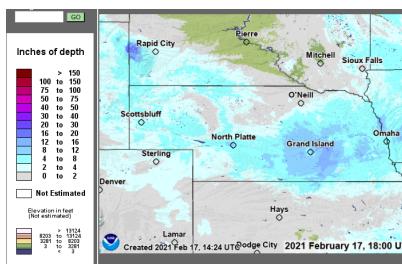


It should come as no surprise that the country has been thrust into a significant cold spell. Mid-February brought significant snow fall and temperatures well below zero. The silver lining — according to many — is this may reduce overwintering populations of insects for 2021, right?



Images courtesy of Netweather and the National Weather Service.

Research conducted in 1993 in South Dakota and Iowa confirms prolonged cold temperatures can increase the mortality of eggs in the soil profile. The figure below shows after 18-26 days at 25 F, we can expect to see around 24% less corn rootworms. However, according to Rutgers University, 9 inches of snow can effectively keep soil 42 degrees above the air temperature.

Low Temperature Effects on Hatch of Western Corn Rootworm Eggs  
(Woodson et al. 1993)

| Location            | 30.2°F        | 28.4°F        | 26.6°F        | 24.8°F        |
|---------------------|---------------|---------------|---------------|---------------|
| Sioux Falls, SD     | 61 d<br>(11%) | 47 d<br>(19%) | 39 d<br>(25%) | 26 d<br>(26%) |
| Correctionville, IA | 60 d<br>(11%) | 44 d<br>(18%) | 31 d<br>(21%) | 18 d<br>(22%) |

## 2021: WHAT REGIONS ARE MOST AT RISK

Using 2020 Corn Rootworm Beetle Counts to Assess the Risk of Economic Injury in 2021.

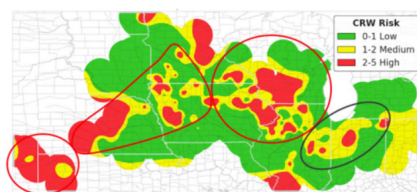


Figure 4b. Estimated corn rootworm risk in 2021 using interpolated 2020 corn rootworm counts from corn fields sampled (based on 1123 fields).

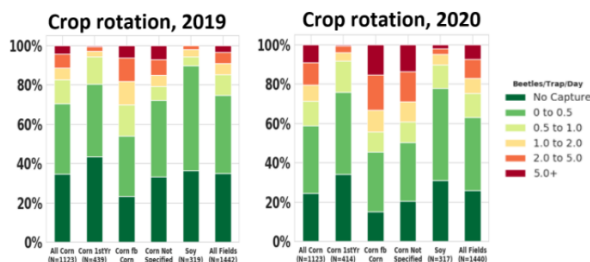


Figure 1.

Figure 2.

Trap and rotation data obtained from AgriGold and Bayer Crop Science, 2020 Corn Rootworm Trap Count Data Research Report

February 2021

## INSIDE THIS ISSUE

*Cold weather vs. rootworms?*

*Which will win?*

**Ethos<sup>®</sup> XB insecticide/fungicide and Steward<sup>®</sup> EC insecticide**

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With snow cover effectively insulating the soil from these cold temperatures, we can expect no immediate relief from rootworms in 2021. In fact, based on trap and rotation data, Nebraska, Kansas, Iowa and Colorado could face heavier populations due to less rotation in 2020. With the prevalence of pyrethroid-resistance, Bt-resistance, long emergence windows and more continuous corn acres, a program approach is required for 2021.

# HatchTrak<sup>SM</sup>

FMC

Soil-applied insecticides can have a drastic impact on our plant stand, root health, rootworm populations and yields. FMC offers several different products to protect your crop your way.



Corn rootworm larvae and seedling insects

Suppression of seedling diseases like Pythium, Rhizoctonia and Fusarium

Mix with starter fertilizer

3RIVE 3D<sup>®</sup> foaming formulation

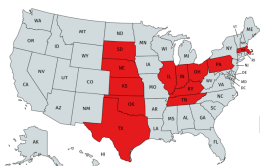
Mix with starter fertilizer

Recommended rate:  
8.5 – 17 fl. oz./A

Recommended rate:  
8.0 – 16 fl. oz./A

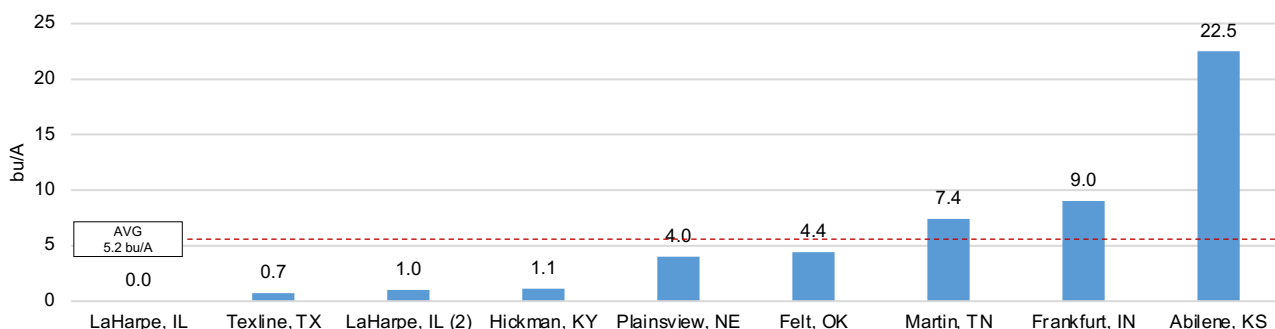
Recommended rate:  
9.1 – 18.3 fl. oz./A

Recommended rate:  
8.5 – 17 fl. oz./A



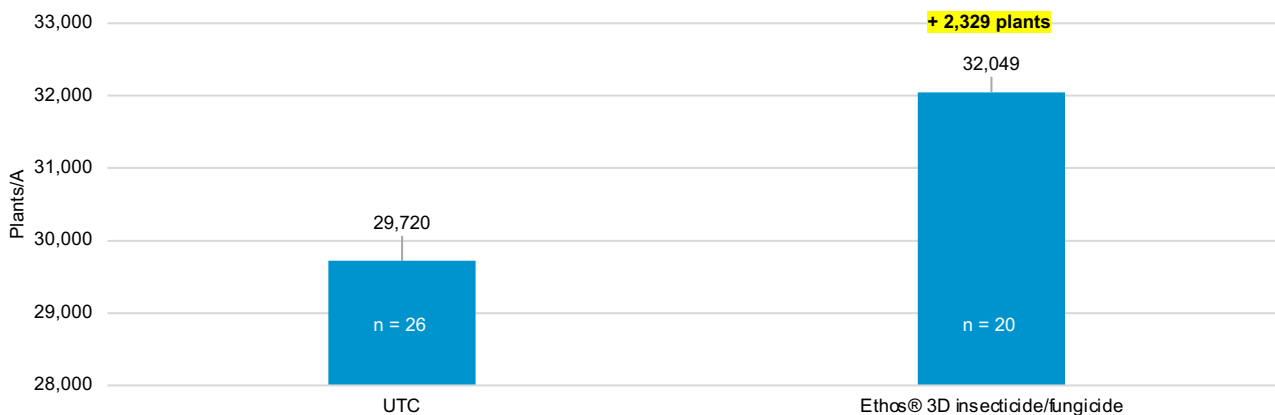
## ETHOS<sup>®</sup> 3D INSECTICIDE/FUNGICIDE COMMERCIAL DEMO YIELD RESULTS

Through 10/27/2020 | 2020 data submitted from commercial fields | Yield comparison vs. non-treated



## ETHOS 3D INSECTICIDE/FUNGICIDE COMMERCIAL DEMO YIELD RESULTS

Through 11/2/2020 | 2020 data submitted from commercial fields | Stand count comparison 20-30 DAP vs. non-treated



Ethos 3D insecticide/fungicide is a Restricted Use Pesticide.

# HatchTrak<sup>SM</sup>

FMC



- ✓ Protect the crop
- ✓ Reduce the population
- ✓ Keep our Bt traits and pyrethroids viable

## STEWARD<sup>®</sup> EC INSECTICIDE

Group 22 Insecticide

### Indoxacarb

Indoxacarb provides **selectively low dermal and oral toxicity to mammals** ... through **unique biotransformation process** that occurs only within the insect.

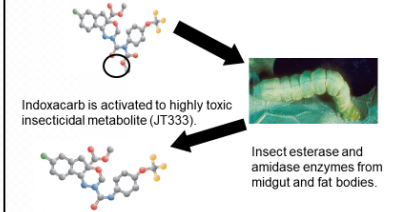
Indoxacarb users and **non-target organisms are exposed to pro-insecticide** ... while pests, through **insect-specific metabolism**, transform it into toxic insecticide.

Unlike some insecticides, indoxacarb exhibits a **positive temperature correlation** i.e., gets more active as the temperature increases.

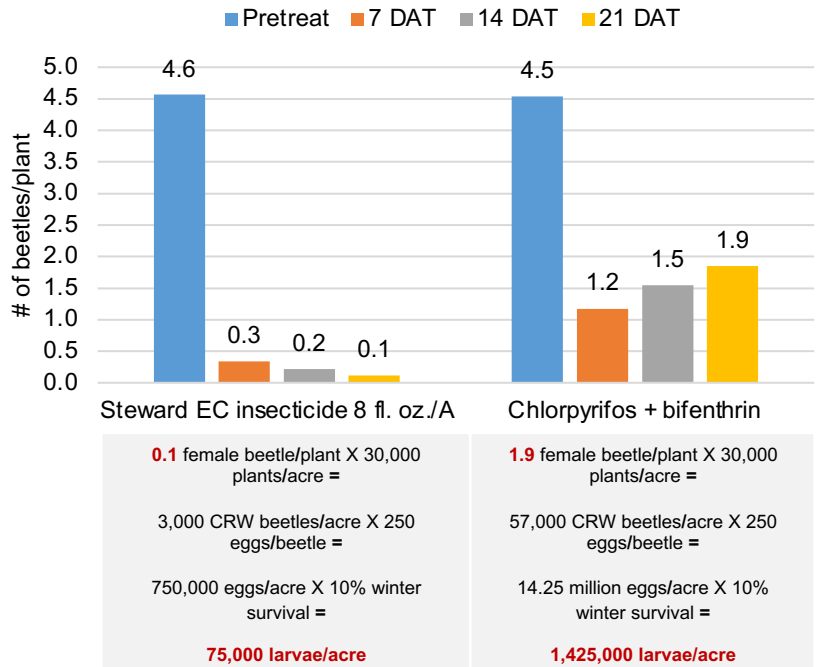
### Insecticidal molecule

#### Unique Biotransformation Process

Parent indoxacarb is ingested by an insect.

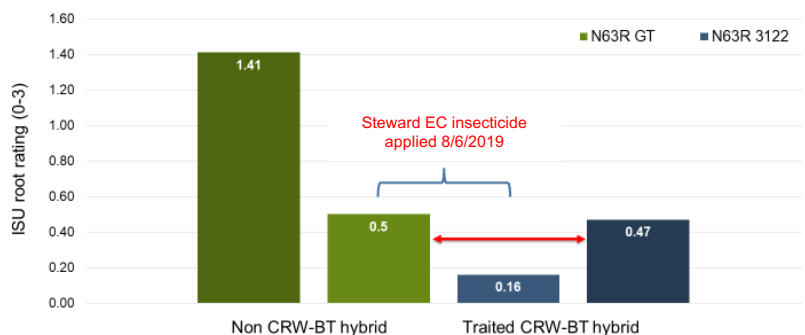


Using an alternative mode of action for rootworm beetle control helps manage resistance. Steward<sup>®</sup> EC insecticide accomplishes this with outstanding efficacy, three weeks of residual and great biochemical properties. The multiple-site, field-scale demo study on the right shows performance compared to a standard treatment. If we make some basic assumptions and apply some math, we can see how Steward EC insecticide can help reduce pressure for years to come.



Bt-trait resistance has been documented. They remain effective in many locations, but for how long? The research on the right shows that a tassel application of Steward EC insecticide in 2019 resulted in the same level of root feeding as did using a CRW-traited corn in 2020. By rotating the use of our foliar insecticides, Bt traits and at-plant insecticides we can work to reduce CRW populations and build success for years to come.

## Iowa State University – Johnson Farm, 2020



The Steward EC insecticide application applied in the prior year resulted in the conventional hybrid looking similar to the traited hybrid the following year.

# HatchTrak<sup>SM</sup>

The FMC logo is located in the top right corner of the image. It consists of the letters "FMC" in a bold, red, sans-serif font.

**AG.FMC.COM**

**Capture LFR insecticide, Capture 3RIVE 3D insecticide, Ethos XB insecticide/fungicide and Ethos 3D insecticide/fungicide are Restricted Use Pesticides.** Always read and follow all label directions, precautions and restrictions for use. Some products may not be registered for sale or use in all states. FMC, the FMC logo, 3RIVE 3D, Capture, Ethos, LFR and Steward are trademarks of and HatchTrak is a service mark of FMC Corporation or an affiliate. ©2021 FMC Corporation. All rights reserved. 21-FMC-1849 02/21