft length with 30-inch row spacing. 'Golden Harvest G14H66-GTA' corn hybrid was planted on May 28 with a 4-row JD 7300 Maximerge vacuum planter. Target seeding rate was 32,100 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 on Jul 31. 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 03. Plant growth stage was R1. The total number of adult CRW was recorded on ten primary corn ears per plot 3DAT (Aug 06), 7DAT (Aug 10), and 14DAT (Aug 17). Phytotoxicity was not observed in any of the treatments 3DAT or 7DAT. 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 3DAT and 14DAT 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]	3DAT[b]	7DAT[c]	14DAT[b]
Endigo ZCX 2.71 ZC	4.5 fl oz	235.1	1.65	2.00 b	1.70	0.75 ab
Endigo 2.06 ZC	4.5 fl oz	240.0	1.70	1.90 ab	2.20	0.60 a
Quindigo 3.15 ZE	14 fl oz	251.1	1.25	0.85 a	2.23	1.23 b
Cobalt Advanced 2.63 EC	32 fl oz	245.2	1.73	1.83 ab	1.85	0.93 ab
Warrior II 2.09 CS	1.92 fl oz	247.6	1.78	1.93 ab	2.03	0.80 ab
A21120	11.6 fl oz	245.1	1.23	2.33 b	2.20	0.75 ab
Untreated Check	---	236.8	1.55	4.45 c	2.23	1.90 c
	P	0.1523	0.9259	0.0002	0.8251	0.0050

[a]Treatments were broadcast over the plant canopy in a 15 GPA water solution via 20-inch nozzle spacing @ 30 psi. All treatments received 1% v/v crop oil concentrate (except Cobalt Advanced 2.63 EC).

[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
Endigo	2.06 ZC	lambda-cyhalothrin AND thiamethoxam	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 AND (*EZ*)-3-(2-chloro-1,3-thiazol-5-ylmethyl)-5-methyl-1,3,5-oxadiazinan-4-ylidene(nitro)amine	Syngenta Crop Protection, LLC P.O. Box 18300 Greensboro, North Carolina 27419-8300
Endigo ZCX	2.71 ZC	unknown	unknown	Syngenta Crop Protection, LLC P.O. Box 18300 Greensboro, North Carolina 27419-8300
Quindigo	3.15 ZE	unknown	unknown	Syngenta Crop Protection, LLC P.O. Box 18300 Greensboro, North Carolina 27419-8300
A21120	unknown	unknown	unknown	Syngenta Crop Protection, LLC P.O. Box 18300 Greensboro, North Carolina 27419-8300

Warrior II with Zeon Technology	2.09 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
Cobalt Advanced	2.63 EC	lambda-cyhalothrin AND chlorpyrifos	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 AND *O,O*-diethyl *O*-3,5,6-trichloro-2-pyridyl phosphorothioate	Dow AgroSciences LLC 9330 Zionsville Road Indianapolis, IN 46268