Introduction

This 2017 Product Use Guide provides technical information about the insect control and herbicide tolerant products and sets forth requirements and guidelines for the use of these products. Please read all of the information pertaining to the technology you will be using, including stewardship and related information.

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Stewardship Overview

A Message about Stewardship

When we introduce a new product, we are in it for the long haul. Our philosophy of product stewardship means responsible management of the life cycle of our technologies every step of the way—from initial research to the discontinuation of a product—for maximum product value, benefits, and longevity. That’s why we require that all growers comply with regulations, policies, and crop management strategies specific to the product.

Growers that plant DuPont Pioneer seed with biotech traits agree in the Seed and Technology Use Agreement (TUA) and Terms and Conditions of Purchase to adhere to the stewardship requirements described in this guide, including, without limitation:

■ Following directions of use on all seed, pesticide, or other product labels.

■ Implementing Insect Resistance Management (IRM) practices, before and after planting, for specific biotech traits as required by DuPont Pioneer and the U.S. Environmental Protection Agency (EPA).

■ For crops or material containing biotech traits, confirming trait acceptance and intended uses and destinations with grain handlers prior to delivery, or using those products on-farm.

■ Not sending seed or other material containing biotech traits into countries where the product is not allowed, including through a third party.

■ Following any additional stewardship requirements necessary for a particular product (e.g., grain or feed use restrictions and geographical planting restrictions).

Growers are responsible for following the applicable stewardship guidelines and weed resistance management guidelines as set forth in this guide.

Why is Stewardship Important?

Proper stewardship of products is important because it offers benefits to growers, including:

■ Signing the TUA permits access to the DuPont Pioneer germplasm and the biotech trait technologies in its seed products.

■ Following IRM requirements limits development of insect resistance to incorporated plant protection technologies, and helps to maintain the long-term durability of these technologies.

■ Using seed products solely for producing a single commercial crop encourages the development of better, higher-yielding germplasm and additional technologies and innovations, further improving agricultural productivity.

Our Commitment to Excellence Through Stewardship®

Pioneer is a member of Excellence Through Stewardship® (ETS). Pioneer products are commercialized in accordance with ETS Product Launch Stewardship Guidance and in compliance with the Pioneer policies regarding stewardship of those products. Crops and materials containing biotech traits may only be exported or used, processed, or sold in jurisdictions where all necessary regulatory approvals have been granted for those crops and materials. It is a violation of national and international laws to move materials containing biotech traits across borders into jurisdictions where their import is not permitted. Growers should discuss these issues with their purchaser or grain handler to confirm the purchaser or handler’s position on products being purchased. For further information on the approval status of biotech traits, please visit www.biotradestatus.com.

Excellence Through Stewardship® is a registered trademark of Excellence Through Stewardship.
DuPont Pioneer has a long history of investing in intellectual property to provide growers with high performing varieties and industry leading services. Our continued commitment to product research results in products that consistently deliver high yields to help make you more profitable. We, along with other seed companies, use patents and Plant Variety Protection (PVP) laws to protect our investment in patented germplasm, native and transgenic traits, and breeding technologies. PVP laws give breeders exclusive control over plant varieties which are bred with the use of genetic seeds for up to 20 years. Variety Protection (PVP) laws to protect our investment in patented germplasm, native and transgenic traits, and breeding technologies. We, along with other seed companies, use patents and Plant Variety Protection (PVP) laws to protect our investment in patented germplasm, native and transgenic traits, and breeding technologies. PVP laws give breeders exclusive control over plant varieties which are bred with the use of genetic seeds for up to 20 years. This protection allows us and other seed companies to bring new products to the marketplace that are supported by improved research results in products that consistently deliver high yields to help make you more profitable. Stewardship Overview

Intellectual Property Protection

By abiding by your Technology Use Agreement, you are helping us to continue to invest in advances in genetics and technology that bring forward new research discoveries. These discoveries ultimately help you increase production and meet new pest and production challenges. When you purchase any variety or trait, you do so under contract and agree to limitations. By using seed supplied in connection with a Technology Use Agreement, you agree to the fact that the seed – and technology within that seed – includes subject matter owned by DuPont Pioneer, or licensed from a third party, which is protected under U.S. intellectual property laws. Under this contract, you are agreeing not to bin run or save your seed.

The Innovation Inside Soybeans

The on-going success of coexistence strategies has depended upon cooperation, communication, flexibility, and mutual respect for each cropping system and among growers using the various systems. Over the years, growers have adapted to changes and innovation in agriculture by using new farm management practices, new technologies, and other appropriate practices. It is incumbent on a grower who is growing a crop to satisfy a particular market to implement best practices to satisfy those marketing standards. By seeking to satisfy that market, the grower inherently is agreeing to use practices appropriate to ensure the integrity and marketability of his or her crop in the market in which he or she seeks to market it. This is true regardless of the particular market being served, whether it is white corn, sweet corn, organically-produced corn, or conventionally produced corn. In each of these cases, the grower is producing a crop supported by a special market price, and therefore assumes responsibility for meeting any applicable market specifications to receive the applicable premium price from that market. Even though the responsibility is on the grower producing the crop for a particular market, it is each grower's responsibility to communicate with and be aware of the planting intentions of his or her neighbors to gauge the need for any appropriate best management practices.

Coexistence

For decades, multiple agricultural systems have coexisted successfully around the world from production through supply chains. Over time, best practices to facilitate these different agricultural systems have developed and continuously have been improved so that high purity and high quality seed and grain is available to support trade from various agricultural systems. One example of such coexistence is the production of similar commodities in close proximity, such as field corn, sweet corn, white corn, and popcorn. Coexistence strategies should meet market requirements using science-based industry standards and management practices, and should be flexible to facilitate options and choice for growers and the food and feed supply chain. This flexibility also should include the ability of coexistence strategies to be modified as changes in products, markets, or practices take place.

The on-going success of coexistence strategies has depended upon cooperation, communication, flexibility, and mutual respect for each cropping system and among growers using the various systems. Over the years, growers have adapted to changes and innovation in agriculture by using new farm management practices, new technologies, and other appropriate practices. It is incumbent on a grower who is growing a crop to satisfy a particular market to implement best practices to satisfy those marketing standards. By seeking to satisfy that market, the grower inherently is agreeing to use practices appropriate to ensure the integrity and marketability of his or her crop in the market in which he or she seeks to market it. This is true regardless of the particular market being served, whether it is white corn, sweet corn, organically-produced corn, or conventionally produced corn. In each of these cases, the grower is producing a crop supported by a special market price, and therefore assumes responsibility for meeting any applicable market specifications to receive the applicable premium price from that market. Even though the responsibility is on the grower producing the crop for a particular market, it is each grower's responsibility to communicate with and be aware of the planting intentions of his or her neighbors to gauge the need for any appropriate best management practices.

Identity Preserved Crops

Identity Preserved (I.P.) crops are any crops produced to meet specialty end use markets. These crops are grown with a specific end use in mind, such as waxy, white, organic, among others, and should meet the defined requirements of that market. I.P. crops provide benefits for both the grower, with processor-paid incentives, as well as the end-user. Growers who choose to preserve the identity of their crops to receive the additional end use market value assume the responsibility of ensuring their crops meet the contract specifications.

To meet these specifications, the specialty end-use agricultural industry has developed generally accepted I.P. agricultural practices to manage I.P. production as further described below. Accordingly, I.P. growers have the responsibility to implement any processes that are necessary to meet quality specifications. The special care required for I.P. crop production generally causes an increase in cost of production that in turn causes an increase in the value of the goods sold.

Maintaining the Integrity of Identity Preserved Crops

In order to preserve the identity of I.P. crops, thorough cleanout procedures should be implemented before and after contact is made with the I.P. crop. This may include cleaning areas in seed storage bins, seed hopper/boxes, transportation vehicles, combines, and harvesters. Thorough cleanout procedures should be upheld throughout all aspects of the planting procedure, which include storage, transportation, planting, and harvest.

Additionally, growers of I.P. crops should consider steps to minimize the potential for cross-pollination given the generally recognized and accepted occurrence of the movement of incidental amounts of pollen. As previously stated, communication between growers is key in determining those best agricultural management practices that maintain the identity of I.P. crops.
Seed Treatment Stewardship

Seed treatments, including fungicides, insecticides, nematicides, and amendments, play a critical role in agriculture and the production of a healthy crop. In addition, they help to control against early season pests and diseases, they serve as a viable alternative to foliar and soil applications.

Seed treatment management and responsible stewardship play a vital role in sustaining our environment while maximizing crop health. Responsible stewardship practices help maintain seed and seed treatment integrity, which keeps the active ingredient on the seed to achieve the maximum crop health benefit for the user. Responsible stewardship practices help maintain seed and seed treatment integrity, which keeps the active ingredient on the seed to achieve the maximum crop health benefit for the producer and the environment, including pollinators, which may be present at the time of planting.

For adverse effects on producers and the environment, including pollinators, which may be present at the time of planting. Seed treatment management and responsible stewardship play a vital role in sustaining our environment while maximizing crop health. Responsible stewardship practices help maintain seed and seed treatment integrity, which keeps the active ingredient on the seed to achieve the maximum crop health benefit for the producer and the environment, including pollinators, which may be present at the time of planting.

Planting
- Always follow planter manufacturer recommendations and avoid excess use of talc and graphite.
- Be aware of the environment in and around your field, taking note of nearby hives and flowering plants and weeds, which could be attractive to pollinators.
- Limit dust movement from seed packages containing seed treatment. For example, consider factors such as wind speed and direction, and avoid shaking the bottom of the treated seed bag when filling planting equipment.
- Do not transfer treated seed next to active hives, at field margins, and adjacent to flowering plants and vegetation.
- For pneumatic planters, direct the exhaust toward the soil surface.
- Ensure all seeds are planted/incorporated into the soil at proper planting depth.
- Follow labeling requirements for disposal/use of unused seed.

Disposal and Cleanup
- Properly dispose of seed packaging/containers in accordance with state and local regulations and container return policy.
- Clean planting equipment in a manner that minimizes dust.
- Avoid cleaning planting equipment next to active hives, at field margins and adjacent to flowering plants and vegetation.

Handling
- Always read and follow the label directions and recommendations for proper handling and use of treated seed and seed treatments.
- Use personal protection equipment as recommended on the product label or seed tag.
- Transport and transfer treated seeds safely and in a manner that eliminates the risk of spill and dust.

Cleaning planting equipment in a manner that minimizes dust. Follow all safety precautions as indicated on the label/seed tag. Use personal protection equipment as recommended on the product label or seed tag. Transport and transfer treated seeds safely and in a manner that eliminates the risk of spill and dust.

Seed Treatment Stewardship

Weed Management

Growers have widely embraced herbicide tolerance technology because it provides convenient, effective, and economical weed control in crops. However, intensive long term use of any single herbicide mode of action can lead to the development of weeds resistant to that mode of action. Integrated management practices can minimize this risk, while at the same time providing growers with a more consistent and effective weed control program.

Herbicide Groups
The Weed Science Society of America categorizes herbicides into different groups based on their mode of action. If a given weed population has plants resistant to a herbicide in one group, that weed population may not be able to be effectively managed using only other herbicides in that group. However, that weed population may be able to be managed with a different herbicide from a different herbicide group, whether alone or in combination with a herbicide from that same group, or by using other weed management practices, such as mechanical practices. Note that herbicide classification may not, in all circumstances, address weeds resistant to particular herbicides. Consult your local sales professional, state cooperative extension service, professional consultants, or other qualified individuals to discuss appropriate actions to address specific weeds that appear to show resistance to a particular herbicide.

Weed Management Techniques and Guidelines

Using varied weed control methods is recommended to help slow the development of resistant weed populations. Various weed control methods may include using multiple herbicides that act on weeds through different modes of action with similar spectrum, use of tillage or other mechanical methods, and other practices. Use of tillage must be balanced against possible soil and water conservation issues that aggressive tillage may cause. When using herbicides, studies have shown that using the herbicide in compliance with label directions and at labeled rates is important to slow the development of resistant weeds. Also, scouting for surviving weeds after herbicide application can help identify resistant weeds and provide valuable information on how to manage resistance by using different weed management methods. If resistant weeds are identified, one of the most effective ways to inhibit the development of resistant populations or spread of resistance is to use methods that prevent weeds from reproducing by seed or through vegetative propagation. It is also important to clean equipment between sites, as this slows the spread of weed seed between fields. When using herbicide resistant crops it is important to start with a clean field, either by using tilling or a burndown herbicide application. In general:
- Begin the season with a clean, weed-free field.
- Use multiple weed control techniques, such as multiple herbicides with different modes of action, tillage, or other mechanical weed control techniques, considering soil and water conservation issues.
- Use herbicides at their proper rates at the appropriate times and following all label directions.
- If surviving weeds are found, control those weeds before they can set seed or otherwise reproduce.

Glyphosate-Resistant Weeds
Growers should be aware of and proactively manage possible glyphosate-resistant weeds in any weed control program. If a weed is known to have resistance to glyphosate, a resistant population of that weed will not be controlled by labeled rates and timings of glyphosate. Glyphosate resistant weeds may not be warranted to cover failure to control glyphosate-resistant weed populations; other weed management practices should be employed to control a population of glyphosate-resistant weeds. For current weed control recommendations for particular glyphosate-resistant weeds, contact your sales professional.

Repeated failure of a specific herbicide to control a particular weed should be reported to your sales professional, as well as the herbicide manufacturer, local retailer, or county extension agent. Approved labels, including supplemental labeling, for herbicides must be in possession of the user at the time of pesticide application and can be obtained by contacting your state’s pesticide lead agency.

Weed control recommendations for glyphosate-resistant weeds in any weed control program. If a weed is known to have resistance to glyphosate, a resistant population of that weed will not be controlled by labeled rates and timings of glyphosate. Glyphosate resistant weeds may not be warranted to cover failure to control glyphosate-resistant weed populations; other weed management practices should be employed to control a population of glyphosate-resistant weeds. For current weed control recommendations for particular glyphosate-resistant weeds, contact your sales professional.

Support the Take Action effort. Take Action is an industry-wide partnership between university weed scientists, major herbicide providers and organizations representing corn, cotton, sorghum, soybean and wheat growers to help them manage herbicide-resistant weeds. The Take Action effort encourages you to develop a proactive strategy to manage herbicide-resistant weeds that incorporates a diverse set of controls. To find out more about how you can take action, visit www.TakeActionOnWeeds.com, or contact your local extension office.

Glyphosate Endangered Species Initiative Requirement

Before applying any glyphosate-based herbicide (unless the only application will be ground application at a rate of less than 3.5 lbs of glyphosate a.e./A), growers must visit the website www.pre-serv.org to determine whether any mitigation requirements apply to application of glyphosate as it relates to endangered species. If you are unable to access the website, call 800-332-3111 for assistance. Growers must follow any applicable mitigation requirements, which are appropriate for all applications of glyphosate-based herbicides to all crop lands.
Corn Rootworm Management

The Problem
Corn rootworms have been a primary pest for corn growers for decades, causing an estimated 1 billion dollars in yield and control costs annually. Heavy reliance on individual control tactics, such as insecticides (soil-applied and adult sprays) have led to the development of resistant populations. Rootworms also have developed resistance to cultural practices. Crop rotation has even been rendered occasionally ineffective in some areas due to behavioral changes like egg-laying in soybean (western corn rootworm) and delayed egg hatch in corn (extended diapause in northern corn rootworm). Rootworms have repeatedly demonstrated a remarkable ability to adapt to management tactics. The development of BT corn for corn rootworm added another valuable tool for controlling these pests, but like any control tactic, repeated use of the same technology over time may lead to resistance.

Identifying Rootworm Resistance in BT Corn
Rootworm resistance to some BT corn products has been documented. Unfortunately, it can be difficult to recognize resistance in the early stages of development. High levels of root injury or lodging on BT-protected products is often only the first clue; plant injury alone is not definitive proof of resistance. Research data suggests that under very large rootworm populations, BT-protected plants can sustain significant root feeding in the absence of resistance due to the non-high dose nature and expression patterns of the BT proteins in the root. Research data also suggests that over the course of repeated exposure to BT corn (continued product use for several years), increased rootworm survivorship can occur resulting in root injury at smaller rootworm populations, even in the absence of complete resistance. For this reason, it is imperative to use a multi-faceted rootworm management plan that interrupts continuous exposure of the rootworm population against the same tactic year over year, and ultimately slows down the rate at which resistance can evolve. The use of scouting, best management practices, and reporting any unexpected injury to your sales professional for follow-up are the keys to understanding if resistance is evolving in your fields.

Develop a Rootworm Management Program for your Operation
DuPont Pioneer and university research suggests that continuous, uninterrupted use of the same corn rootworm BT technology can lead to decreased corn rootworm susceptibility to that technology, and may result in reduced product efficacy against these insects. To help maintain the efficacy of BT corn rootworm products, it is essential to develop a multi-faceted rootworm control management plan. Your sales professional or your local Extension professionals can assist you in developing best management practices for your farming operation. 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 insect resistance documented in your area. Please refer to the next page for corn rootworm best management practices.

The use of soil-applied insecticides (SAIs) with corn rootworm protected BT corn is not recommended for control of corn rootworm except under limited circumstances and consultation with extension, crop consultant or other local experts. SAIs should not be necessary for corn rootworm control with pyramided corn rootworm trait BT corn product(s).

To effectively manage corn rootworm (CRW), implement a multi-year plan that includes a variety of tactics.
Minimize over-wintering pests through use of soil management practices that encourage destruction of those pests.

Use crop rotation and multiple modes of action in pest control activities to delay the onset of resistance in pest populations. If crop rotation is not possible or practical, or if rotation is used but high pest populations are still observed, use of multiple modes of action (such as Optimum® AcreMax® XTreme insect protection) is highly recommended to reduce the likelihood of resistance development.

Monitoring Pests
It is important to carefully monitor fields for all pests to determine whether treatment with a pest control method is needed. Scouting techniques and remedial pest control treatments should address the fact that larvae must hatch and feed before incorporated plant protection technologies have an effect on the pests. Scouting should be performed regularly, particularly after periods of heavy or sustained egg laying (especially during bloom), to determine whether larval survival is significant in a particular field.

Pest Control
Use agronomic management best practices with appropriate seed products to obtain the highest yield benefits. Use seed products, planting technology, and seedling rates that are appropriate for a given crop in a particular geographic area. To the extent possible, avoid crop stress through crop management.

- Use scouting techniques and treatment decisions to ensure maintenance of beneficial insects that provide control of harmful insect pests.
- Use appropriate maturity products and associated harvest schedules, and destroy any crop residue promptly after harvest to minimize evolutionary selection for resistance in late-season infestations.

Integrated Pest Management

When a single control method is used continuously, there is a higher probability that pests will evolve to survive the control method, i.e. become resistant. Integrated Pest Management (IPM) is a science-based strategy and decision making process for controlling pests by using a combination of multiple pest control methods.

- Minimize over-wintering pests through use of soil management practices that encourage destruction of those pests.
- Use crop rotation and multiple modes of action in pest control activities to delay the onset of resistance in pest populations. If crop rotation is not possible or practical, or if rotation is used but high pest populations are still observed, use of multiple modes of action (such as Optimum® AcreMax® XTreme insect protection) is highly recommended to reduce the likelihood of resistance development.

ADULT CRW MANAGEMENT CONSIDERATIONS
- Scout fields for CRW adults during silking stage (typically July and August) as adult CRW beetles feed on corn silks and may reduce yield.
- Foliar sprays may be an option if CRW beetle populations reach an economic threshold for damage (=1 beetle per plant)1.
- Follow university extension service or local crop consultant recommendations for products, rates, and proper timing of adult spray applications for reducing CRW beetle populations.
- Multiple sprays may be necessary.

LARVAL CRW MANAGEMENT CONSIDERATIONS
- The application of an insecticide to the soil surface, in furrows, and/or incorporated into the soil (referred to as “soil applied insecticide,” “soil insecticide” or “SAI”) is not recommended for control of CRW in B.t. -treated corn hybrids except under limited circumstances.
- Consult with extension, crop consultants or other local experts for recommendations when considering a combination of CRW traits and soil applied insecticides.
- SAI’s should not be necessary for CRW control with pyramided CRW treated B.t. -treated corn hybrids.


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Stewardship Through Insect Resistance Management

Insect Resistance Management (IRM) for Bt Corn

Following an insect resistance management (IRM) program is an essential part of good stewardship. The aim of an IRM program is to reduce the probability of target insects developing increased tolerance to the insecticidal Bt proteins, thus maximizing the longevity and effectiveness of these valuable traits in an environmentally-conscious way. Sustainable preservation of this technology places individual responsibility on everyone in the seed distribution system, from the seed supplier to the grower planting the seed. Additionally, IRM is a legal obligation as requirements have been incorporated into the registrations granted by the EPA for all Bt corn products.

This Product Use Guide (PUG) contains important information on how to implement a proper IRM plan. If you have questions after reviewing this document, or if you wish to register a tip or complaint about a grower who may not be following the IRM refuge requirements, please contact your sales professional.

IRM Requirements

IRM programs address: (1) the amount of refuge, (2) the required proximity of hybrids with the Bt traits to the refuge, (3) the use of insecticides in the refuge, and (4) the design and management of the refuge.

What is a Refuge?

A refuge is a block or strip of corn that does not contain a Bt trait for controlling corn pests. The purpose of this refuge is to maintain a population of corn pests that is susceptible to Bt proteins. Potentially-resistant insects emerging from Bt fields can mate with susceptible insects from the refuge resulting in Bt-susceptible offspring.

There are two types of refuge for products with the Bt trait: integrated and structured. Some Bt products have an integrated refuge with refuge seed blended in the bag, while other Bt products require a structured refuge. A structured refuge requires a grower to plant a portion of a field with another product that does not contain the insect-control traits of the Bt product. Grower-blended seed mixes are not approved for use with any Bt hybrids to satisfy grower refuge requirements. Refuge requirements vary by product type and EPA-designated non-cotton and southern corn/cotton growing regions, as detailed on the following page. The southern corn/cotton growing regions are listed on the following page.

IRM Compliance Assurance Program (CAP)

We require all growers purchasing hybrids with a Bt trait sign a Technology Use Agreement. By signing, the grower agrees to implement an IRM program—including planting a corn refuge and following EPA-mandated use requirements—as outlined in the PUG. Failure to follow these IRM requirements can result in the grower losing access to structured refuge products.

The EPA requires Bt corn seed providers to conduct on-farm visits as part of a comprehensive Compliance Assurance Program (CAP) to assess whether growers are following the IRM requirements. These on-farm assessments are conducted by an independent third party and directed toward areas at high risk of insect resistance based on pest pressure, Bt corn market penetration, or insufficient refuge seed purchase. The CAP also outlines consistent standards developed by the EPA and Bt corn registrants for responding to growers who have not followed the IRM requirements to bring them into full compliance. These responses include:

- Notifying the grower by letter of IRM compliance deviations.
- Conducting a compliance assistance visit with the grower prior to planting to assist the grower in planning and implementing a proper IRM program.
- Conducting a compliance assessment visit with the grower the following growing season to assess IRM compliance.
- Providing the grower additional IRM educational materials.
- A grower found with a second incident of non compliance with refuge requirements within a five-year period will be denied access the next year to the registrant’s structured refuge Bt corn products.

Structured Refuge Requirements

In non-cotton growing areas, the structured refuge requirements are 5% or 20% of corn acres planted for corn borer-protected products and 20% for corn rootworm-protected products. In cotton growing areas, the structured refuge requirements are 20% or 50% of corn acres planted for corn borer-protected products and 20% for corn rootworm-protected products.

Structured Refuge Planting Options for Above-Ground, Below-Ground, and Above-Below-Ground Products

A single-trait refuge is one that can be used for corn rootworms or corn borers, but not both. A common refuge is a single field that serves as a refuge for both corn borers and corn rootworms simultaneously. A separate refuge is a refuge designed exclusively for corn borers or exclusively for corn rootworms—i.e., a stacked Bt product can require two separate refuges.

Southern Corn/Cotton Growing Regions

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<td>VIRGINIA</td>
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<td>All Counties</td>
<td>All Counties</td>
<td>Counties of:</td>
<td></td>
</tr>
</tbody>
</table>
|           |           | Dave 

Select Similar Hybrid for Structured Refuge

One key to establishing an effective refuge is selecting an appropriate hybrid—one that is agronomically similar to the Bt hybrid. This helps ensure that the refuge hybrid has the same likelihood of attracting adult insects as the Bt field. The refuge hybrid should match the Bt hybrid in maturity, early vigor and plant height.

Refuge Management

Management practices in the refuge acres and Bt corn acres must be as similar as possible to promote parallel hybrid development.

- To be effective, the refuge must be the correct size and distance from the Bt field, and be planted with a similar hybrid under similar management practices.
- Plant the refuge at the same time as the Bt hybrid.
- Fertility programs, including starter and sidedress, should be similar.
- Use the same tillage system in the Bt field and the refuge. Different tillage operations may result in dissimilar residue levels on the soil surface. Soil temperature differences could then lead to dramatic early development differences between the Bt field and the refuge.
- Reducing inputs on the refuge or planting it on marginal land also decreases the effectiveness of the refuge.
- If the refuge is planted on rotated ground, the trait corn must also be planted on rotated ground. If the refuge is planted on continuous corn ground, the trait corn may be planted on either continuous corn ground or rotated ground. It is also recommended that growers planting continuous corn plant the refuge in the same location each year.
- Practice Integrated Pest Management (IPM) to preserve the natural enemies of corn borers, corn rootworms and other insect pests. Natural predators such as ground beetles and ants can help reduce corn rootworm larvae populations. Bt corn insect protection aids IPM because it affects only target insects and allows beneficial insects to thrive.
- Popcorn can be used as a refuge option, but sweet corn and/or silage corn cannot.
Field Monitoring
Monitoring Bt fields for insect resistance development is an integral part of an IRM plan. If resistant populations are detected early, alternative control measures can be quickly implemented to reduce the population and halt the spread of resistance. Because of its importance in maintaining the effectiveness of Bt technology, the EPA mandates activity monitoring as a condition of registration of Bt products. We require customers to monitor Bt fields for unexpected levels of insect damage and report any high level of suspected insect damage to a representative for further investigation. Acres planted with Bt hybrids should be correctly marked at planting to prevent confusion when monitoring.

Structured Refuge Configuration
Because Bt corn growers use different management practices, considerable flexibility is allowed in laying out the refuge. Several of these refuge patterns are described below.

Surveys indicate that most farmers plant the refuge within the Bt field. This closer proximity increases refuge effectiveness and maximizes Bt acreage in the field.

Structured Refuge Configuration

### Separate-Field Refuge Distance Requirements:
- Appropriate refuges must be planted on every farm with a field that contains Bt corn—i.e., you cannot use a neighbor’s field to satisfy the refuge requirements.
- For corn borer-Bt products, refuge must be planted within 1/2 mile of each Bt corn field.
- For corn rootworm-Bt products, refuge must be planted adjacent to Bt hybrids; it can be separated by a ditch or a road but not by another field.

**Refuge Within the Bt Field:**
- Block
- Perimeter or Border
- Split Planter

**Separate-Field Refuge Distance Requirements:**
- For single-trait corn borer only

**Single-Trait (Corn Borer or Corn Rootworm) and Common Refuge Configurations**

**Adjacent**
- Block
- Perimeter
- Strips

**Within**
- Block
- Perimeter
- Strips

Adjacent options separated by a road, path, ditch, etc., but not another field.

**C**

**B**

**A**

**THE CORRECT WAY TO CALCULATE**

Example shown is for a 20% refuge product.

**START with the TOTAL number of corn acres you want to plant in an area.**

**Multiply by the PERCENT of refuge required for the Bt trait.**

This is your minimum **REFUGE ACRES.**

**Next, subtract your refuge acres from your total corn acres.**

This is your maximum **Bt ACRES.**

---

1Includes all corn acres that are infield or adjacent to each other and will be allocated to the Bt product and its associated refuge.

Download your free Insect Resistance Management (IRM) corn refuge calculator at www.irmcalculator.com.
### Integrated Refuge Corn Products

Integrated refuge products will be treated for the major component and for the minor component. Bt genes for corn borer and/or corn rootworm protection help corn growers produce higher yields with better quality grain in an environmentally-conscious way. This page contains integrated refuge products marketed under the following definitions:

#### Definitions:
- **AM**: Optimum® AcreMax® product
- **AMT**: Optimum® AcreMax® TRIsect® product
- **AMX**: Optimum® AcreMax® Xtra product
- **AML**: Optimum® AcreMax® Leptra product
- **HX1**: Herculex® I insect trait
- **HXX**: Herculex® XTRA insect trait
- **LL**: LibertyLink® (glufosinate) herbicide resistance
- **RR2**: Roundup Ready® Corn 2 (glyphosate) herbicide resistance
- **RW**: Agrisure® RW trait
- **YGCB**: YieldGard® Corn Borer insect trait

### Structured Refuge Corn Products

Bt genes for corn borer and/or corn rootworm protection help corn growers produce higher yields with better quality grain in an environmentally-conscious way. This page contains the structured refuge products marketed under the following definitions:

#### Definitions:
- **AM1**: Optimum® AcreMax® 1 product
- **CHR**: Optimum® TRIsect® product
- **CYHR**: Optimum® Intrasect® TRIsect® product
- **CYXR**: Optimum® Intrasect® XTreme product
- **HXX**: Herculex® XTRA insect trait
- **LL**: LibertyLink® (glufosinate) herbicide resistance
- **RW**: Agrisure® RW trait
- **YGCB**: YieldGard® Corn Borer insect trait
- **YHR**: Optimum® Intrasect® product
- **VYHR**: Optimum® Leptra® product

### Refuge Requirement

#### Refuge Requirement: 20% Corn Borer Refuge in Cotton Region

<table>
<thead>
<tr>
<th>Component</th>
<th>Requirement</th>
</tr>
</thead>
<tbody>
<tr>
<td>AMX</td>
<td>95% (YGCB, HX1, LL, RR2)</td>
</tr>
<tr>
<td>AMXT</td>
<td>95% (YGCB, HX1, LL, RR2)</td>
</tr>
<tr>
<td>AML</td>
<td>95% (YGCB, HX1, LL, RR2)</td>
</tr>
<tr>
<td>HXRW</td>
<td>100% (HHX, LL, RR2)</td>
</tr>
</tbody>
</table>

#### Refuge Requirement: 95% Corn Borer Refuge in Corn Belt, 20% in Cotton Region

<table>
<thead>
<tr>
<th>Component</th>
<th>Requirement</th>
</tr>
</thead>
<tbody>
<tr>
<td>AMX</td>
<td>95% (YGCB, HX1, LL, RR2)</td>
</tr>
<tr>
<td>AMXT</td>
<td>95% (YGCB, HX1, LL, RR2)</td>
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<tr>
<td>AML</td>
<td>95% (YGCB, HX1, LL, RR2)</td>
</tr>
<tr>
<td>HXRW</td>
<td>100% (HHX, LL, RR2)</td>
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</table>

#### Refuge Requirement: 90% Corn Borer Refuge in Corn Belt and Cotton Region

<table>
<thead>
<tr>
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<th>Requirement</th>
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<tr>
<td>AMX</td>
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</tr>
<tr>
<td>AMXT</td>
<td>95% (YGCB, HX1, LL, RR2)</td>
</tr>
<tr>
<td>AML</td>
<td>95% (YGCB, HX1, LL, RR2)</td>
</tr>
<tr>
<td>HXRW</td>
<td>100% (HHX, LL, RR2)</td>
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</table>

Not all products are available in all areas.
## Corn Traits and Technology

### Technology Segment Identifiers

<table>
<thead>
<tr>
<th>Technology Segment Identifiers</th>
<th>Corn Technology Traits</th>
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<tbody>
<tr>
<td>HR2</td>
<td>Roundup Ready® Corn 2</td>
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<tr>
<td>LL</td>
<td>LibertyLink</td>
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<tr>
<td>VYHR, LL, RR2</td>
<td>Optimum® Lepril (Corn Borer/Corn Earworm)***</td>
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<tr>
<td>OH, LL, RR2</td>
<td>Optimum® Tilt™, LibertyLink, Roundup Ready® Corn (Corn Borer/Corn Earworm)***</td>
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<tr>
<td>YHR, LL, RR2</td>
<td>Optimum® Intrasect™, LibertyLink, Roundup Ready® Corn (Corn Borer)</td>
</tr>
<tr>
<td>YXR, LL, RR2</td>
<td>Optimum® Intrasect™, LibertyLink, Roundup Ready® Corn (Corn Borer/Corn Earworm)***</td>
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<tr>
<td>CYR, LL, RR2</td>
<td>Optimum® Intrasect™ Xtra, LibertyLink, Roundup Ready® Corn (Corn Borer/Corn Earworm)***</td>
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<tr>
<td>AMK, LL, RR2</td>
<td>Optimum® Accel®, LibertyLink, Roundup Ready® Corn (Corn Borer)</td>
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<tr>
<td>AMK, LL, RR2</td>
<td>Optimum® Accel®, LibertyLink, Roundup Ready® Corn (Corn Borer/Corn Earworm)***</td>
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<td>Optimum® Accel®, LibertyLink, Roundup Ready® Corn (Corn Borer/Corn Earworm)***</td>
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<td>Optimum® Accel®, LibertyLink, Roundup Ready® Corn (Corn Borer/Corn Earworm)***</td>
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<td>Optimum® AcreMax®, LibertyLink, Roundup Ready® Corn (Corn Borer/Corn Earworm)***</td>
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<td>Optimum® Intrasect™ XTreme, LibertyLink, Roundup Ready® Corn (Corn Borer/Corn Earworm)***</td>
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<td>CYXMT, LL, RR2</td>
<td>Optimum® AcreMax® XTreme, LibertyLink, Roundup Ready® Corn (Corn Borer/Corn Earworm)***</td>
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<tr>
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<td>Optimum® AcreMax® Leptra®, LibertyLink, Roundup Ready® Corn (Corn Borer/Corn Earworm)***</td>
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<td>HerculeX® L, LibertyLink, Roundup Ready® Corn (Corn Borer)</td>
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<tr>
<td>HXO, LL, RR2</td>
<td>HerculeX® XT, LibertyLink, Roundup Ready® Corn (Corn Borer)</td>
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### Insect Efficacy Levels

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<thead>
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<th>Insect Efficacy Levels</th>
<th>Herbicide Resistance</th>
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<tr>
<td>E</td>
<td>Excellent</td>
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<tr>
<td>V</td>
<td>Very Good</td>
</tr>
<tr>
<td>G</td>
<td>Good</td>
</tr>
<tr>
<td>M</td>
<td>Moderate</td>
</tr>
<tr>
<td>N</td>
<td>None</td>
</tr>
</tbody>
</table>

### Economic thresholds will be determined using methods recommended by local or regional professionals (e.g., Extension Service agents, crop consultants).

### Microbial Bt Insecticides

- Microbial Bt insecticides must not be applied on the refuge.

### Sales and Planting Restrictions

#### CALIFORNIA RESTRICTION:
- The planting of Optimum AcreMax Insect Protection products is prohibited in certain California counties. Contact your sales professional for additional details.

#### PUERTO RICO RESTRICTION:
- The sales, distribution, and planting of Optimum AcreMax Insect Protection hybrids is prohibited in certain Puerto Rico.

### Product Use Statement

- This seed is a blend of 5% refuge seed and 95% seed containing the HerculeX® I Insect Protection gene that produces a Bacillus thuringiensis (Bt) Cry1F protein and the YIELDGARD® Corn Borer gene that produces a Bt Cry1Ab protein that provide protection or suppression against susceptible European corn borer, southwestern corn borer, black cutworm, western bean cutworm, lesser corn stalk borer, sugarcane borer, stalk borer, and corn earworm. Product responses may vary by location, pest population, environmental conditions, and agricultural practices. These proteins and the genetic material necessary for their production in corn are registered under EPA Reg. No. 29R46-12.

### You Must Sign a Technology Agreement

#### Agreements:
- You must sign a Technology Agreement, read the product use guide prior to planting and follow insect resistance management (IRM) requirements.

### Patents:

#### Hercules I Insect Resistance technology:
- The Hercules I Insect Resistance technology incorporated into these seeds is protected under one or more U.S. patents. The use of these seeds includes a limited license to produce a single corn crop in the United States (or other applicable country). The use of seed from such a crop or the progeny thereof for propagation or seed multiplication or for production or development of a hybrid or different variety of seed is strictly prohibited.

#### YieldSal® Corn Borer gene:
- The YieldSal® Corn Borer gene includes a limited license to produce a single corn crop in the United States. This license does not extend to the use of seed from such crop or the progeny thereof for propagation or seed multiplication. Furthermore, the use of such seed or the progeny thereof for propagation or seed multiplication or for production or development of a hybrid or different variety of seed is strictly prohibited.
WHAT IS OPTIMUM® ACREMAX® LEPTRA® INSECT PROTECTION TECHNOLOGY? Hybrids containing Optimum® AcreMax® Leptra® Insect Protection provide protection or suppression against susceptible corn earworm, European corn borer, lesser corn stalk borer, southern corn stalk borer, stalk borer, and sugarcane borer; and also provide protection from larval injury caused by susceptible western corn rootworm, northern corn rootworm, and Mexican corn rootworm.

NOTE: YOU MUST HAVE A SIGNED TECHNOLOGY USE AGREEMENT ON FILE AND AGREE TO ITS TERMS IN ORDER TO USE OPTIMUM ACREMAX® TRISECT® INSECT PROTECTION PRODUCTS.

SALES AND PLANTING RESTRICTIONS CALIFORNIA RESTRICTION: The planting of Optimum AcreMax® TRisect Insect Protection hybrids is prohibited in certain California counties. Contact your sales professional for additional details.

PUERTO RICO RESTRICTION: The sales, distribution, and planting of Optimum AcreMax® TRisect Insect Protection hybrids are prohibited in Puerto Rico.

PRODUCT USE STATEMENT: This seed is a blend of 10% refuge seed and 90% seed containing the Herculex® I Insect Protection gene that produces a Bacillus thuringiensis (Bt) Cry1Ab protein and also contains the YIELDGARD® Corn Borer gene that produces a Bt Cry2Ab protein that provide protection or suppression against susceptible European corn borer, southern corn stalk borer, stalk borer, and sugarcane borer; and also provide protection from larval injury caused by susceptible western corn rootworm, northern corn rootworm, and Mexican corn rootworm. Economic thresholds will be determined using methods recommended by local or regional professionals (e.g., Extension Service agents, crop consultants). Microbial Bt insecticides must not be applied on the refuge.
Insect Resistance Management Grower Guide

**Optimum® AcreMax® Xtra Insect Protection**

(HXX, YGCB, LL BR2)

Insect Resistance Management (IRM) Requirements

**IMPORTANT: READ PRIOR TO PLANTING**

### Insect Resistance Management (IRM) Requirements

#### WHAT IS OPTIMUM® ACREMAX® XTREME INSECT PROTECTION TECHNOLOGY?

Products containing Optimum® AcreMax® Xtra Insect Protection provide protection or suppression against susceptible European corn borer, southwestern corn borer, black cutworm, fall armyworm, western bean cutworm, lesser corn stalk borer, southern corn stalk borer, sugarcane borer, stalk borer, and corn earworm; and also provide protection from larval injury caused by susceptible western corn rootworm, northern corn rootworm, and Mexican corn rootworm.

**NOTE: YOU MUST HAVE A SIGNED TECHNOLOGY USE AGREEMENT ON FILE AND AGREE TO ITS TERMS IN ORDER TO USE OPTIMUM ACREMAX® XTREME INSECT PROTECTION PRODUCTS.**

### REFUGE REQUIREMENTS

**NON-COTTON GROWING AREAS:**

No additional refuge acres are required because the refuge for Optimum AcreMax Xtra Insect Protection is in the bag.

**SOUTHERN CORN/COTTON GROWING AREAS:**

On each farm, plant up to 80% of the cotton acres with Optimum AcreMax Xtra Insect Protection products. Plant at least 20% of the cotton acres to a corn borer refuge.

**REFUGE DESIGN:**

The corn borer refuge for each field may be arranged in a number of configurations that allow the grower to easily incorporate an effective refuge into a farming operation. The refuge should be sown on the same day, or with the shortest window possible between planting dates in cotton areas, the following refuge requirements must be followed:

- The refuge may be planted in-field, adjacent to (e.g., across the field), or as a separate block within 1/2 mile of the Optimum AcreMax Xtra Insect Protection corn field.
- In-field refuge options include: blocks, perimeter strips (i.e., along the edges or headlands), or in-field strips.
- When planting the refuge in strips across the field or as a perimeter, refuges must be at least four rows wide.

**Please note:** Use of a neighbor’s field does not satisfy the refuge requirement.

### INSECTICIDE USE

**NON-COTTON GROWING AREAS:**

Foliar insecticide treatments for control of European corn borer, corn earworm, southwestern corn borer, fall armyworm, black cutworm, western bean cutworm, lesser corn stalk borer, southern corn stalk borer, and sugarcane borer may be applied only if economic thresholds are reached for one or more of these target pests. Foliar insecticide treatments are also permitted for control of corn rootworm adults if economic thresholds are reached for one or more of these target pests. Economic thresholds for rootworm adults will be determined using methods recommended by local or regional professionals (e.g., Extension Service agents, crop consultants). Microbial Bt insecticides must not be applied on the refuge. Microbial Bt insecticides must not be applied on the refuge.

\[22\]
WHAT IS OPTIMUM® ACREMAX® 1 INSECT PROTECTION TECHNOLOGY? Products that contain the Optimum AcreMax® 1 Insect Protection technology provide protection or suppression against susceptible European corn borer, southwestern corn borer, black cutworm, fall armyworm, western bean cutworm, lesser corn stalk borer, southern corn stalk borer, sugarcane borer, and corn earworm; and also provide protection from larval injury caused by susceptible western corn rootworm, northern corn rootworm, and Mexican corn rootworm.

NOTE: YOU MUST HAVE A SIGNED TECHNOLOGY USE AGREEMENT ON FILE AND AGREE TO ITS TERMS IN ORDER TO USE PRODUCTS WITH OPTIMUM ACREMAX® 1 INSECT PROTECTION TECHNOLOGIES.

REFUGE PERCENTAGE
NON-COTTON GROWING AREAS: On each farm, plant up to 80% of the corn acres to Optimum AcreMax® 1 Insect Protection products. Plant at least 20% of the corn acres to Optimum AcreMax® 1 Insect Protection products. Plant at least 50% of the corn acres to a corn borer refuge.

REFUGE DESIGN: The corn borer refuge for each field may be arranged in a number of configurations that allow the grower to easily incorporate an effective refuge into a farming operation. The refuge should be sown on the same day, or with the shortest window possible between planting dates. Options include:
- The refuge may be planted in-field, adjacent to (e.g., across the road), or as a separate block within 1/2 mile of the Optimum AcreMax® 1 Insect Protection corn field.
- In-field refuge options include: blocks, perimeter strips (i.e., along the edges or headlands), or in-field strips.
- When planting the refuge in strips across the field or as a perimeter, refuges must be at least four rows wide.
- Please note: Use of a neighbor’s field does not satisfy the refuge requirement.

INSECTICIDE USE
- Insecticides for the control of European corn borer, southwestern corn borer, earworm, black cutworm, fall armyworm, and western bean cutworm may be applied to the refuge only if economic thresholds are reached for one or more of these target insects.
- Economic thresholds will be determined using methods recommended by local or regional professionals (e.g., Extension Service agents, crop consultants).
- Microbial Bt insecticides must not be applied on the refuge.
- If the refuge is treated, the BT corn must also be treated.
- The Optimum AcreMax® 1 Insect Protection and refuge seed can both be treated with a soil applied, foliar applied or seed applied insecticides for corn rootworm control.

SALES AND PLANTING RESTRICTIONS
CALIFORNIA RESTRICTION: The planting of products with Optimum AcreMax 1 Insect Protection is prohibited in certain California counties. Contact your sales professional for additional details.

Puerto Rico Restriction: The sales, distribution, and planting of products with Optimum AcreMax 1 Insect Protection are prohibited in Puerto Rico.

INSECTICIDE USE
- For control of lepidopteran insects in the refuge, an insecticide such as Bacillus thuringiensis (Bt) Cry1F protein and the Bt Cry4Aa1 and Cry4Aab1 proteins and 10% seed containing the Herculex® I Insect Protection gene that produces a Bacillus thuringiensis Bt Cry1F protein and the Bt Cry4Aa1 and Cry4Aab1 proteins and 10% seed containing the Herculex® I Insect Protection gene that produces a Bacillus thuringiensis Bt Cry1F protein that provides protection or suppression against susceptible European corn borer, southwestern corn borer, black cutworm, fall armyworm, western bean cutworm, lesser corn stalk borer, southern corn stalk borer, sugarcane borer, and corn earworm; and also provide protection from larval injury caused by susceptible western corn rootworm, northern corn rootworm and Mexican corn rootworm. Product responses may vary by location, pest population, environmental conditions, and agricultural practices. These proteins and the genetic material necessary for their production in corn are registered under EPA Reg. No. 29864-6.

YOU MUST SIGN A TECHNOLOGY AGREEMENT. READ THE PRODUCT USE GUIDE PRIOR TO PLANTING AND FOLLOW INSECT RESISTANCE MANAGEMENT (IRM) REQUIREMENTS.

PATENT STATEMENT: The Herculex I and the Herculex RW Insect Resistance technologies incorporated into these seeds are protected by one or more U.S. patents. The purchase of these seeds includes a limited license to produce a single corn crop in the United States (or other applicable country). The use of seed from such a crop or the progeny thereof for propagation or seed multiplication or for production or development of a hybrid or different variety of seed is strictly prohibited.

INSECTICIDE USE
- Insecticides for the control of European corn borer, southwestern corn borer, earworm, black cutworm, fall armyworm, and western bean cutworm may be applied to the refuge only if economic thresholds are reached for one or more of these target insects.
- Economic thresholds will be determined using methods recommended by local or regional professionals (e.g., Extension Service agents, crop consultants).
- For control of lepidopteran insects in the refuge, an insecticide such as DuPont® Coragen® may be applied based on local recommended pest thresholds. For specific use instructions on Coragen® consult the product label or contact a DuPont Crop Protection representative.
- Microbial Bt insecticides must not be applied on the refuge.
- If the refuge is treated, the BT corn must also be treated.

SALES AND PLANTING RESTRICTIONS
CALIFORNIA RESTRICTION: The planting of hybrids with the HX1 trait is prohibited in certain California counties. Contact your sales professional for additional details.

Puerto Rico Restriction: The sales, distribution, and planting of hybrids with the HX1 trait are prohibited in Puerto Rico.

Puerto Rico Restriction: The sales, distribution, and planting of hybrids with the HX1 trait are prohibited in Puerto Rico.

PRODUCT USE STATEMENT: PRODUCT USE STATEMENT: This seed contains the Herculex® I Insect Protection gene that produces a Bacillus thuringiensis Bt Cry1F protein that provides protection or suppression against susceptible European corn borer; southwestern corn borer, black cutworm, fall armyworm, western bean cutworm, lesser corn stalk borer, southern corn stalk borer, sugarcane borer, and corn earworm. Product responses may vary by location, pest population, environmental conditions, and agricultural practices. This protein and the genetic material necessary for its production in corn are approved under EPA Reg. No. 02994-A.

YOU MUST SIGN A TECHNOLOGY AGREEMENT. READ THE PRODUCT USE GUIDE PRIOR TO PLANTING AND FOLLOW INSECT RESISTANCE MANAGEMENT (IRM) REQUIREMENTS.

PATENT STATEMENT: The Herculex I Insect Resistance technology incorporated into these seeds is protected under one or more U.S. patents. The purchase of these seeds includes a limited license to produce a single corn crop in the United States (or other applicable country). The use of seed from such a crop or the progeny thereof for propagation or seed multiplication or for production or development of a hybrid or different variety of seed is strictly prohibited.
Herculex XTRA (HX) Insect Protection

WHAT IS HERCULEX® XTRA INSECT PROTECTION TECHNOLOGY? Hybrids that contain Herculex® XTRA (HX) have two insect protection traits: the Herculex I (HX1) trait and the Herculex RW (HXRW) trait. Hybrids that contain HXX traits provide protection or suppression against susceptible European corn borer, southwestern corn borer, black cutworm, fall armyworm, western bean cutworm, lesser corn stalk borer, southern corn stalk borer, sugarcane borer, and corn earworm; and also provide protection from larval injury caused by susceptible western corn rootworm, northern corn rootworm, and Mexican corn rootworm.

NOTE: YOU MUST HAVE A SIGNED TECHNOLOGY USE AGREEMENT ON FILE AND AGREE TO ITS TERMS IN ORDER TO USE HYBRIDS WITH THE HXX TRAIT.

REFUGE OPTIONS

Common Refuge for Herculex Xtra Insect Protection
A common refuge is designed to address both corn borers and corn rootworms. The HXX and HXRW traits in HXX are managed as one component for refuge purposes. The common refuge must be planted with corn hybrids that do not contain Bt genes for the control of corn borers or corn rootworms. This option is the simplest and easiest to implement.

Separate Refuge for Herculex Xtra Insect Protection
A separate refuge is designed to work independently for each insect (i.e., corn borers and corn rootworms). The HX1 and HXRW components in HXX are managed separately for refuge purposes. This option offers more flexibility than the common refuge.

COMMON REFUGE

REFUGE PERCENTAGE – Non-Cotton Growing Areas

On each farm, plant up to 80% of your corn acres with hybrids that contain the HXX traits. Plant a minimum of 20% of your corn acres to a common refuge with hybrids that do not contain Bt traits for control of corn borer and corn rootworm.

For corn borers — Plant a minimum of 20% of your corn acres to a corn borer refuge that does not contain a Bt trait for control of corn borer.

For corn rootworms — Plant at least 20% of your corn acres to a corn rootworm refuge that does not contain a Bt trait for control of corn rootworm.

SEPARATE REFUGE

REFUGE PERCENTAGE – Southern Corn/Cotton Growing Areas

On each farm, plant up to 50% of your corn acres with hybrids that contain the HXX traits. Plant a minimum of 50% of your corn acres to a common refuge with hybrids that do not contain Bt traits for control of corn borer and corn rootworm.

For corn borers — Plant a minimum of 50% of your corn acres to a corn borer refuge that does not contain a Bt trait for control of corn borer.

For corn rootworms — Plant at least 20% of your corn acres to a corn rootworm refuge that does not contain a Bt trait for control of corn rootworm.

DISTANCE REQUIREMENT

For corn borers — Plant the corn borer refuge within, adjacent to, or near the fields that contain hybrids with Bt corn borer protection such as the HXX traits. The corn borer refuge must be planted within 1/2 mile of these fields. The refuge must be owned or managed by the same grower. A neighbor’s field cannot be used as the refuge.

For corn rootworms — Plant the corn rootworm refuge within or adjacent to fields that contain hybrids with Bt corn rootworm protection such as the HXX traits. The corn rootworm refuge can be separated by a ditch or a road but not by another field. The refuge must be owned or managed by the same grower. A neighbor’s field cannot be used as the refuge.

SALES AND PLANTING RESTRICTIONS

CALIFORNIA RESTRICTION: The planting of hybrids with the HXX traits is prohibited in certain California counties. Contact your Sales Professional for additional details.

PUERTO RICO RESTRICTION: The sales, distribution, and planting of hybrids with the HXX trait are prohibited in Puerto Rico.

PRODUCT USE STATEMENT: This seed contains the Herculex® XTRA Insect Protection genes that produce a Bacillus thuringiensis (Bt) Cry1F protein and the Bt Cry3Aa1 protein that provides protection or suppression against susceptible European corn borer, southwestern corn borer, black cutworm, fall armyworm, western bean cutworm, lesser corn stalk borer, southern corn stalk borer, sugarcane borer, and corn earworm; and also provide protection from larval injury caused by susceptible western corn rootworm, northern corn rootworm, and Mexican corn rootworm. Product responses may vary by location, pest population, environmental conditions, and agricultural practices. These proteins and the genetic material necessary for their production in corn are approved under EPA Reg. No. 29954-5.

You must sign a technology agreement. Read the product use guide prior to planting and follow insect resistance management (IRM) requirements.

PATENT STATEMENT: The Herculex I and Herculex RW Insect Resistance technologies incorporated into these seeds are protected under one or more U.S. patents. The purchase of these seeds includes a limited license to produce a single crop seed in the United States (or other applicable country). The use of seed from such a crop or the progeny thereof for propagation or seed multiplication or for production or development of a hybrid or different variety of seed is strictly prohibited.

CONTINUED ON NEXT PAGE
The refuge on each farm may be arranged in a number of different configurations that allow growers to easily incorporate an effective common refuge into their production practices. These include:

- The refuge may be planted in-field or adjacent to (e.g., across the road) the Optimum TRIsect Insect Protection hybrids.
- In-field refuge options include: blocks, perimeter strips (i.e., along the edges or headlands), or in-field strips.
- When planting the refuge in strips across the field or as in-field strips, refuges must be at least four rows wide.

SALES AND PLANTING RESTRICTIONS

California Restriction: The planting of hybrids with the Optimum TRIsect Insect Protection traits is prohibited in certain California counties. Contact your Sales Professional for additional details.

Puerto Rico Restriction: The sales, distribution, and planting of hybrids with the Optimum TRIsect Insect Protection trait are prohibited in Puerto Rico.

**PRODUCT USE STATEMENT:** This seed contains the Hercules® Insect Protection gene that produces a Bacillus thuringiensis (Bt) CryFF protein and the Agrisure® RW gene that produces a Bt mCry3A protein that provide protection or suppression against susceptible European corn borer, southwestern corn borer, black cutworm, fall armyworm, western bean cutworm, lesser corn stalk borer, southern corn stalk borer, sugarcane borer, and corn earworm; and also provide protection from larval injury caused by susceptible western corn rootworm, northern corn rootworm, and Mexican corn rootworm.

**YOU MUST SIGN A TECHNOLOGY AGREEMENT, READ THE PRODUCT USE GUIDE PRIOR TO PLANTING AND FOLLOW INSECT RESISTANCE MANAGEMENT (IRM) REQUIREMENTS.**

**PATENT STATEMENT:** The Herculex I Insect Resistance technology incorporated into these seeds is protected under one or more U.S. patents. The purchase of these seeds includes a limited license to produce a single corn crop in the United States (or other applicable production country). The use of seed from such a crop or the progeny thereof for propagation or seed multiplication or for production or development of a hybrid or different variety of seed is strictly prohibited. The use of seed from such a hybrid or the progeny thereof for propagation, seed multiplication, production or development of a hybrid or different variety of seed, research, breeding or crossing is strictly prohibited. Resale or transfer of this seed is strictly prohibited.
Insect Resistance Management Grower Guide

Optimum® Intrasect® Insect Protection

(HX1, YGCB, LL, RR2)

Insect Resistance Management (IRM) Requirements

IMPORTANT: READ PRIOR TO PLANTING

WHAT IS OPTIMUM® INTRASECT® INSECT PROTECTION TECHNOLOGY? | Hybrids containing Optimum® Intrasect® Insect Protection provide protection or suppression against susceptible European corn borer, southwestern corn borer, black cutworm, fall armyworm, western bean cutworm, lesser corn stalk borer, southern corn stalk borer, sugarcane borer, stalk borer, and corn earworm.

WHAT IS OPTIMUM® LEPTRA® TECHNOLOGY? | Hybrids containing Optimum® Leptra® Insect Protection provide protection or suppression against susceptible corn earworm, European corn borer, southwestern corn borer, black cutworm, fall armyworm, western bean cutworm, lesser corn stalk borer, southern corn stalk borer, stalk borer, and sugarcane borer.

NOTE: YOU MUST HAVE A SIGNED TECHNOLOGY USE AGREEMENT ON FILE AND AGREE TO ITS TERMS IN ORDER TO USE HYBRIDS WITH THE OPTIMUM LEPTRA INSECT PROTECTION TRAITS.

SALES AND PLANTING RESTRICTIONS

CALIFORNIA RESTRICTION: The planting of Optimum Intrasect Insect Protection hybrids is prohibited in certain California counties. Contact your sales professional for additional details.

PUERTO RICO RESTRICTION: The sales, distribution, and planting of Optimum Intrasect Insect Protection hybrids is prohibited in Puerto Rico.

SALES AND PLANTING RESTRICTIONS

Insect Resistance Management Grower Guide

Optimum® Leptra® Insect Protection

(HX1, YGCB, AVBL, LL, RR2)

Insect Resistance Management (IRM) Requirements

IMPORTANT: READ PRIOR TO PLANTING

WHAT IS OPTIMUM® LEPTRA® TECHNOLOGY? | Hybrids containing Optimum® Leptra® Insect Protection provide protection or suppression against susceptible corn earworm, European corn borer, southwestern corn borer, black cutworm, fall armyworm, western bean cutworm, lesser corn stalk borer, southern corn stalk borer, stalk borer, and sugarcane borer.

NOTE: YOU MUST HAVE A SIGNED TECHNOLOGY USE AGREEMENT ON FILE AND AGREE TO ITS TERMS IN ORDER TO USE HYBRIDS WITH THE OPTIMUM LEPTRA INSECT PROTECTION TRAITS.

SALES AND PLANTING RESTRICTIONS

CALIFORNIA RESTRICTION: The planting of Optimum Leptra Insect Protection hybrids is prohibited in certain California counties. Contact your sales professional for additional details.

SALES AND PLANTING RESTRICTIONS

Insect Resistance Management Grower Guide

Optimum® Intrasect® Insect Protection

(HX1, YGCB, LL, RR2)

Insect Resistance Management (IRM) Requirements

IMPORTANT: READ PRIOR TO PLANTING

WHAT IS OPTIMUM® INTRASECT® INSECT PROTECTION TECHNOLOGY? | Hybrids containing Optimum® Intrasect® Insect Protection provide protection or suppression against susceptible European corn borer, southwestern corn borer, black cutworm, fall armyworm, western bean cutworm, lesser corn stalk borer, southern corn stalk borer, sugarcane borer, stalk borer, and corn earworm.

WHAT IS OPTIMUM® LEPTRA® TECHNOLOGY? | Hybrids containing Optimum® Leptra® Insect Protection provide protection or suppression against susceptible corn earworm, European corn borer, southwestern corn borer, black cutworm, fall armyworm, western bean cutworm, lesser corn stalk borer, southern corn stalk borer, stalk borer, and sugarcane borer.

NOTE: YOU MUST HAVE A SIGNED TECHNOLOGY USE AGREEMENT ON FILE AND AGREE TO ITS TERMS IN ORDER TO USE HYBRIDS WITH THE OPTIMUM LEPTRA INSECT PROTECTION TRAITS.

SALES AND PLANTING RESTRICTIONS

IMPORTANT: READ PRIOR TO PLANTING

WHAT IS OPTIMUM® INTRASECT® INSECT PROTECTION TECHNOLOGY? | Hybrids containing Optimum® Intrasect® Insect Protection provide protection or suppression against susceptible European corn borer, southwestern corn borer, black cutworm, fall armyworm, western bean cutworm, lesser corn stalk borer, southern corn stalk borer, sugarcane borer, stalk borer, and corn earworm.

IMPORTANT: READ PRIOR TO PLANTING

WHAT IS OPTIMUM® LEPTRA® TECHNOLOGY? | Hybrids containing Optimum® Leptra® Insect Protection provide protection or suppression against susceptible corn earworm, European corn borer, southwestern corn borer, black cutworm, fall armyworm, western bean cutworm, lesser corn stalk borer, southern corn stalk borer, stalk borer, and sugarcane borer.

NOTE: YOU MUST HAVE A SIGNED TECHNOLOGY USE AGREEMENT ON FILE AND AGREE TO ITS TERMS IN ORDER TO USE HYBRIDS WITH THE OPTIMUM LEPTRA INSECT PROTECTION TRAITS.

SALES AND PLANTING RESTRICTIONS

CALIFORNIA RESTRICTION: The planting of Optimum Leptra Insect Protection hybrids is prohibited in certain California counties. Contact your sales professional for additional details.

CALIFORNIA RESTRICTION: The planting of Optimum Leptra Insect Protection hybrids is prohibited in certain California counties. Contact your sales professional for additional details.
Insect Resistance Management Grower Guide

**Optimum Intrasect XTreme Insect Protection**

**SALES AND PLANTING RESTRICTIONS**

**CALIFORNIA RESTRICTION:** The planting of Optimum Intrasect XTreme products is prohibited in certain California counties. Contact your sales professional for additional details.

**PUERTO RICO RESTRICTION:** The sales, distribution, and planting of Optimum Intrasect XTreme products is prohibited in Puerto Rico.

**PRODUCT USE STATEMENT:** This seed contains the Hercule® XTreme Insect Protection genes that produce a Bacillus thuringiensis (Bt) Cry1F protein and the Bt Cry3Bb1 protein; the AgriPro® RM trait that includes a gene that produces a Bt Cry3A protein, and the YieldGard® Corn Borer gene that produces a Bt Cry3A protein that provide protection or suppression against susceptible European corn borer, southwestern corn borer, black cutworm, fall armyworm, western bean cutworm, lesser corn stalk borer, southern corn stalk borer, sugarcane borer, stalk borer, and corn earworm; and also provide protection from larval injury caused by susceptible western corn rootworm, northern corn rootworm, and Mexican corn rootworm.

**NOTE:** YOU MUST HAVE A SIGNED TECHNOLOGY USE AGREEMENT ON FILE AND AGREE TO ITS TERMS IN ORDER TO USE HYBIDS WITH THE OPTIMUM INTRASECT XTREME INSECT PROTECTION TRAITS.

**REFUGE PERCENTAGE**

**NON-COTTON GROWING AREAS:** On each farm, plant up to 95% of the corn acres with Optimum Intrasect XTreme Insect Protection hybrids. Plant a minimum of 5% of the corn acres to a refuge.

**SOUTHERN CORN/COTTON GROWING AREAS:** On each farm, plant up to 80% of the corn acres with Optimum Intrasect XTreme Insect Protection hybrids. Plant a minimum of 20% of the corn acres to a refuge.

**REFUGE DESIGN:** The refuge on each farm may be arranged in a number of different configurations that allow growers to easily incorporate an effective refuge into a farming operation. The refuge should be on the same day, or with the shortest window possible between planting dates. Options include:

- The refuge may be planted in-field or adjacent to (e.g., across the road) the Optimum Intrasect XTreme Insect Protection hybrids. In field refuge options include: blocks, perimeter strips (i.e., along the edges or headlands), or in-field strips.
- When planting the refuge in strips across the field, refuges must be four rows wide.
- Please note: A neighbor’s field does not satisfy the refuge requirement.

**INSECTICIDE USE**

- Insecticides for the control of European corn borer, corn earworm, southwestern corn borer, fall armyworm, black cutworm, western bean cutworm, lesser corn stalk borer, southern corn stalk borer, stalk borer, and sugarcane borer may be applied only if economic thresholds are reached for one or more of these target insects.
- Economic thresholds will be determined using methods recommended by local or regional professionals (e.g., Extension Service agents, crop consultants).
- The refuge can be treated with a soil-applied, foliar-applied or seed-applied insecticide for corn rootworm control. However, insecticides labeled for adult corn rootworm control must not be applied on the refuge when adult corn rootworms are present.
- Microbial Bt insecticides must not be applied on the refuge.

**WHAT IS OPTIMUM® INTRASECT® XTREME INSECT PROTECTION TECHNOLOGY?**

Hybrids containing Optimum® Intrasect® XTreme Insect Protection provide protection or suppression against susceptible European corn borer, southwestern corn borer, black cutworm, fall armyworm, western bean cutworm, lesser corn stalk borer, southern corn stalk borer, stalk borer, sugarcane borer, and corn earworm; and also provide protection from larval injury caused by susceptible western corn rootworm, northern corn rootworm, and Mexican corn rootworm.

**NOTE:** YOU MUST HAVE A SIGNED TECHNOLOGY USE AGREEMENT ON FILE AND AGREE TO ITS TERMS IN ORDER TO USE HYBIDS WITH THE OPTIMUM INTRASECT XTREME INSECT PROTECTION TRAITS.

**REFUGE OPTIONS**

- **Common Refuge for Optimum Intrasect Xtra Insect Protection**
  A common refuge is designed to address both corn borers and corn rootworms. The Optimum Intrasect Xtra Insect Protection traits are managed as one component for refuge purposes. The common refuge must be planted with corn hybrids that do not contain Bt genes for the control of corn borers or corn rootworms. This option is the simplest and easiest to implement.

- **Separate Refuge for Optimum Intrasect Xtra Insect Protection**
  A separate refuge is designed to work independently for each insect (i.e., corn borers and corn rootworms). The Optimum Intrasect Xtra Insect Protection components are managed separately for refuge purposes. This option offers more flexibility than the common refuge.

**COMMON REFUGE**

- **SEPARATE REFUGE**
  - For corn borers – Plant a minimum of 20% of your corn acres to a corn borer refuge that does not contain a Bt trait for control of corn borer.
  - For corn rootworms – Plant at least 20% of your corn acres to a corn rootworm refuge that does not contain a Bt trait for control of corn rootworm.

**DISTANCE REQUIREMENT**

- For corn borers – Plant the corn borer refuge within, adjacent to, or near the fields that contain Optimum Intrasect Xtra Insect Protection hybrids with Bt corn borer protection. The corn borer refuge must be placed within 12 miles of these fields. The refuge must be owned or managed by the same grower. A neighboring field cannot be used as the refuge.
- For corn rootworms – Plant the corn rootworm refuge within or adjacent to fields that contain Optimum Intrasect Xtra Insect Protection hybrids with Bt corn rootworm protection. The corn refuge can be separated by a ditch or a road, but not by another field. The refuge must be owned or managed by the same grower. A neighbor’s field cannot be used as the refuge.

**COMMON REFUGE**

- **SEPARATE REFUGE**
  - For corn borers – Plant a minimum of 20% of your corn acres to a corn borer refuge that does not contain a Bt trait for control of corn borer.
  - For corn rootworms – Plant at least 20% of your corn acres to a corn rootworm refuge that does not contain a Bt trait for control of corn rootworm.

**DISTANCE REQUIREMENT**

- For corn borers – Plant the corn borer refuge within, adjacent to, or near the fields that contain Optimum Intrasect Xtra Insect Protection hybrids with Bt corn borer protection. The corn borer refuge must be placed within 12 miles of these fields. The refuge must be owned or managed by the same grower. A neighboring field cannot be used as the refuge.
- For corn rootworms – Plant the corn rootworm refuge within or adjacent to fields that contain Optimum Intrasect Xtra Insect Protection hybrids with Bt corn rootworm protection. The corn refuge can be separated by a ditch or a road, but not by another field. The refuge must be owned or managed by the same grower. A neighbor’s field cannot be used as the refuge.

**WHAT IS OPTIMUM® INTRASECT® XTREME INSECT PROTECTION TECHNOLOGY?**

Hybrids containing Optimum® Intrasect® XTreme Insect Protection provide protection or suppression against susceptible European corn borer, southwestern corn borer, black cutworm, fall armyworm, western bean cutworm, lesser corn stalk borer, southern corn stalk borer, stalk borer, sugarcane borer, and corn earworm; and also provide protection from larval injury caused by susceptible western corn rootworm, northern corn rootworm, and Mexican corn rootworm.
The refuge on each farm may be arranged in a number of configurations that allow the grower to easily incorporate an effective corn rootworm refuge into farm operations. The refuge should be planted in the same timeframe to Optimum Intrassect Xtra Insect Protection acres. Pests on the Optimum Intrassect Xtra Insect Protection acres can be treated as needed without having to treat the common refuge.

For corn borers – The corn borer refuge on each farm can be arranged in a number of configurations that allow the grower to easily incorporate an effective corn refuge into farm operations. The refuge should be planted in the shortest window possible between planting dates. Options include:

- The refuge may be planted in-field, adjacent to, across the road, or as a separate block within 1/2 mile of the Optimum Intrassect Xtra Insect Protection hybrids.
- In-field refuge options include: blocks, perimeter strips (i.e., along the edges or headlands), or in-field strips.
- When planting the refuge in strips across the field or as a perimeter, refuges must be at least four rows wide.
- For corn rootworms – The corn rootworm refuge on each farm can be arranged in a number of configurations that allow the grower to easily incorporate an effective corn rootworm refuge into farm operations. The refuge should be sown on the same day, or with the shortest window possible between planting dates. Options include:

- The refuge may be planted in-field, adjacent to, across the road, or as a separate block within 1/2 mile of the Optimum Intrassect Xtra Insect Protection hybrids.
- In-field refuge options include: blocks, perimeter strips (i.e., along the edges or headlands), or in-field strips.
- When planting the refuge in strips across the field or as a perimeter, refuges must be at least four rows wide.

SALES AND PLANTING RESTRICTIONS

CALIFORNIA RESTRICTION: The planting of Optimum Intrassect Xtra Insect Protection hybrids is prohibited in certain California counties. Contact your Sales Professional for additional details.

PUERTO RICO RESTRICTION: The sales, distribution, and planting of Optimum Intrassect Xtra Insect Protection hybrids are prohibited in Puerto Rico.

PRODUCT USE STATEMENT: This seed contains the Herculex® XTRA Insect Protection gene that produces a Bacillus thuringiensis (Bt) Cry1F protein and the Bt Cry3Ab1 and Cry3Sa1 proteins and also contains the YIELDGARD® Corn Borer gene that produces a Biotype Cry4Ab protein that provide protection or suppression against susceptible European corn borer, southwestern corn borer, black cutworm, fall armyworm, western bean cutworm, lesser corn stalk borer, southern corn stalk borer, stalk borer, sugarcane borer, and corn earworm; and also provide protection from larval injury caused by susceptible western corn rootworm, northern corn rootworm, and Mexican corn rootworm.

WHAT IS OPTIMUM® INTRASECT® TRISECT® INSECT PROTECTION TECHNOLOGY? Hybrids containing Optimum® Intrassect® TRIsect® Insect Protection provide protection or suppression against susceptible European corn borer, southwestern corn borer, black cutworm, fall armyworm, western bean cutworm, lesser corn stalk borer, southern corn stalk borer, stalk borer, sugarcane borer, and corn earworm; and also provide protection from larval injury caused by susceptible western corn rootworm, northern corn rootworm, and Mexican corn rootworm.

Insect Resistance Management Grower Guide

Optimum® Intrassect® TRIsect® Insect Protection

RW, YGCB, HX1, LL, R22

Important: Read Prior to Planting

SALES AND PLANTING RESTRICTIONS

CALIFORNIA RESTRICTION: The planting of Optimum Intrassect TRIsect Insect Protection hybrids is prohibited in certain California counties. Contact your Sales Professional for additional details.

PUERTO RICO RESTRICTION: The sales, distribution, and planting of Optimum Intrassect TRIsect Insect Protection hybrids are prohibited in Puerto Rico.

PRODUCT USE STATEMENT: This seed contains the Herculex® and Hercules® RW Insect Resistance technologies incorporated into these seeds are protected under one or more U.S. patents. The purchase of these seeds includes a limited license to produce a single corn crop in the United States (or any applicable country). The use of seed from such crops or the progeny thereof for propagation or seed multiplication or for production or development of a hybrid or different variety of seed is strictly prohibited.

This license does not extend to the use of seed from such crop or the progeny thereof for propagation or seed multiplication. Furthermore, the use of such seed or the progeny thereof for propagation or seed multiplication or for production or development of a hybrid or different variety of seed is strictly prohibited.

You must sign a technology agreement, read the product use guide prior to planting and follow insect resistance management (IRM) requirements.

PARENT STATEMENT: The Herculex I and Hercules RW Insect Resistance technologies incorporated into these seeds are protected under one or more U.S. patents. The purchase of these seeds includes a limited license to produce a single corn crop in the United States (or any applicable country). The use of seed from such crops or the progeny thereof for propagation or seed multiplication is strictly prohibited. This license does not extend to the use of seed from such crop or the progeny thereof for propagation or seed multiplication. Furthermore, the use of such seed or the progeny thereof for propagation or seed multiplication or for production or development of a hybrid or different variety of seed is strictly prohibited.

You must sign a technology agreement, read the product use guide prior to planting and follow insect resistance management (IRM) requirements.

IMPORTANT: READ PRIOR TO PLANTING

SALES AND PLANTING RESTRICTIONS

CALIFORNIA RESTRICTION: The planting of Optimum Intrassect TRIsect Insect Protection hybrids is prohibited in certain California counties. Contact your Sales Professional for additional details.

PUERTO RICO RESTRICTION: The sales, distribution, and planting of Optimum Intrassect TRIsect Insect Protection hybrids are prohibited in Puerto Rico.

PRODUCT USE STATEMENT: This seed contains the Herculex® and Hercules® RW Insect Resistance technologies incorporated into these seeds are protected under one or more U.S. patents. The purchase of these seeds includes a limited license to produce a single corn crop in the United States (or any applicable country). The use of seed from such crops or the progeny thereof for propagation or seed multiplication is strictly prohibited. This license does not extend to the use of seed from such crop or the progeny thereof for propagation or seed multiplication. Furthermore, the use of such seed or the progeny thereof for propagation or seed multiplication or for production or development of a hybrid or different variety of seed is strictly prohibited.

What is Optimum® Intrassect® TRIsect® Insect Protection Technology? Hybrids containing Optimum® Intrassect® TRIsect® Insect Protection provide protection or suppression against susceptible European corn borer, southwestern corn borer, black cutworm, fall armyworm, western bean cutworm, lesser corn stalk borer, southern corn stalk borer, stalk borer, sugarcane borer, and corn earworm; and also provide protection from larval injury caused by susceptible western corn rootworm, northern corn rootworm, and Mexican corn rootworm.

Important: You must sign a technology agreement, read the product use guide prior to planting and follow insect resistance management (IRM) requirements.
Common refuge

The common refuge can be treated for corn rootworm larvae and other soil pests with soil-applied, seed-applied or foliar-applied insecticides. The refuge can also be treated with a non-Bt folaire insecticide to control pests such as corn borer if pest pressure reaches an economic threshold for damage. Economic thresholds will be determined using methods recommended by local crop professionals (e.g., Extension Service agents, crop consultants). Pests other than adult corn rootworms can be treated on the combined refuge acres, without treating the Optimum Intrasect TRIsect Insect Protection acres, only if treatment occurs when adult corn rootworms are not present in the refuge. If aerial insecticides are applied to the common refuge, the refuge should be sown on the same day, or with the shortest window possible between planting dates. Options include:

- The refuge may be planted in-field or adjacent to (e.g., across the road) or as a separate block within 1/2 mile of the Optimum Intrasect TRIsect Insect Protection hybrids.
- In-field refuge options include: blocks, perimeter strips (i.e., along the edges or headlands), or in-field strips.
- When planting the refuge in strips across the field or as a perimeter, it must be at least four rows wide.
- When planting the refuge in strips across the field or as a perimeter, it must be at least four rows wide.

Separate refuge

The refuge on each farm may be arranged in a number of different configurations that allow growers to easily incorporate an effective corn refuge into farm operations. The refuge should be sown on the same day, or with the shortest window possible between planting dates. Options include:

- The refuge may be planted in-field or adjacent to (e.g., across the road) or as a separate block within 1/2 mile of the Optimum Intrasect TRIsect Insect Protection hybrids.
- In-field refuge options include: blocks, perimeter strips (i.e., along the edges or headlands), or in-field strips.
- When planting the refuge in strips across the field or as a perimeter, it must be at least four rows wide.
- When planting the refuge in strips across the field or as a perimeter, it must be at least four rows wide.

| For corn borers | The corn borer refuge can be treated with a soil-applied, seed-applied, or foliar-applied insecticide for corn rootworm larval control. The corn borer refuge can be protected from corn rootworm damage by planting a hybrid with corn rootworm protection technology (such as Herculex® Rl). The refuge can also be treated with a non-Bt folaire insecticide to control pests such as corn borer, if pest pressure reaches an economic threshold for damage. Economic thresholds will be determined using methods recommended by local crop professionals (e.g., Extension Service agents, crop consultants). 
- When using this gene, the refuge should be sown on the same day, or with the shortest window possible between planting dates. Options include:
  - The refuge may be planted in-field, adjacent to (e.g., across the road), or as a separate block within 1/2 mile of the Optimum Intrasect TRIsect Insect Protection hybrids. 
  - In-field refuge options include: blocks, perimeter strips (i.e., along the edges or headlands), or in-field strips. 
  - When planting the refuge in strips across the field or as a perimeter, it must be at least four rows wide. 
  - When planting the refuge in strips across the field or as a perimeter, it must be at least four rows wide. 
  - When planting the refuge in strips across the field or as a perimeter, it must be at least four rows wide. | For corn rootworms | The corn rootworm refuge can be treated with a soil-applied, seed-applied, or foliar-applied insecticide for corn rootworm larval control. The corn rootworm refuge can be protected from corn rootworm damage by planting a hybrid with corn rootworm protection technology (such as Herculex® Rl). The refuge can also be treated with a non-Bt folaire insecticide to control pests such as corn borer, if pest pressure reaches an economic threshold for damage. Economic thresholds will be determined using methods recommended by local crop professionals (e.g., Extension Service agents, crop consultants). 
- The refuge on each farm may be arranged in a number of different configurations that allow growers to easily incorporate an effective corn refuge into farm operations. The refuge should be sown on the same day, or with the shortest window possible between planting dates. Options include:
  - The refuge may be planted in-field or adjacent to (e.g., across the road) or as a separate block within 1/2 mile of the Optimum Intrasect TRIsect Insect Protection hybrids. 
  - In-field refuge options include: blocks, perimeter strips (i.e., along the edges or headlands), or in-field strips. 
  - When planting the refuge in strips across the field or as a perimeter, it must be at least four rows wide. 
  - When planting the refuge in strips across the field or as a perimeter, it must be at least four rows wide. 
  - When planting the refuge in strips across the field or as a perimeter, it must be at least four rows wide. 

Soybean Variety with the Genetically Roundup Ready 2 Yield Trait or Glyphosate Tolerant Trait

Starting clean with a weed-free field and controlling subsequent weeds when they are small is critical to obtaining excellent weed control and maximum yield potential. The Roundup Ready Soybean System provides the flexibility to use the local efficacy of herbicides tools necessary to control central weeds before planting, at planting and in-crop. Failure to control weeds with the right rate, at the right time and with the right product, can lead to increased weed competition, the potential for selecting for weed resistance and possible decreased yield.

Spray labeled glyphosate agricultural herbicides in-crop from emergence (cracking) through flowering (R2 stage soybeans) for selective weed control, proven crop safety and maximum yield potential. Roundup Soybeans and when a post 5 milligrams/L (36 ounce/L) long at one of the uppermost corners appears on the main stem with a fully developed leaf (R2 stage).

Guidelines

Follow all pesticide label directions. Follow the guidelines below to help minimize the risk of developing glyphosate resistance weed populations in a Roundup Ready Soybean System:

- Scout fields before and after each burnoff and in-crop application.
- Start with a clean field, using either a burnoff herbicide application, residual herbicide or tillage, making sure weeds are controlled at planting.
- Apply additional residual herbicides for broad spectrum weed control at the recommended rates appropriate for the target weed spectrum to reduce the risk of selection for herbicide resistant biotypes.

IMPORTANT: READ Prior TO PLANTING

SALES AND PLANTING RESTRICTIONS

CALIFORNIA RESTRICTION: The planting of Optimum Intrasect TRIsect Insect Protection hybrids is prohibited in certain California counties. Contact your Sales Professional for additional details.

PUERTO RICO RESTRICTION: The sales, distribution, and planting of Optimum Intrasect TRIsect Insect Protection hybrids are prohibited in Puerto Rico.

PRODUCT USE STATEMENT: This seed contains the Herculex® I Insect Protection technology which incorporates the Herculex I Insect Resistance technology into these seeds. This technology is protected under one or more U.S. and/or foreign patents and applications. The seed from any portion of this crop cannot be used for planting a subsequent crop whether sold for propagation or seed multiplication or for production or development of a hybrid or different variety of seed is strictly prohibited. The Roundup Ready trait technology is protected under one or more U.S. and/or foreign patents and applications. The seed from any portion of this crop cannot be used for planting a subsequent crop. Resale of the transgenic seed is prohibited.

PATENT STATEMENT: The Herculex I Insect Resistance technology incorporated into these seeds is protected under one or more U.S. patents.

Glycine max L. Merr. ALL USES OF ROUNDUP® READY 2 YIELD® SOYBEAN SEEDS ARE SUBJECT TO THE FOLLOWING TERMS AND CONDITIONS: Roundup® Ready 2 Yield® is a trademark of Monsanto Technology LLC used under license.

THIS SEED IS ACQUIRED UNDER AN AGREEMENT THAT INCLUDES THE FOLLOWING TERMS:

- ACCIDENTAL APPLICATION OF INCOMPATIBLE HERBICIDES TO THIS VARIETY COULD RESULT IN TOTAL CROP LOSS.

ROUNDUP READY 2 YIELD SOYBEAN PRODUCT USE STATEMENT: This soybean contains the Roundup Ready 2 Yield® gene, developed by Monsanto Co. WARNING: Glycine max L. Merr. ALL USES OF ROUNDUP® READY 2 YIELD® SOYBEAN SEEDS ARE SUBJECT TO THE FOLLOWING TERMS AND CONDITIONS: Roundup® Ready 2 Yield® is a trademark of Monsanto Technology LLC used under license.

-Glyphosate Tolerant Soybean Product Use Statement: This variety contains a gene that confers tolerance in glyphosate herbicide dosages. WARNING: Glycine max L. Merr. ALL USES OF ROUNDUP® READY 2 YIELD® SOYBEAN SEEDS ARE SUBJECT TO THE FOLLOWING TERMS AND CONDITIONS: Roundup® Ready 2 Yield® is a trademark of Monsanto Technology LLC used under license.

- Glyphosate Tolerant Soybean Product Use Statement: This variety contains a gene that confers tolerance in glyphosate herbicide dosages. WARNING: Glycine max L. Merr. ALL USES OF ROUNDUP® READY 2 YIELD® SOYBEAN SEEDS ARE SUBJECT TO THE FOLLOWING TERMS AND CONDITIONS: Roundup® Ready 2 Yield® is a trademark of Monsanto Technology LLC used under license.

- Glyphosate Tolerant Soybean Product Use Statement: This variety contains a gene that confers tolerance in glyphosate herbicide dosages. WARNING: Glycine max L. Merr. ALL USES OF ROUNDUP® READY 2 YIELD® SOYBEAN SEEDS ARE SUBJECT TO THE FOLLOWING TERMS AND CONDITIONS: Roundup® Ready 2 Yield® is a trademark of Monsanto Technology LLC used under license.

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Soybean Varieties with Roundup Ready 2 Xtend® Technology

Soybean varieties with Roundup Ready 2 Xtend® technology contain in-plant tolerance to glyphosate and dicamba herbicides.

Weed Management Guidelines

Some naturally occurring weed biotypes that are tolerant (resistant) to herbicides may exist due to genetic variability in a weed population. Where resistant biotypes exist, the repeated use of herbicides with the same modes of action can lead to the selection for resistant weeds. Certain agronomic practices delay or reduce the likelihood that resistant weed populations will develop and can be utilized to manage weed resistance once it occurs. Proactively implementing diversified weed control strategies to maximize selection for weed populations resistant to one or more herbicides is a best practice. A diversified weed management program may include the use of multiple herbicides with different modes of action and overlapping weed spectrum with or without tillage and/or other cultural practices.

Always follow label requirements and use the following best management practices for sustainable, effective weed control:

- Scout fields before and after each herbicide application.
- Start with a clean field, using either a burndown herbicide application, residual herbicide or tillage, making sure weeds are controlled at planting.
- Apply additional residual herbicides for broad-spectrum weed control at the recommended rates appropriate for the target weed spectrum to reduce the risk of selection for herbicide resistant biotypes.
- Equipment should be cleaned before moving from field to field to help minimize the spread of weed seeds.
- Report any incidence of repeated non-performance of agricultural herbicides on a particular weed to the appropriate company representative, local retailer or county extension agent.

Additional Information

Dicamba herbicide is not currently approved for commercial in-crop use with soybeans with Roundup Ready 2 Xtend® technology and nothing herein in a promotion or an offer to sell dicamba herbicide for this use. It is a violation of federal law to promote or offer to sell unregistered pesticide or a registered pesticide for an unregistered use.

Weeds such as lambquarters, waterhemp, pigweed, and plantain, can spread or become resistant to the repeated use of the same herbicide mode of action. Sequential glyphosate applications or the addition of a soil residual herbicide may be required for control of subsequent weed flushes. Various weed biotypes are known to be resistant to glyphosate. For the current weed control recommendations for glyphosate-resistant weed biotypes, contact your local sales representative. Approved labels, including supplemental labeling must be in the possession of the user at the time of pesticide application and can be obtained by contacting the State Pesticide Lead Agency for more information. Various weed biotypes are known to be resistant to other herbicides as well. Use herbicides and combinations of herbicides that will control the weed biotypes and species that are present on your farm.

EXTRACTION APPROVAL NOTICE: These products are approved for planting in the United States and Canada. While many important registrations are in place, grain and byproducts produced from grain containing this technology may not be authorized in some markets. Growers that use this product are required and agree to adhere to the stewardship requirements as outlined in the Product Use Guide and product-specific stewardship requirements for this product. For questions regarding product stewardship and biotech traits, please contact your local sales representative. Growers are required to discuss their biotech traits acceptance and grain purchasing policies with their local grain handler prior to delivering grain containing biotech traits.

Management of herbicide resistance in weeds

The potential for weeds to develop resistance to herbicides must be considered when planning herbicide use. Herbicide resistance in weeds can develop and spread when a resistant plant reproduces and multiples while being exposed to repeated use of the same herbicide mode of action.

- Maintain detailed field records so that cropping and herbicide history is known.
- Scout fields after herbicide application to detect weed escapes or shifts. If a potentially resistant weed or weed population has been detected, use available control methods to avoid seed dispersion in the field.
- Clean equipment before moving between fields and after harvest to minimize the dispersion of weed and volunteer seed.
- If you suspect a weed control failure is caused by weed resistance to an herbicide you should first contact your local representative.

PRODUCT USE STATEMENT: Roundup Ready 2 Xtend® Soybeans contain MON 87701 and MON 87818. As of August 22, 2016 no dicamba herbicide product has been approved for commercial in-crop use with Roundup Ready 2 Xtend® soybeans. Do NOT AMPHIBICOMBO (HVICROP) TO ROUNDUP READY 2 XTEND® SOYBEANS unless you use a dicamba herbicide product that is specifically labeled for that use in the location where you intend to make the application. Some dicamba products may be labeled for burndown weed control and are subject to minimum plant back restrictions. IT IS A VIOLATION OF FEDERAL AND STATE LAW TO MAKE AN IN CROP APPLICATION OF ANY DICAMBA HERBICIDE PRODUCT ON ROUNDUP READY 2 XTEND® SOYBEANS, OR ANY OTHER PESTICIDE UNTIL THE PRODUCT LABELING SPECIFICALLY AUTHORIZES THE USE. Contact the U.S. EPA and your state pesticide regulatory agency with any questions about the approval status of dicamba herbicides products with Roundup Ready 2 Xtend® soybeans.

WARNING: The Roundup Ready 2 Xtend® gene will only safeguard this variety against applications of glyphosate-resistant dicamba. The Roundup Ready 2 Xtend® gene will NOT safeguard this variety against other herbicides such as sulfonylurea herbicides, which can also be used over-the-top of crops that have a different and specific herbicide resistance gene. Always read and follow herbicide label directions prior to use.

ACCIDENTAL APPLICATION OF INCOMPATIBLE HERBICIDES TO THIS VARIETY COULD RESULT IN TOTAL CROP LOSS. WE DO NOT WARRANT THE CROP SAFETY OR PERFORMANCE OF ANY HERBICIDES.

THIS SEED IS ACQUIRED UNDER AN AGREEMENT THAT INCLUDES THE FOLLOWING TERMS: (The licensees and/or Patents for Roundup Ready 2 Xtend® seed can be found at the following website: www.monsantotechnology.com). IF YOU HAVE NOT SIGNED A SEED AND TECHNOLOGY USE AGREEMENT, THEN THIS DOCUMENT IS NOT AN OFFER OR ACCEPTANCE OF AN OFFER FOR SALE OF THE PRODUCTS LISTED HEREIN OR ANY PURPORTED SALE OF SUCH PRODUCTS IS VOID. IF YOU HAVE RECEIVED PRODUCTS WITHOUT SIGNING A SEED AND TECHNOLOGY USE AGREEMENT, YOUR USE OF THOSE PRODUCTS IS PROHIBITED.

Soybeans with BOLT Technology

Why should I grow brand soybeans with BOLT® technology?

DuPont Pioneer is pleased to offer our customers a new herbicide system for cleaner fields and more options to adjust crop acres with changing market and growing conditions. BOLT technology now enables farmers to plant soybeans immediately following burn down with DuPont® LeadOff® or DuPont® Basis® Blend herbicides for effective, long-lasting control of problem weeds, pending herbicide label approval.

- Proven chemistry combined with zero-day plant-back provides clean fields well into the season for a stronger start.
- BOLT® technology gives growers the ability to control weeds early, react to changing weather conditions and take advantage of last-minute market opportunities as they finalize planting decisions.
- LeadOff® and Basis® Blend herbicides will be labeled for burn down in soybeans with BOLT technology and crop providing greater cropping flexibility.

In wheat-soybean double crop rotations, BOLT technology provides excellent plant-back flexibility following application of DuPont® Finesse® dicamba herbicide.

- BOLT technology enables one of the shortest plant-back intervals in the industry when soybeans follow a Finesse® application in wheat.
- BOLT technology provides additional post-emerge weed control options to control problem weeds by enabling farmers to use herbicides at rates labeled for DuPont® STS® soybean systems. Soybeans with BOLT technology can be used with any chemistry labeled for soybeans with the STS® gene.
**APPLICATION INFORMATION & BEST WEED MANAGEMENT PRACTICES**

**Recommendations for soybeans with the LibertyLink® trait**

<table>
<thead>
<tr>
<th>Weed Control Program</th>
<th>1st Post Application (Emergence to 14 days)</th>
<th>2nd Post Application</th>
</tr>
</thead>
<tbody>
<tr>
<td>Scenario One</td>
<td>Residual pre-emergence, PPI or at planting</td>
<td>Liberty herbicide at 29 fl oz/A plus residual herbicide</td>
</tr>
<tr>
<td></td>
<td>If needed, Liberty herbicide at 29 fl oz/A</td>
<td></td>
</tr>
<tr>
<td>Scenario Two</td>
<td>Environmental conditions prevent timely application</td>
<td>Liberty herbicide at 36 fl oz/A plus residual herbicide</td>
</tr>
<tr>
<td></td>
<td>Liberty herbicide at 29 fl oz/A applied 10 days after the first application</td>
<td></td>
</tr>
</tbody>
</table>

**Maximual Seasonal Use:** Up to 68 fl oz/A of Liberty herbicide can be applied on soybeans per growing season.

**Additional Use Directions:**
- Make all Liberty herbicide applications 70 days before soybean harvest.
- Make all Liberty herbicide applications before soybeans begin to bloom.
- Consult state Extension service for additional information on pre-bloom period for soybeans in a state.
- Maximum single application use rate: 36 fl oz/A.
- Do not apply Liberty herbicide if soybeans show injury from prior herbicide applications or environmental stress.
- Liberty herbicide is not labeled for application through irrigation systems.
- Liberty herbicide treated fields should not be grazed or used for hay.

**Top 10 Most Frequently Sprayed Weeds in Soybeans**

<table>
<thead>
<tr>
<th>Weed Name</th>
<th>Maximum Weed Height with Liberty herbicide at 29 fl oz/A</th>
</tr>
</thead>
<tbody>
<tr>
<td>Foxtail (aunt, green)</td>
<td>12”</td>
</tr>
<tr>
<td>Lambquarters</td>
<td>6”</td>
</tr>
<tr>
<td>Velvetleaf</td>
<td>2”</td>
</tr>
<tr>
<td>Cocklebur</td>
<td>14”</td>
</tr>
<tr>
<td>Pigweed (Palmer, redroot and tumble)</td>
<td>4”</td>
</tr>
<tr>
<td>Common waterhemp</td>
<td>5”</td>
</tr>
<tr>
<td>Giant ragweed</td>
<td>12”</td>
</tr>
<tr>
<td>Marestail</td>
<td>8”</td>
</tr>
<tr>
<td>Johannsgrass</td>
<td>6-12”</td>
</tr>
</tbody>
</table>

**Soybeans with the LibertyLink® trait** have built-in tolerance to Liberty® herbicide, providing excellent crop safety.

**Liberty is a nonselective contact herbicide that provides post-emergence control of broadleaf and grass weeds, including weeds resistant to glyphosate and multiple herbicide classes.**

**Liberty herbicide has a unique mode of action (Group 10) that offers a nonselective choice for Integrated Weed Management plans.**

**YIELD LOSS DUE TO COMPETITION**

Weeds that emerge with the crop, or shortly thereafter, have the greatest potential to negatively affect yields. The yield loss associated with these flushes of weeds is strongly influenced by how long they have grown. Yields are affected by factors such as competition, light, water, and nutrients. A recent study conducted by Iowa State University showed that weeds reduce crop yield by 5% for every 1% of the crop canopy occupied by weeds. This can result in a 10% yield loss due to weeds in soybeans planted in 15 inch and 7.5-inch rows, respectively.

According to the University of Tennessee, a total of 3 million soybean acres in Arkansas, Mississippi and Tennessee showed significant yield losses due to Palmer pigweed. In Arkansas, 60% of soybean fields had unacceptable weed control. In Tennessee and Mississippi, 20% of soybean fields had unsatisfactory weed control due to Palmer pigweed.

Residual herbicides can improve weed control, reduce problematic weeds and extend the time period between planting and the first post-emergence treatment of Liberty herbicide. This allows for flexibility when weather conditions prevent timely post-emergence applications. Additionally, using a residual herbicide in your weed control program introduces another herbicide mode of action in the field, improving your resistance management program.

**A study conducted by the University of Nebraska determined that the critical period for weed removal in soybeans is based upon the soybean row spacing. For soybeans planted in 30-, 15-, and 7.5-inch rows, the critical removal time is V3, V2 and first trifoliate, respectively. Furthermore, the study shows there is a 2% yield loss for every soybean leaf stage delay in applying a non-selective herbicide to the crop during the critical time for weed removal.**

**Tankmix Partners for Liberty® on soybeans with the LibertyLink® trait**

<table>
<thead>
<tr>
<th>Herbicide Name</th>
<th>Trade Name</th>
</tr>
</thead>
<tbody>
<tr>
<td>Assure® 2® (1)</td>
<td>Flexstar® (2)</td>
</tr>
<tr>
<td>Classic® (2)</td>
<td>Phoenix® (14)</td>
</tr>
<tr>
<td>chlorodim (1)</td>
<td>Reflex® (14)</td>
</tr>
<tr>
<td>Cobry® (14)</td>
<td>Preflo® (15, 14)</td>
</tr>
<tr>
<td>FirstRate® (2)</td>
<td>Select Max® (1)</td>
</tr>
<tr>
<td>Fusilade® (3)</td>
<td>Pursuit® (2)</td>
</tr>
<tr>
<td>Harmony® GT (2)</td>
<td>Synchrony® XP (2)</td>
</tr>
<tr>
<td>metolachlor (15)</td>
<td>Ultra Blazer® (14)</td>
</tr>
</tbody>
</table>

**Numbers in parentheses denote herbicide MOA as designated by the Weed Science Society of America.**
Sunflower Hybrids with the DuPont™ ExpressSun® Trait

Why should I grow sunflower hybrids with DuPont™ ExpressSun® Tribenuron Methyl herbicide tolerant technology?

The technology combines high-yielding sunflower hybrids tailored to your regional conditions with a full package of agronomic traits and tolerance to broad-spectrum herbicides, delivering efficient, season-long weed control, crop quality, and global market acceptance.

Sunflower hybrids with the DuPont® ExpressSun® herbicide tolerant trait are tolerant to DuPont™ EXPRESS® herbicide. The hybrids have been bred using traditional breeding techniques to provide tolerance to specific herbicides. 

- The DuPont EXPRESS herbicide system provides improved weed control over non-herbicide tolerant sunflower hybrids with traditional herbicides, and gives farmers the flexibility to spray herbicides after crop emergence.

- EXPRESS herbicides contain active ingredients from the Group B herbicides. However, the herbicides are not interchangeable with other Group B herbicides; the correct herbicide must be used with the corresponding hybrid.

- EXPRESS herbicides will damage any non-herbicide tolerant sunflower hybrid.

It is imperative that good agricultural practices, the herbicide label instructions, local laws and the guidelines below are followed to preserve the efficacy of the technology and comply with all stewardship recommendations.

Management of Volunteer Sunflowers with Herbicide Tolerant Technology

As with all sunflower crops, good volunteer management is essential to avoid competitive weeds in the following crops and the build-up and spread of major diseases.

Volunteers with the herbicide tolerance traits can be controlled in crops other than sunflowers by tillage and/or any non-Group B herbicide currently registered for sunflowers. Please contact your local herbicide retailer / distributor to determine the best herbicide options available.

- Plan at least a year ahead when planting sunflower hybrids with herbicide tolerant technology to include a diverse weed management plan and crop rotation that optimizes volunteer control in the next crop.

- Always employ good field hygiene in and around the fields of sunflower hybrids with herbicide tolerant technology. Control volunteers in neighbouring areas and avoid field-to-field movement of seed with planting, cultivation, and harvesting equipment.

- Prior to planting sunflower hybrids with herbicide tolerant technology, scout for volunteers and wild sunflowers in neighbouring areas. Control these by using tillage, mowing and/or non-Group B herbicides alone or in a tank mix, prior to seed set.

Management of herbicide resistance in weeds

The potential for weeds to develop herbicide resistance to herbicides must be considered when planning herbicide use. Herbicide resistance in weeds can develop and spread when a resistant plant reproduces and multiplies with repeated use of the same herbicide mode of action.

- Always grow sunflower hybrids with herbicide tolerant technology in rotation with other non-herbicide tolerant crops. Use at least a 3-year crop rotation, this allows the use of alternate weed control methods, prevents build up of volunteers and also reduces pressure from common sunflower insect pests, diseases and Grobanche. 

As an additional good practice, avoid planting sunflower hybrids with herbicide tolerant technology in areas with a history of heavy infestations by wild sunflower.

- Do not rely on Group B herbicides for weed control across the crop rotation, but alternate modes of action at least 2 out of every 4 years on your fields. Using more than one mode of action herbicide in a mixture is a proven practice to delay the development of resistant weeds. To be effective in preventing the build-up of resistance, an herbicide mixture must contain active ingredients which give high levels of control of the target weed and are from different mode of action groups. Please refer to the DuPont EXPERS herbicide information label for more details.

- Maintain detailed field records so that cropping and herbicide history is known.

- Scout fields after herbicide application to detect weed escapes or shifts. If a potentially resistant weed or weed population has been detected, use available control methods to avoid seed dispersion in the field.

- Clean equipment before moving between fields and after harvest to minimize the dispersion of weed and volunteer sunflower seed.

- If you suspect a weed control failure is caused by weed resistance to an herbicide you should first contact your local representative.

Group B herbicides, i.e., ALS inhibitors, are products based on the following chemical families: imidazolinones, pyrimidines, sulfonamides, sulfonylureas, triazolopyrimidines. For more information on herbicide groups, please follow this link: http://www.hracglobal.com/pages/classificationofherbicidesiteofaction.aspx

PRODUCT USE STATEMENT: The hybrid contains the SU7 DuPont™ ExpressSun® gene providing resistance to DuPont™ EXPRESS® brand herbicides. The DuPont™ ExpressSun® gene provides resistance to DuPont™ EXPRESS® herbicides will safeguard this hybrid ONLY against applications of DuPont™ EXPRESS® brand herbicides, when applied at labeled rates. The DuPont™ ExpressSun® gene WILL NOT safeguard this hybrid against applications of other herbicides which require a different herbicide resistance gene. Always read and follow herbicide label instructions prior to use. ACCIDENTAL APPLICATIONS OF INCOMPATIBLE HERBICIDES TO THIS HYBRID COULD RESULT IN TOTAL CROP LOSS.

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To protect the usefulness and availability of these technologies for the future, growers must implement an Insect Resistance Management (IRM) program as specified in product use guides for the following traits available in corn hybrids: Herculex® Insect Protection, Herculex® XTRA Insect Protection, Herculex® RW Insect Protection, Optimum® AcreMax® Insect Protection, Optimum® Intrasect® Insect Protection, Optimum® AcreMax® Xtra Insect Protection, Optimum® Intrasect® Xtra Insect Protection, Optimum® AcreMax® XTreme Insect Protection, Optimum® Intrasect® XTreme Insect Protection, Optimum® AcreMax® TRIsect® Insect Protection, Optimum® AcreMax® RW Insect Protection, and Optimum® AcreMax® Leptra® Insect Protection. For detailed IRM requirements for hybrids with in-plant insect resistance, refer to the appropriate product use guide, available from your sales professional.

Pioneer is a member of Excellence Through Stewardship® (ETS). Products are commercialized in accordance with ETS Product Launch Stewardship Guidance and in compliance with the policies regarding stewardship of those products. Crops and materials containing biotech traits may only be exported to or used, processed, or sold in jurisdictions where all necessary regulatory approvals have been granted for those crops and materials. It is a violation of national and international laws to move materials containing biotech traits across borders into jurisdictions where their import is not permitted. Growers should discuss these issues with their purchasing or grain handler to confirm the purchaser or handler’s position on products being purchased. For further information on the approval status of biotech traits, please visit www.biotradestatus.com. Excellence Through Stewardship® is a registered trademark of the Excellence Through Stewardship.

DuPont Pioneer (or its chemical company partners) shall have no liability whatsoever for any losses or damages resulting from, or related to, or in connection with, (a) the use of incorrect herbicides applied to soybeans hybrids that contain the herbicide tolerant traits or (b) non-compliance with any of the other instructions set forth above, and all such liability is hereby expressly disclaimed by Pioneer and waived by you. If you have any questions on anything outlined in this document or would like additional information please contact your local representative.