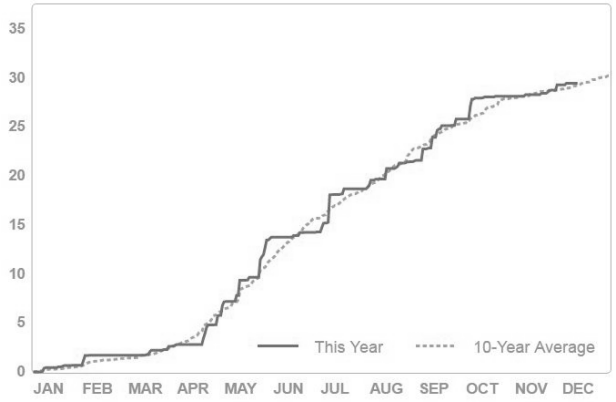
Prevathon® and Steward® Insecticide Treatments for Soybean Stem Borer

Study ID: 026185201601
County: York
Soil Type: Hastings silt loam 0-1% slope; Hastings silt loam 1-3% slope
Planting Date: 5/16/16
Harvest Date: 9/29/16
Population: 140,000
Row Spacing (in): 30
Hybrid: Pioneer P31T11
Reps: 3
Previous Crop: Seed Corn
Tillage: Ridge-Till
Herbicides: ***Pre:*** Burndown: 22 oz/ac Roundup PowerMAX®, 6 oz/ac 2,4-D LV6, and 0.5 oz/ac Aim® on 4/25/16; Planting: 4 oz/ac Authority® First and 1 pt/ac Dual II® on 5/16/16 ***Post:*** 40 oz/ac Roundup PowerMAX and 10 oz/ac Cobra® on 6/16/16
Seed Treatment: PPST 120, Trilex, and Allegiance

Foliar Insecticides: None
Foliar Fungicides: None
Fertilizer: None
Irrigation: Pivot
Rainfall (in):



Introduction: The objective of this study was to look at the impact of DuPont™ Prevathon® insecticide and DuPont™ Steward® insecticide on soybeans for control of stem borer. Product information is listed below. There were three treatments: (1) Prevathon applied at a rate of 20 fl oz/acre, (2) Prevathon at a rate of 14 fl oz/acre and Steward at a rate of 6 fl oz/acre, and (3) an untreated check. The treatments were applied on June 27; the timing was 7-10 days after the accumulation of 1250 GDD. Using heat units to direct application timing, rather than applying based on growth stage, allowed applications to coincide with the time period with maximize effectiveness – when adult beetles are present but egg laying has not yet begun.

DuPont™ Prevathon®

Active Ingredient RynaXypyr®

Contains 0.43 lb. active ingredient per gallon.

Active Ingredient	*By Weight*
Chlorantraniliprole 3-Bromo-N-[4-chloro-2-methyl-6-[(methylamino)carbonyl]phenyl]-1-(3-chloro-2-pyridinyl)-1H-pyrazole-5-carboxamide	5%
Other Ingredients	95%
TOTAL	100%

Product information from: *http://www.dupont.com/products-and-services/crop-protection/corn-protection/products/prevathon.html*

DuPont™ Steward® EC

Emulsifiable Concentrate

Contains 1.25 lbs. Active Ingredient per gallon.

Active Ingredient	*By Weight*
Indoxacarb (S)-methyl 7-chloro-2,5-dihydro-2-[[(methoxycarbonyl)[4-(trifluoromethoxy)phenyl]amino]carbonyl]indeno[1,2-e][1,3,4]oxadiazine-4a(3H)-carboxylate	15.84%
Other Ingredients	84.16%
TOTAL	100%

Product information from: *http://www.dupont.com/products-and-services/crop-protection/soybean-protection/products/steward-ec.html*

The south half of the field received a later application of Prevathon (14 fl oz/acre), Steward (6 fl oz/acre), and DuPont™ Approach® fungicide (6 fl oz/acre) on July 25, 2016. This application crossed all three main treatments in the study. For this reason, yield, moisture, and Dectes stem borer infestation were analyzed separately for the north and south half of the field.

Stem borer infestation observations *(Figure 1)* were made by splitting stems 90 days after treatment (DAT) and are reported below.

Figure 1. Dectes stem borer in split soybean stem.

Results:

South half of field (additional later application of Prevathon, Steward, and Approach on July 25, 2016 across all treatments listed in table):

	Yield (bu/acre)†	Moisture (%)	Dectes Stem Borer Infestation % (90 DAT)	Marginal Net Return‡ ($/ac)
Check	74 A	13.3 A	13 A	684.50
Prevathon	75 A	13.2 A	5 B	657.24
Prevathon + Steward	74 A*	13.0 A	3 B	642.37
P-Value	0.8567	0.6894	0.0006	N/A

†Bushels per acre corrected to 13% moisture.
*Values with the same letter are not significantly different at a 90% confidence level.
‡Marginal net return based on $9.25/bu soybeans, $1.48/oz Prevathon, $2.42/oz Steward, and $6.82 application cost.

North half of field (no additional later application):

	Yield (bu/acre)†	Moisture (%)	Dectes Stem Borer Infestation % (90 DAT)	Marginal Net Return‡ ($/ac)
Check	71 A	12.4 A	31 A	656.75
Prevathon	71 A	12.8 A	12 B	620.24
Prevathon + Steward	71 A*	12.5 A	12 B	614.62
P-Value	0.8529	0.209	0.0353	N/A

†Bushels per acre corrected to 13% moisture.
*Values with the same letter are not significantly different at a 90% confidence level.
‡Marginal net return based on $9.25/bu soybeans, $1.48/oz Prevathon, $2.42/oz Steward, and $6.82 application cost.

Summary: South half (with additional later application of Prevathon, Steward, and Approach across all treatments): There were no yield or moisture differences, however Dectes stem borer infestation was reduced in the Prevathon and Prevathon + Steward treatments.

North half (no late application): There were no yield or moisture differences, however Dectes stem borer infestation was reduced in the Prevathon and Prevathon + Steward treatments.

These results indicate that the treatments are effectively reducing infestation numbers, however there were no significant differences in yield for either of the locations within the field. No conclusions can be drawn about the effectiveness of the later application of Steward, Prevathon, and Approach because this application was not replicated or randomized.

Sponsored by: University of Nebraska Lincoln; Nebraska Corn Board

In Partnership with: Nebraska Soybean Checkoff; Nebraska Corn Growers Association; Nebraska Dry Bean Commission