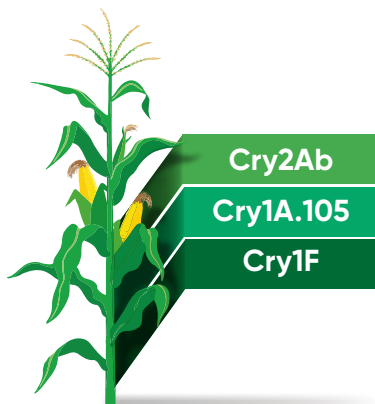


More Modes of Action for Powerful Pest Protection

The first generation of *Bt* traits were introduced in 1996 to protect corn against stalk-boring insects. Pest protection has come a long way since, and today's products, such as PowerCore® Enlist® corn, offer multiple *Bt* traits to help provide effective pest protection for control of susceptible insect populations with an integrated refuge.

Bt corn hybrids express insecticidal proteins from *Bacillus thuringiensis* (*Bt*) – a common soil bacterium. Different *Bt* proteins work against different types of insects, such as lepidopteran insects (European corn borer) or beetles (corn rootworms). Using corn hybrids with different *Bt* proteins – like you'll find in PowerCore Enlist corn – can help preserve efficacy since insects are less likely to develop resistance to more than one toxin at the same time.



Each protein in PowerCore Enlist corn offers a unique mode of action. Multiple modes of action delay insect populations developing resistance to Bt proteins.

Some insect populations have been reported to have decreased susceptibility to certain Cry1 traits, which are used in many above-ground technologies. PowerCore Enlist corn includes three proteins: Cry1A.105, Cry2Ab and Cry1F. The mode of action such as (Cry2Ab) slows down resistance development against certain pests. The combination of traits in PowerCore Enlist corn includes three modes of action, helping provide trait durability for better long-term management of pests. Multiple MOAs are useful for protecting against variable insect pressures and against pests that are problematic in specific regions, including sugarcane and southwestern corn borers.

Another benefit of multiple *Bt* traits in one hybrid is a smaller refuge requirement. The original single-trait *Bt* products required large, structured refuges of 20%-50%. But combining of *Bt* such as those found in PowerCore Enlist corn, increases product durability and allows for a reduced refuge requirement of only 5%-10%.*

Corn hybrids with a pyramid of *Bt* proteins, like those found in PowerCore Enlist corn, can be helpful for customers facing multiple pest pressures who want to preserve the long-term efficacy of their insecticide options.

* In EPA-designated cotton counties, additional 20% corn borer refuge is required.



Learn more about
PowerCore® Enlist® corn



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for information and suggestions specific to your operation. Individual results may vary. Various factors, including pest pressure, reduced susceptibility and insect resistance in some pest populations may affect efficacy of certain corn technology products in some regions. To help extend durability of these technologies, Corteva Agriscience recommends you implement integrated pest management (IPM) practices such as crop rotation, cultural and biological control tactics (including rotating sources of *Bt*-protected corn traits), pest scouting and appropriate use of pest thresholds when employing management practices such as insecticide application. You must also plant the required refuge when using these technologies. Please contact your sales professional or consult with your local university extension for more information regarding insect resistance management guidelines, best management practices and to understand whether there has been a shift in susceptibility or insect resistance with certain pests documented in your area. Liberty®, LibertyLink® and the Water Droplet Design are registered trademarks of BASF. ®Roundup and Roundup Ready are registered trademarks of Bayer Group. Always read and follow label directions.

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