

MONSANTO CANADA

# Technology Use Guide

# 2011

**The Source for Monsanto's Portfolio**

of technology products,  
stewardship requirements  
and guidelines for use



MONSANTO





# Introduction

This 2011 Technology Use Guide (TUG) provides a concise source of technical information about Monsanto Canada's current portfolio of technology products, and sets forth the requirements and guidelines for the use of these products. As a user of Monsanto technology, it is important that you are familiar with and follow certain management practices. Please read all of the information pertaining to the technology you will be using, including stewardship and related information.

This guide is not a pesticide product label. It is intended to provide additional information and to highlight approved uses from the product labeling. Read and follow all precautions and use instructions in the label booklet and separately published supplemental labeling for the Roundup® agricultural herbicide product you are using.

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# Stewardship Overview

## A MESSAGE ABOUT STEWARDSHIP – SEED AND TRAITS

Monsanto Canada (Monsanto) is committed to enhancing farmer productivity and profitability through the introduction of new modern agricultural biotechnology seed trait technologies (traits). These new technologies bring enhanced value and benefits to farmers, and farmers assume new responsibilities for proper management of those traits. Farmers planting seed with Monsanto biotech traits agree to implement good stewardship practices, including, but not limited to:

- Reading, understanding and abiding by the terms of the Technology Stewardship Agreement (TSA) that you have signed:
- Reviewing the annual update to the TSA terms and conditions that is attached to this 2011 Technology Use Guide.
- Ensuring that the seed you have purchased with your TSA is for use on your own farm and not transferred to any other entity for planting.
- Ensuring that seed is used for planting a single crop.
- Complying with the applicable Insect Resistance Management (IRM) practices for specific biotech traits as mandated by the Canadian Food Inspection Agency (CFIA) and set forth in this Technology Use Guide.
- Reading and following the directions for use on all product labels and following applicable stewardship practices as outlined in this Technology Use Guide (TUG) and the Canadian Corn Pest

Coalition's (CCPC) IRM guide — *A Farmer's Handbook: Controlling Corn Insect Pests with B.t. Corn Technology, 2nd Edition*.

- Comply with any additional stewardship requirements, such as grain or feed use agreements or geographic planting restrictions that Monsanto deems appropriate or necessary to implement for proper stewardship or regulatory compliance.
- Following the Weed Resistance Management Guidelines to minimize the risk of resistance development.
- Selling harvested corn with biotech traits in countries where all necessary regulatory approvals have been granted, and only to grain handlers that confirm their acceptance, or using that grain as on-farm feed.
- Not moving material containing biotech traits across boundaries into nations where import is not permitted.
- Not selling, promoting and/or distributing where the product is not yet approved.

Recommendations as of 10/01/10. For subsequent updates, refer to [www.monsanto.ca](http://www.monsanto.ca) or contact your local Monsanto representative.

## CROP OR MATERIAL HANDLING STEWARDSHIP STATEMENT

**Monsanto Company is a member of Excellence Through Stewardship<sup>SM</sup> (ETS).** Monsanto products are commercialized in accordance with ETS Product Launch Stewardship Guidance, and in compliance with Monsanto's Policy for Commercialization of Biotechnology-Derived Plant Products in Commodity Crops. This product has been approved for import into key export markets with functioning regulatory systems. Any crop or material produced from this product can only be exported to, or used, processed or sold in countries where all necessary regulatory approvals have been granted. It is a violation of national and international law to move material containing biotech traits across boundaries into nations where import is not permitted. Growers should talk to their grain handler or product purchaser to confirm their buying position for this product. Excellence Through Stewardship<sup>SM</sup> is a service mark of Excellence Through Stewardship.



Monsanto's Field Check Program aims to keep farming fair for everyone. When a farmer goes against the terms of their TSA, it is unfair to the farmers who honour their agreement with Monsanto.

### THE FIELD CHECK PROGRAM

One of the terms of the TSA you have signed allows Monsanto to monitor your use of patented biotech seed technology for three years after the seed is purchased. This monitoring is conducted through our Technology Protection Field Check Program.

Monsanto's Field Check Program began in 1997 as a way to help maintain a level playing field for all farmers. Since then, Monsanto has conducted more than 10,000 Field Checks — all in an effort to make sure that farmers who haven't paid for our patented technology are not benefitting unfairly.

### INFORMATION ABOUT THE FIELD CHECK PROCESS

Our Field Check representatives are independent third-party professionals who are committed to conducting their checks with the utmost privacy and consideration.

The Field Check representatives have been trained to complete your Field Check as conveniently and efficiently as possible. During our visit, the representative will review your receipts of seed and glyphosate purchases, as well as maps of your farmed land. After you have supplied all relevant information, our representative will take seed, plant and/or bin samples to ensure that your farmed acres are being managed according to the terms of the TSA you have signed. At the end of our Field Check Program, we will be in touch with an overview of our findings.

### SELECTION FOR FIELD CHECK

Generally, the farmers who are selected to participate in a Field Check have been randomly selected from the group of farmers who have signed a TSA. Sometimes, a Field Check results when Monsanto is provided with information about farmers who are not honouring the terms of their agreement or attempting to benefit unfairly from the use of patented technology.

If you become aware of individuals who are utilizing biotech traits in a manner that is not consistent with the terms and conditions of the TSA, you may call Monsanto's CustomCare® line at 1-800-667-4944 or send a letter to:

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Intellectual Property Protection  
900 One Research Road  
Winnipeg, Manitoba R3T 6E3

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Monsanto treats any information of this nature as confidential. However, if the information provided becomes the subject of court proceedings, Monsanto would be required to disclose any correspondence that was relevant to the matter. You can choose to provide information about potential violations without revealing your identity or your location so as to remain anonymous.

### TECHNOLOGY STEWARDSHIP AGREEMENT

Farmers who purchase Monsanto's traited seed for planting are required to sign and execute a TSA and are required to refer to Monsanto's current Technology Use Guide for information on crop stewardship.

### WHY IS STEWARDSHIP IMPORTANT?

Each component of stewardship offers benefits to farmers:

- Signing a TSA provides farmers with access to Monsanto's biotech trait technologies in that seed.
- Following IRM guidelines guards against insect resistance to *Bacillus thuringiensis (B.t.)* and other technologies, enabling the long-term durability of these technologies, and meeting Canadian Food Inspection Agency requirements.
- Good grain and processed products stewardship helps to preserve a continuous open export market for Canadian grain products.
- Proper weed management maintains the long-term effectiveness of glyphosate-based weed control solutions.
- Utilizing biotech seed only for planting a single commercial crop helps preserve the effectiveness of biotech traits, and incents investment for future biotech innovations, which further improves farming technology and productivity.

Practicing these stewardship activities will allow biotechnology's positive agricultural contributions to continue.



### Coexistence

Coexistence in agricultural production systems and supply chains is well established and well understood. Different agricultural systems have coexisted successfully for many years around the world. Standards and best practices were established decades ago and have continually evolved to deliver high purity seed and grain to support production, distribution, and trade of products from different agricultural systems. For example, production of similar commodities such as field corn, sweet corn, and popcorn has occurred successfully and in close proximity for many years. Another example is the successful coexistence of canola varieties with low erucic acid content for food use and rapeseed varieties with high erucic acid content for industrial uses.

The introduction of biotech crops generated renewed discussion of coexistence on biotech cropping systems with conventional cropping systems and organic production. These discussions have focused on the potential economic impact of the introduction of biotech products on other systems. The health and safety of biotech products are not an issue because their food, feed, and environmental safety are demonstrated to national regulators before they enter the agricultural production system and supply chain.

The coexistence of conventional, organic, and biotech crops has been the subject of several studies and reports. These reports conclude that coexistence among biotech and non-biotech crops is not only possible but is occurring. They recommend that coexistence strategies be developed on a case-by-case basis considering the diversity of products currently in the market and under development, the agronomic and biological differences in the crops themselves, and variations in regional farming practices and infrastructure. Furthermore, coexistence strategies are driven by market needs and should be developed using current science-based industry standards and management practices. The strategies must be flexible, facilitating options and choice for the farmer and the food/feed supply chain, and must be capable of being modified as changes in markets and products warrant.

Successful coexistence of all agricultural systems is achievable and depends on cooperation, flexibility, and mutual respect for each system. Agriculture has a history of innovation and change, and farmers have always adapted to new approaches or challenges by utilizing appropriate strategies, farm management practices, and new technologies.

The responsibility for implementing practices to satisfy specific marketing standards or certification lies with the farmer who is growing a crop to satisfy a particular market. Only that farmer is required to employ the practices appropriate to assure the integrity of his/her crop. This is true whether the goal is high-oil corn, white sweet corn, or organically produced yellow corn for animal feed. In each case, the farmer is seeking to produce a crop that is supported by a market price and consequently that farmer assumes responsibility for satisfying reasonable market specifications.

Farmers need to be aware of the planting intentions of his/her neighbor in order to gauge the need for appropriate management practices. CropLife Canada has produced an information brochure for farmers that provides a set of best practices for ensuring coexistence of different production systems — *Cultivating Coexistence: A Best Practices Management Guide*. For a copy of this brochure, please contact CustomCare® at 1-800-667-4944.

### Identity Preserved Production

Some farmers may choose to preserve the identity of their crops to meet specific markets. Examples of Identity Preservation (IP) crops include production of seed corn, white, waxy, or sweet corn, specialty oil or protein crops, food grade crops, and any other crop that meets specialty needs, including organic and non-genetically enhanced specifications. Farmers of these crops assume the responsibility and receive the benefit for ensuring that their crop meets mutually agreed contract specifications.

Based on historical experience with a broad range of IP crops, the industry has developed generally accepted IP agricultural practices. These practices are intended to manage IP production to meet quality specifications, and are established for a broad range of IP needs. The accepted practice with IP crops is that each IP farmer has a responsibility to implement any necessary processes. These processes may include sourcing seed appropriate for IP specifications, field management practices such as adequate isolation distances, buffers between crops, border rows, planned differences in maturity between adjacent fields that might cross-pollinate, and harvest and handling practices designed to prevent mixing and to maintain product integrity and quality. These extra steps associated with IP crop production are generally accompanied by incremental increases in cost of production and consequently of the goods sold.

### General Instructions for Management of Pollen Flow and Mechanical Mixing

For all crop hybrids or varieties that they wish to identity preserve, or otherwise keep separated, farmers should take steps to prevent mechanical mixing. Farmers should make sure all seed storage areas, transportation vehicles, and planter boxes are cleaned thoroughly both prior to and subsequent to the storage, transportation, or planting of the crop. Farmers should also make sure all combines, harvesters, and transportation vehicles used at harvest are cleaned thoroughly both prior to and subsequent to their use in connection with the harvest of the grain produced from the crop. Farmers should also make sure all harvested grain is stored in clean storage areas where the identity of the grain can be preserved.

Self-pollinated crops, such as soybeans, do not present a risk of mixing by cross-pollination. If the intent is to use or market

the product of a self-pollinated crop separately from general commodity use, farmers should plant fields at a sufficient distance away from other crops to prevent mechanical mixture during harvest.

Farmers planting cross-pollinated crops, such as corn or canola, who desire to preserve the identity of these crops or to minimize the potential for these crops to outcross with adjacent fields of the same crop kind, should use the same generally accepted practices to manage mixing that are used in any of the currently grown identity-preserved crops of similar crop kind.

Farmers should take into account the following factors that can affect the occurrence and extent of cross-pollination to or from other fields. Information that is more specific to the crop and region may be available from provincial extension offices.

- **Cross-pollination is limited.** Some plants, such as potatoes, are incapable of cross-pollinating, while others, like canola, require cross-pollination to produce seed. Importantly, cross-pollination only occurs within the same crop kind, like corn to corn.
- **The amount of pollen produced within the field can vary.** The pollen produced by the crop within a given field, known as pollen load, is typically high enough to pollinate all of the plants in the field. Therefore, most of the pollen that may enter from other fields falls on plants that have already been pollinated with pollen that originated from plants within the field.
- **The existence and/or degree of overlap in the pollination period of crops in adjacent fields varies.** This variation depends on the maturity of crops, planting dates, and the weather. For corn, the typical pollen shed period lasts from 5 to 10 days for a particular field. Therefore, viable pollen from neighboring fields must be present when silks are receptive in the recipient field during this brief period to produce any grain with traits introduced by the out-of-field pollen.
- **Distance between fields of different varieties or hybrids of the same crop.** The greater the distance between fields the less likely their pollen will remain viable and have an opportunity to mix and produce an outcross. For wind-pollinated crops, most cross-pollination occurs within the outer-most few rows of the field. Furthermore, research has also shown that as fields become further separated, the incidence of wind modulated cross-pollination drops rapidly. Essentially, the in-field pollen has an advantage over the pollen coming from other fields because of its volume and proximity.
- **The distance pollen moves.** How far pollen can travel depends on many environmental factors including weather during pollination, especially wind direction and velocity, temperature, and humidity. For bee pollinated crops, the farmer's choice of pollinator species and apiary management practice may reduce field-to-field pollination potential. All these factors will vary from season to season and some factors from day to day and from location to location.
- **For wind-pollinated crops, the orientation and width of the adjacent field in relation to the dominant wind direction.** Fields oriented upwind during pollination will show dramatically lower cross-pollination for wind-pollinated crops, like corn, compared to fields located downwind.

In addition to these factors that affect pollen movement, other elements that affect gene flow are the half-life of the pollen, which is a measure of how long the pollen is actually viable and capable of fertilizing a plant, and whether the plant is a self-pollinator or requires pollination from other plants. Self-pollinators such as soybeans have very limited potential for gene flow since their reproductive organs are typically only receptive to their own pollen, through a variety of physical, temporal, and sometimes even biochemical mechanisms.

It is important to understand the potential for pollen movement for a given crop and production system, in order to deliver a product that meets market specifications. Although the chance of significant pollen movement between nearby crops is typically very small for the reasons stated above, farmers need to be aware of the possible consequences of such movement when making their planting decisions.

## Corn Grain Stewardship

### Regulatory Update

Health Canada and the Canadian Food Inspection Agency have granted approval to YieldGard® Corn Borer, Roundup Ready® Corn 2, Genuity® SmartStax™, Genuity® VT Double PRO™, Genuity® VT Triple PRO™, YieldGard VT Triple®, and YieldGard VT Rootworm/RR2® for commerce within Canada, including approval for marketing and consumption as food, and feed for livestock. These products also have food and feed approval in Japan and the United States. However, full regulatory approval for harvested grain/commodities containing certain stacked combinations (Genuity® SmartStax™, Genuity® VT Triple PRO™) is pending in the E.U. As a result, the farmer must find an appropriate market for this grain.

### YOUR GRAIN MARKET OPTIONS

Until full E.U. approval is obtained, the farmer must direct grain produced from corn with traits pending full approval in the E.U. to acceptable markets (see below). You must talk to your grain handler about their policies for accepting corn with traits not yet fully approved by the E.U., and inform the grain handler when you deliver grain containing such traits so that it can be managed appropriately.

Appropriate markets for corn harvested with traits pending full approval in the E.U. include:

- Domestic feed use
- Grain handlers who agree to accept this grain and handle it appropriately:
  - Feedmills
  - Feedlots
  - Most dry grind ethanol plants

Monsanto is committed to promoting corn grain stewardship. As of Sept. 1, 2010, hybrids that require grain channeling are those with Genuity® SmartStax™ and Genuity® VT Triple PRO™ technologies. Farmers should talk with their seed dealer for further details. Marketing grain to grain handlers that acknowledge they will buy grain that includes corn traits that are not yet fully approved by the E.U. is very important.

**The most critical corn grain stewardship responsibility for farmers is to talk to their grain handler to verify the handler's acceptance of grain grown from seed containing particular biotechnology traits.**

Benefits of good corn grain stewardship:

- Preserves the farmer's choice to use new biotech traits in corn.
- Reinforces the integrity of Canadian agriculture and retains important Canadian export markets for corn products.
- Provides countries importing Canadian grain and/or processed grain the confidence that our channel is reliable.

## Weed Management

Monsanto Canada considers product stewardship to be a fundamental component of customer service and responsible business practices. As leaders in the development and stewardship of Roundup® agricultural herbicides and other products, Monsanto continues to invest significantly in research to understand the proper use and stewardship of our proprietary herbicide brands.

This research, done in conjunction with academic scientists, extension specialists, and crop consultants, includes an evaluation of some of the factors that can contribute to the development of weed resistance and how to properly manage weeds to delay the development of resistance.

Glyphosate is a Group 9 herbicide based on the mode-of-action classification system of the Weed Science Society of America. Although rare in occurrence, any weed population may contain plants naturally resistant to Group 9 herbicides. The following general recommendations help manage the risk of weed resistance occurring. More specific recommendations are outlined in each Roundup Ready® crop section in this Technology Use Guide.

### WEED MANAGEMENT GUIDELINES:

- Scout your fields before and after herbicide application.
- Start with a clean field, using either a burndown herbicide application or tillage.
- Control weeds early when they are small.
- Use a diverse set of tools (e.g. a selective and/or a residual herbicide) and cultural practices (e.g. tillage or crop rotation) as part of your Roundup Ready cropping system where appropriate. Rotating Roundup Ready crops provides an opportunity to add other herbicides with different modes-of-action in a continuous Roundup Ready cropping system.
- Use the right herbicide product at the right rate and the right time.
- Control weed escapes and prevent weeds from setting seeds.
- Clean equipment before moving from field to field to minimize spread of weed seed.
- Use new commercial seed that is as weed seed free as possible.

Monsanto is committed to the proper use and long-term effectiveness of its proprietary herbicide brands through a four-part stewardship program: developing appropriate weed control recommendations; continuing research to refine and update recommendations; education on the importance of effective weed management; and responding to repeated weed control inquiries through a product performance evaluation program.

Monsanto Canada has developed an on-line tool to help customers understand how their own practices may impact the risk of developing glyphosate-resistant weeds on their farm. After answering a series of questions about field specific management practices, visitors will receive feedback on their risk of selecting for glyphosate-resistant weeds. The on-line tool will also identify management practices that may be adopted to further reduce the risk of selecting for glyphosate-resistant weeds.

Please visit [www.weedtool.com](http://www.weedtool.com) for more information.

*Report any incidence of repeated non-performance on a particular weed to the local Monsanto representative, retailer, or Monsanto's CustomCare® line at 1-800-667-4944.*



## Insect Resistance Management (IRM)

An **effective** Insect Resistance Management (IRM) program is a vital part of responsible product stewardship for insect-protected biotech products. Monsanto is committed to implementing an effective IRM program for all of its insect-protected *B.t.* technologies in all countries where they are commercialized, including promoting farmer awareness of these IRM programs. Such programs strike a balance among available knowledge, practicality, and farmer acceptance and implementation of the plan.

In Canada, the Canadian Food Inspection Agency (CFIA) requires that Monsanto, and farmers who purchase Genuity® and YieldGard VT™/YieldGard® corn products, implement an IRM plan. The IRM programs for Genuity® and YieldGard VT/YieldGard corn products are based upon an assessment of the biology of the major target pests, farmer needs and practices, and appropriate pest management practices. **These mandatory regulatory programs** have been developed and updated through broad cooperation with stakeholders, as represented by the Canadian Corn Pest Coalition (CCPC). More information on CCPC can be found at [www.cornpest.ca](http://www.cornpest.ca).

These programs contain several important elements. One key component of an IRM plan is a refuge. A refuge is simply a portion of the relevant crop that does not contain a *B.t.* technology for the insect pests targeted by the planted biotechnologies. The lack of exposure to the *B.t.* proteins in refuges means that there will be susceptible insects nearby to mate with any rare resistant insects that may emerge from the biotech crop. Susceptibility to *B.t.* products is then passed on to offspring, preserving the long-term effectiveness of the technology.

Farmers who purchase Genuity® or YieldGard VT/YieldGard corn products are required to plant an appropriately designed refuge in association with their fields. Refuge size, configuration, and management are described in detail in the sections on those products within this document.

**Failure to follow IRM guidelines and properly plant a refuge may result in the loss of a farmer's access to Monsanto technologies.** Monsanto Canada is committed to the preservation of these technologies. Please do your part to ensure that Genuity® and YieldGard VT/YieldGard corn technologies are preserved by implementing the correct IRM plan on your farm.

### MONITORING PROGRAM

Monsanto Canada or an approved agent of Monsanto Canada will monitor refuge management practices. The TSA signed by a farmer requires that upon request by Monsanto or its approved agent, the farmer is to provide the location of all fields planted with Genuity® and YieldGard VT/YieldGard technologies and the locations of all associated required refuge areas, to cooperate fully with any field or record inspections, and allow Monsanto or

an agent of Monsanto to inspect all Genuity® and YieldGard VT/YieldGard fields and refuge areas to ensure an approved insect resistance management program has been followed. All inspections will be performed at a reasonable time and arranged in advance with the farmer so that the farmer can be present if desired.

Should you observe that other farmers are not implementing IRM requirements for *B.t.* insect-protected corn, please contact Monsanto's CustomCare® line at 1-800-667-4944 to notify us of such occurrences so that we can investigate. *You may remain anonymous.*

### MULTIPLE-PHASE APPROACH TO INSECT RESISTANCE MANAGEMENT FOR GENUITY®, YIELDGARD VT AND YIELDGARD CORN PRODUCTS

Adding a refuge to corn production programs is a requirement for resistance management. For the most effective results, researchers recommend a multiple phase approach.

- Plant corn hybrids with YieldGard VT/YieldGard and Genuity® corn technologies to provide consistent protection of corn fields from corn borer and corn rootworm throughout the larval feeding periods.
- Plant a corn refuge block or strips close to the Genuity®, YieldGard VT, and YieldGard corn plantings. The block or strips will serve as a refuge to support the survival of susceptible corn borers and corn rootworms.
- Practice Integrated Pest Management (IPM) to preserve the natural enemies of corn borer, corn rootworm, and other insect pests. Natural predators such as lady beetles and ground beetles can help reduce corn borer and corn rootworm larval populations. Genuity®, YieldGard VT, and YieldGard insect protection technology aids IPM because it affects only specific insect pests and allows the survival of beneficial insects.
- Farmers should monitor their Genuity®, YieldGard VT, and YieldGard technology corn fields and contact their seed dealer or CustomCare at 1-800-667-4944 if they observe any unusual performance problems.



# Corn Product Transition

Corn products containing MON 863 will no longer be available for purchase in Canada beginning with the 2011 planting season.

Monsanto products that contain MON 863 include the following:

- YieldGard® Rootworm
- YieldGard® Plus
- YieldGard® Rootworm with Roundup Ready® Corn 2
- YieldGard® Plus with Roundup Ready® Corn 2

Farmers requiring below ground insect protection should consider products that contain YieldGard VT Rootworm/RR2 technology, YieldGard VT Triple, Genuity® VT Triple PRO™ or Genuity® SmartStax™. The US Environment Protection Agency's (EPA) registration of MON 863 will expire on September 30, 2010. The expiration of the MON 863 registration does not limit the normal harvesting, processing, and sale of commodity grain by growers that may occur in the fall of 2010 (even after September 30, 2010) from grain in storage or from fields planted earlier in the year with seeds containing the MON 863 event.

Monsanto encourages growers and other interested parties to speak with their grain handler to confirm their buying position for any grain or material derived from MON 863 or any other biotech product.

# Genuity®



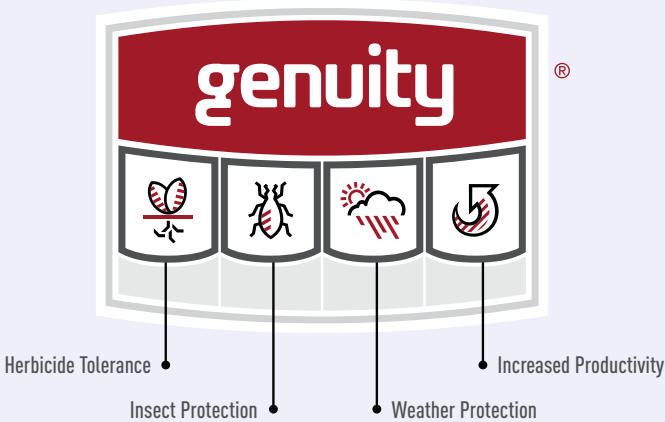
Genuity® is the name for Monsanto's first family of traits. Current and future Genuity® traits will help farmers do what they do best, even better, every season, even in adverse conditions.

## The Trait Icon System

It's never been more simple to unlock the potential in a seed with Genuity® trait technologies.

The traits you already trust today — and the trait opportunities of tomorrow — are now organized into a simple visual system that enables you to make the best decisions, quickly and easily.

Now at a glance, you'll immediately know exactly what to expect from your traits.



Each of the icons represents the benefit of the traits inside the bag — including Herbicide Tolerance, Insect Protection, Weather Protection and Increased Productivity.

### HERBICIDE TOLERANCE

Crop safety you need in a system that provides unsurpassed weed control

### INSECT PROTECTION

For protection against insects both above and below the ground

### WEATHER PROTECTION

New weather-related traits in the Monsanto pipeline, such as drought resistance and cold tolerance

### INCREASED PRODUCTIVITY

Delivering higher yield potential

# Genuity<sup>®</sup> Smartstax<sup>™</sup>



Genuity<sup>®</sup> SmartStax<sup>™</sup> is the most advanced, all-in-one technology that controls a broad spectrum of above- and below-ground insects and weeds. Genuity<sup>®</sup> SmartStax<sup>™</sup> hybrids contain *Bacillus thuringiensis* (*B.t.*) proteins that provide three separate modes-of-action for control of lepidopteran, above-ground insect pests, as well as combined modes-of-action for control of coleopteran, below-ground insect pests. Providing several different *B.t.* proteins with different modes-of-action for control will dramatically decrease the probability that insects will become resistant to these traits, resulting in enhanced durability of transgenic insect control via *B.t.* protected corn products.

Genuity<sup>®</sup> SmartStax<sup>™</sup> corn hybrids contain Roundup Ready<sup>®</sup> 2 Technology and Liberty Link<sup>®</sup> herbicide tolerance for weed control. This trait allows a farmer to experience the benefits of the broadest weed control spectrum available, along with application flexibility, and excellent crop safety. All Genuity<sup>®</sup> SmartStax<sup>™</sup> packaged seed is treated with a seed applied insecticide.\*

#### **INSECT CONTROL INGREDIENTS**

Genuity<sup>®</sup> SmartStax<sup>™</sup> hybrids contain *Bacillus thuringiensis* Cry1A.105, Cry2Ab2, Cry1F, Cry3Bb1, and Cry34/35Ab1 proteins and the genetic materials (PV-ZMIR245, PV-ZMIR39, PHP8999, PHP17662) necessary for their production in field corn containing MON 89034 \_ TC1507 \_ MON 88017 \_ DAS-59122-7. This product controls European corn borer (*Ostrinia nubilalis*), fall armyworm (*Spodoptera frugiperda*), northern corn rootworm (*Diabrotica barberi*), western corn rootworm (*Diabrotica virgifera virgifera*), corn earworm (*Helicoverpa zea*), western bean cutworm (*Richia albicosta*), and black cutworm (*Agrotis ipsilion*). Genuity<sup>®</sup> SmartStax<sup>™</sup> technology is available in hybrids offered by a variety of seed producers. Farmers must read and follow the limitations and requirements in the appropriate Product Notice or Product Use Guide, including this Technology Use Guide.

#### **RECOMMENDED MANAGEMENT PRACTICES**

Hybrids containing Roundup Ready 2 Technology are tolerant to Roundup agricultural herbicides.

\* A seed-applied insecticide can protect seed, roots and seedlings from insects such as black cutworm, wireworm, white grubs, seed corn maggots, chinch bug and early flea beetles.

## Corn Refuge Requirements and Configuration Options

### REFUGES MUST BE ESTABLISHED FOR THE 2011 GROWING SEASON AS FOLLOWS:

To preserve the benefits and insect protection of Genuity® SmartStax™ corn technology, an IRM plan must be part of every farmer's short- and long-term production strategies. IRM plans are required for farmers who intend to plant Genuity® SmartStax™.

- Plant up to 95% of total corn acres with Genuity® SmartStax™ technology on each farm. Plant at least 5% of the total corn acres to a corn refuge that does not contain a *B.t.* technology.
- The refuge may be treated for corn rootworm larvae and other pests with soil-applied and/or seed-applied insecticides.
- If required, the refuge may be treated with a non-*B.t.* foliar insecticide. If the refuge is treated, the portion of the field containing *B.t.* technology must also be treated.
- Corn planted in the refuge may be Roundup Ready® Corn 2 or conventional corn, but may not be any *B.t.* corn technology that provides protection from corn borer or corn rootworm.
- The refuge must be planted within or adjacent to the Genuity® SmartStax™ technology. The refuge may be separated by a

ditch or a road, but not by another field. Alternatively, the refuge may be planted as in-field or perimeter strips. These strips must be at least two consecutive rows wide.

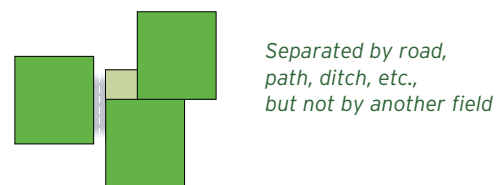
- Plant a refuge on every farm where Genuity® SmartStax™ technology is planted.
- Plant the refuge at the same time as the Genuity® SmartStax™ technology.
- Mixing non-*B.t.* seed with Genuity® SmartStax™ technology for use as a refuge is not permitted.
- If the refuge is planted on first-year corn (rotated corn ground), then the Genuity® SmartStax™ technology must also be planted on first-year corn (rotated corn ground). If the refuge is planted on continuous corn ground, then Genuity® SmartStax™ technology may be planted on either first-year corn (rotated corn ground) or continuous corn ground.
- Adjacent refuge fields must be owned or managed by the farmer.
- The Genuity® SmartStax™ corn and the refuge corn should be of similar maturities.

## Refuge Configuration Options

### Examples of Within-Field Configurations

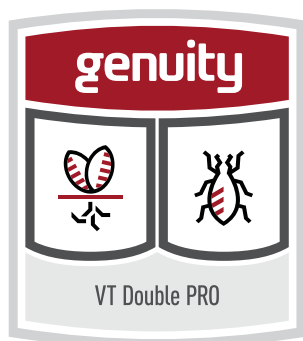


### Example of Adjacent-Field Configuration



- = Genuity® SmartStax™
- = Non-*B.t.* Refuge – minimum 5% (e.g., Roundup Ready Corn 2 or conventional corn)

# Genuity® VT Double PRO™



Genuity® VT Double PRO™ corn contains advanced technology that controls a broad spectrum of above ground insects and weeds. Genuity® VT Double PRO™ hybrids contain *Bacillus thuringiensis* (*B.t.*) proteins that provide two separate modes-of-action for control of lepidopteran, above-ground insect pests. Providing two different *B.t.* proteins with different modes-of-action for control will dramatically decrease the probability that insects will become resistant to these traits, resulting in enhanced durability of transgenic insect control via *B.t.* protected corn products.

Genuity® VT Double PRO™ corn hybrids also contain Roundup Ready 2 Technology. This trait allows a farmer to experience the benefits of utilizing Roundup agricultural herbicides in a weed control system that provides the broadest weed control spectrum available, along with application flexibility, and excellent crop safety.

#### **INSECT CONTROL INGREDIENTS**

Genuity® VT Double PRO™ hybrids contain *Bacillus thuringiensis* Cry1A.105 and Cry2Ab2, proteins and the genetic materials (PV-ZMIR245) necessary for their production in field corn containing MON 89034. This product controls European Corn Borer (*Ostrinia nubilalis*), Fall Armyworm (*Spodoptera frugiperda*), and Corn Earworm (*Helicoverpa zea*). Genuity® VT Double PRO™ technology is available in hybrids offered by a variety of seed producers. Farmers must read and follow the limitations and requirements in the appropriate Product Notice or Product Use Guide, including this Technology Use Guide.

## Corn Refuge Requirements and Configuration Options

### REFUGES MUST BE ESTABLISHED FOR THE 2011 GROWING SEASON AS FOLLOWS:

To preserve the benefits and insect protection of Genuity® VT Double PRO™ corn technology, an IRM plan must be part of every farmer's short- and long-term production strategies. IRM plans are required for farmers who intend to plant Genuity® VT Double PRO™.

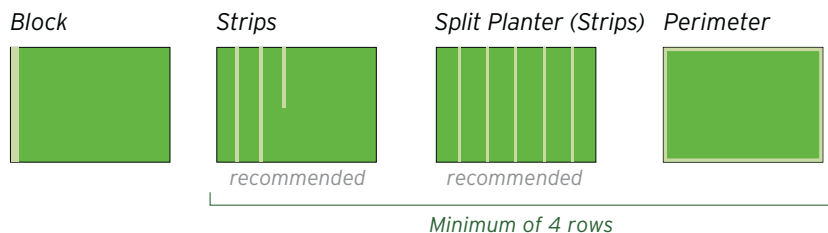
- Plant up to 95% of total corn acres with Genuity® VT Double PRO™ technology on each farm. Plant at least 5% of the total corn acres to a corn refuge that does not contain a *B.t.* technology to control European corn borer.
- Corn planted in the refuge may be Roundup Ready® Corn 2 or conventional corn, but may not be any *B.t.* corn technology that provides protection from corn borer.
- If required, the refuge may be treated with a non-*B.t.* foliar insecticide. If the refuge is treated, the portion of the field containing *B.t.* technology must also be treated.
- Plant the refuge corn within, adjacent to, or near Genuity® VT Double PRO™ corn fields. The refuge must be placed within

400 m (1/4 mile) to help provide a population of susceptible insects near the Genuity® VT Double PRO™ corn field.

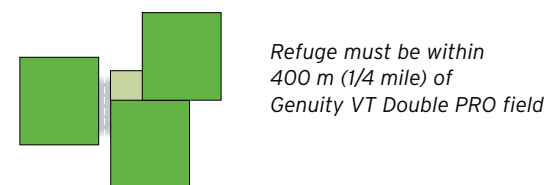
- Refuge configuration options include a block within a Genuity® VT Double PRO™ field, field perimeters or end rows, or split the planter to alternate four or more consecutive rows of refuge corn with Genuity® VT Double PRO™ corn.
- Plant a refuge on every farm where Genuity® VT Double PRO™ technology is planted.
- Plant the refuge at the same time as the Genuity® VT Double PRO™ technology.
- Mixing non-*B.t.* seed with Genuity® VT Double PRO™ technology for use as a refuge is not permitted.
- Adjacent refuge fields must be owned or managed by the farmer.
- The Genuity® VT Double PRO™ corn and the refuge corn should be of similar maturities.

## Refuge Configuration Options

### Examples of Within-Field Configurations

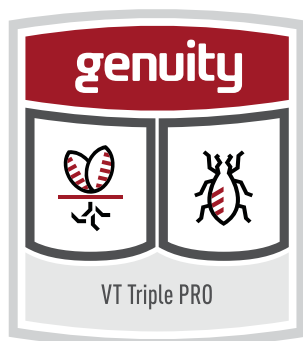


### Example of Adjacent-Field Configuration



- = Genuity® VT Double PRO™
- = Non-*B.t.* Refuge - minimum 5% (e.g., Roundup Ready Corn 2 or conventional corn)

# Genuity® VT Triple PRO™



Genuity® VT Triple PRO™ contains advanced technology that controls a broad spectrum of above-ground insects, below-ground insects and weeds. Genuity® VT Triple PRO™ hybrids contain *Bacillus thuringiensis* (B.t.) proteins that provide two separate modes-of-action for control of lepidopteran, above-ground insect pests and is stacked with below-ground insect protection.

Genuity® VT Triple PRO™ corn hybrids also contain Roundup Ready 2 Technology. This trait allows a farmer to experience the benefits of utilizing Roundup agricultural herbicides in a weed control system that provides the broadest weed control spectrum available, along with better application flexibility, and excellent crop safety. All Genuity® VT Triple PRO™ packaged seed is treated with a seed applied insecticide.\*

#### **INSECT CONTROL INGREDIENTS**

Genuity® VT Triple PRO™ hybrids contain *Bacillus thuringiensis* Cry1A.105, Cry2Ab2, and Cry3Bb1 proteins and the genetic materials (PV-ZMIR245 and PV-ZMIR39) necessary for their production in field corn containing MON 89034 \_ MON 88017. This product controls European corn borer (*Ostrinia nubilalis*), fall armyworm (*Spodoptera frugiperda*), northern corn rootworm (*Diabrotica barberi*), western corn rootworm (*Diabrotica virgifera virgifera*), and corn earworm (*Helicoverpa zea*). Genuity® VT Triple PRO™ technology is available in hybrids offered by a variety of seed producers. Farmers must read and follow the limitations and requirements in the appropriate Product Notice or Product Use Guide, including this Technology Use Guide.

\* A seed-applied insecticide can protect seed, roots and seedlings from insects such as black cutworm, wireworm, white grubs, seed corn maggots, chinch bug and early flea beetles.

## Corn Refuge Requirements and Configuration Options

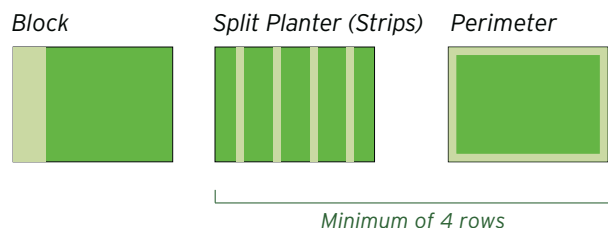
### REFUGES MUST BE ESTABLISHED FOR THE 2011 GROWING SEASON AS FOLLOWS:

To preserve the benefits and insect protection of Genuity® VT Triple PRO™ technology, an IRM plan must be part of every farmer's short- and long-term production strategies. IRM plans are required for farmers who intend to plant Genuity® VT Triple PRO™.

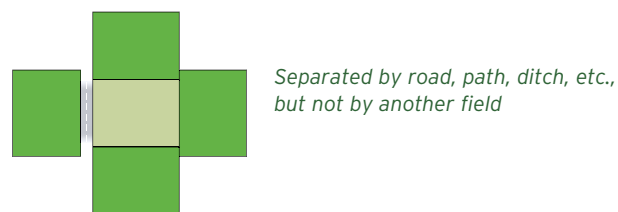
- Plant up to 80% of total corn acres with Genuity® VT Triple PRO™ technology on each farm. Plant at least 20% of the total corn acres to a corn refuge that does not contain a *B.t.* technology.
- The refuge may be treated for corn rootworm larvae and other pests with soil-applied and/or seed-applied insecticides.
- If required, the refuge may be treated with a non-*B.t.* foliar insecticide. If the refuge is treated, the portion of the field containing *B.t.* technology must also be treated.
- Corn planted in the refuge may be Roundup Ready® Corn 2 or conventional corn, but may not be any *B.t.* corn technology that provides protection from corn borer or corn rootworm.
- The refuge must be planted within or adjacent to the Genuity® VT Triple PRO™ technology. The refuge may be separated by a ditch or a road, but not by another field. Alternatively, the refuge may be planted as in-field or perimeter strips. These strips must be at least four consecutive rows wide.
- Plant a refuge on every farm where Genuity® VT Triple PRO™ technology is planted.
- Plant the refuge at the same time as the Genuity® VT Triple PRO™ technology.
- Mixing non-*B.t.* seed with Genuity® VT Triple PRO™ technology for use as a refuge is not permitted.
- If the refuge is planted on first-year corn (rotated corn ground), then the Genuity® VT Triple PRO™ technology must also be planted on first-year corn (rotated corn ground). If the refuge is planted on continuous corn ground, then Genuity® VT Triple PRO™ technology may be planted on either first-year corn (rotated corn ground) or continuous corn ground.
- Adjacent refuge fields must be owned or managed by the farmer.
- The Genuity® VT Triple PRO™ corn and the refuge corn should be of similar maturities.

## Refuge Configuration Options

### Examples of Within-Field Configurations



### Example of Adjacent-Field Configuration



- = Genuity® VT Triple PRO™
- = Non-*B.t.* Refuge - minimum 20% (e.g., Roundup Ready Corn 2 or conventional corn)

# YieldGard VT Triple®



YieldGard VT Triple® corn technology combines YieldGard® Corn Borer and YieldGard VT Rootworm/RR2® technology into a single plant. YieldGard VT Triple corn hybrids control European corn borer, western and northern corn rootworm. YieldGard VT Triple hybrids will also provide some protection against corn earworm, fall armyworm, and stalk borer. By providing in-plant protection against the above insect pests, the genetic yield potential of YieldGard VT Triple corn hybrids is preserved.

YieldGard VT Triple corn hybrids also contain Roundup Ready 2 Technology. This trait allows a farmer to experience the benefits of utilizing Roundup agricultural herbicides in a weed control system that provides the broadest weed control spectrum available, along with application flexibility, and excellent crop safety. All YieldGard VT Triple packaged seed is treated with a seed applied insecticide.\*

## **INSECT CONTROL INGREDIENTS**

YieldGard VT Triple hybrids contain Cry3Bb1 [*Bacillus thuringiensis* Cry3Bb1 protein and the genetic material necessary for its production (Vector ZMIR39) in MON 88017 corn (OECD Unique Identifier: MON-88017-3)] X Cry1Ab [*Bacillus thuringiensis* Cry1Ab delta-endotoxin and the genetic material necessary for its production in corn] for use in field corn. This product controls European corn borer (*Ostrinia nubilalis*), western corn rootworm (*Diabrotica virgifera virgifera*), and northern corn rootworm, (*Diabrotica barberi*), and suppresses corn earworm (*Helicoverpa zea*), stalk borer (*Papaipema nebris*), and fall armyworm (*Spodoptera frugiperda*). YieldGard technologies are available in hybrids offered by a variety of seed producers. Farmers must read and follow the limitations and requirements in the appropriate Product Notice or Product Use Guide, including this Technology Use Guide.

## **RECOMMENDED MANAGEMENT PRACTICES**

Managing YieldGard VT Triple requires a farmer to follow the recommended management practices associated with corn containing each individual trait.

Hybrids containing Roundup Ready 2 Technology are tolerant to Roundup agricultural herbicides.

\* A seed-applied insecticide can protect seed, roots and seedlings from insects such as black cutworm, wireworm, white grubs, seed corn maggots, chinch bug and early flea beetles.

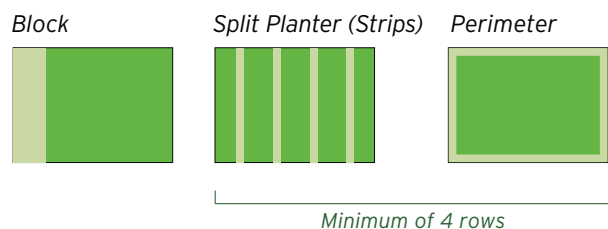
## Corn Refuge Requirements and Configuration Options

### REFUGES MUST BE ESTABLISHED FOR THE 2011 GROWING SEASON AS FOLLOWS:

- Plant up to 80% of total corn acres with YieldGard VT Triple® corn hybrids on each farm. Plant at least 20% of the total corn acres to a corn refuge that does not contain a *B.t.* technology.
- The refuge may be treated for corn rootworm larvae and other pests with soil-applied and/or seed-applied insecticides.
- If required, the refuge may be treated with a non-*B.t.* foliar insecticide. If the refuge is treated, the portion of the field containing *B.t.* technology must also be treated.
- Corn planted in the refuge may be Roundup Ready Corn 2 or conventional corn, but may not be any *B.t.* corn technology that provides protection from corn borer or corn rootworm.
- The refuge must be planted within or adjacent to the YieldGard VT Triple corn fields. The refuge may be separated by a ditch or a road, but not by another field. Alternatively, the refuge may be planted as in-field or perimeter strips. These strips must be at least four consecutive rows wide.
- Plant a refuge on every farm where YieldGard VT Triple corn hybrids are planted.
- Plant the refuge at the same time as the YieldGard VT Triple corn.
- Mixing non-*B.t.* seed with YieldGard VT Triple corn seed for use as a refuge is not permitted.
- If the refuge is planted on first-year corn (rotated corn ground), then the YieldGard VT Triple corn must also be planted on first-year corn (rotated corn ground).
- If the refuge is planted on continuous corn ground, then the YieldGard VT Triple corn may be planted on either first-year corn (rotated corn ground) or continuous corn ground.
- Adjacent refuge fields must be owned or managed by the farmer.

## Refuge Configuration Options

### Examples of Within-Field Configurations



### Example of Adjacent-Field Configuration



- = YieldGard VT Triple
- = Non-*B.t.* Refuge - minimum 20% (e.g., Roundup Ready Corn 2 or conventional corn)

# YieldGard VT Rootworm/RR2<sup>®</sup>



YieldGard VT Rootworm/RR2<sup>®</sup> technology provides the next generation of insect control and improved consistency of control of western corn rootworm and northern corn rootworm. Protecting the root of the corn plant from feeding by corn rootworm larvae decreases lodging and protects the genetic yield potential of YieldGard VT Rootworm/RR2 corn hybrids.

The Roundup Ready 2 Technology System allows a farmer to gain the benefits of utilizing Roundup agricultural herbicides in a weed control system that provides the broadest weed control spectrum, application flexibility, and excellent crop safety. All YieldGard VT Rootworm/RR2 packaged seed is treated with a seed applied insecticide.\*

## INSECT CONTROL INGREDIENTS

*Bacillus thuringiensis* Cry3Bb1 protein and the genetic material necessary for its production (*Vector ZMIR39*) in MON 88017 corn. This product controls western corn rootworm (*Diabrotica virgifera virgifera* LeConte), and northern corn rootworm (*Diabrotica barberi* Smith & Lawrence). Routine applications of insecticides to control the larval stages of these insects are usually unnecessary when corn containing YieldGard VT Rootworm/RR2 insect protection is planted.

## RECOMMENDED MANAGEMENT PRACTICES

Managing YieldGard VT Rootworm/RR2 requires a farmer to follow the recommended management practices associated with corn containing each individual trait.

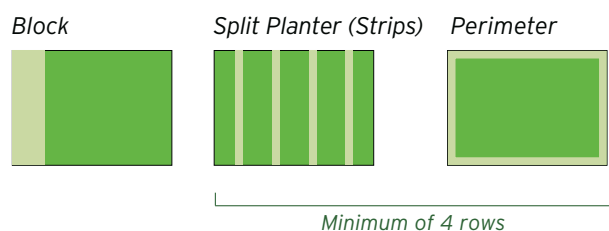
## Corn Refuge Requirements and Configuration Options

### REFUGES MUST BE ESTABLISHED FOR THE 2011 GROWING SEASON AS FOLLOWS:

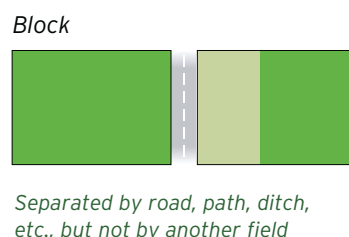
- On each farm, plant up to 80% of total corn acres with YieldGard VT Rootworm/RR2 corn hybrids. Plant at least 20% of the total corn acres to a corn refuge that does not contain a *B.t.* technology for control of western or northern corn rootworm.
- The corn refuge can be treated for corn rootworm larvae and other soil pests with soil-applied or seed-applied insecticides.
- The corn refuge can be treated with a non-*B.t.* insecticide to control late-season pests such as corn borer; however, the YieldGard VT Rootworm/RR2 corn must also be similarly treated.
- The corn refuge can be planted with YieldGard<sup>®</sup> Corn Borer corn, YieldGard Corn Borer with Roundup Ready<sup>®</sup> Corn 2, Roundup Ready Corn 2, or conventional corn, but no other *B.t.* product for corn rootworm management.
- Plant the refuge within or adjacent to YieldGard VT Rootworm/RR2 corn fields. The corn refuge can be separated by a ditch or a road but not by another field. Alternatively, the refuge may be planted as in-field or perimeter strips. These strips must be at least four consecutive rows wide.
- Plant a refuge on every farm where YieldGard VT Rootworm/RR2 corn hybrids are planted.
- Plant the refuge at the same time as YieldGard VT Rootworm/RR2 corn.
- Mixing non-*B.t.* seed with YieldGard VT Rootworm/RR2 for use in the refuge is not permitted.
- If the refuge is planted on first-year corn (rotated corn ground), then the YieldGard VT Rootworm/RR2 corn must also be planted on first-year corn (rotated corn ground).
- If the refuge is planted on continuous corn ground, then the YieldGard VT Rootworm/RR2 may be planted on either first year corn (rotated corn ground) or continuous corn ground.
- Adjacent refuge fields must be owned by or managed by the farmer.



## Refuge Configuration Options

### Examples of Within-Field Configurations



### Example of Adjacent-Field Configuration



 = YieldGard VT Rootworm/RR2     = Refuge - minimum 20% (e.g., YieldGard Corn Borer, YieldGard Corn Borer with Roundup Ready Corn 2, Roundup Ready Corn 2, or conventional corn)

\* A seed-applied insecticide can protect seed, roots and seedlings from insects such as black cutworm, wireworm, white grubs, seed corn maggots, chinch bug and early flea beetles.

# YieldGard® Corn Borer and YieldGard Corn Borer with Roundup Ready® Corn 2



YieldGard Corn Borer hybrids contain an insecticidal protein from *B.t.* that protects corn plants from specific lepidopteran insect pests. The YieldGard Corn Borer trait delivers whole-plant, full-season protection against European corn borer. By providing whole plant protection against corn borers, the genetic yield potential of YieldGard Corn Borer hybrids is preserved.

## INSECT CONTROL INGREDIENTS

This hybrid contains the YieldGard Corn Borer insect protection trait. This hybrid contains the active ingredient, the Cry1Ab protein from *Bacillus thuringiensis*. This controls European corn borer (*Ostrinia nubilalis*), and suppresses corn earworm (*Helicoverpa zea*), stalk borer (*Papaipema nebris*), and fall armyworm (*Spodoptera frugiperda*). Routine applications of insecticides to control these insects are usually unnecessary when corn containing YieldGard Corn Borer insect protection is planted.



YieldGard Corn Borer with Roundup Ready Corn 2 offers farmers all the benefits of both traits combined in one crop.

These hybrids exhibit the same insect protection qualities as YieldGard Corn Borer and, like Roundup Ready Corn 2, are tolerant to over-the-top applications of Roundup agricultural herbicides. For more information on Roundup Ready Corn 2, please see pages 20-21 of this guide.

## RECOMMENDED MANAGEMENT PRACTICES

Managing YieldGard Corn Borer with Roundup Ready Corn 2 requires a farmer to follow the recommended management practices associated with corn containing each individual trait.

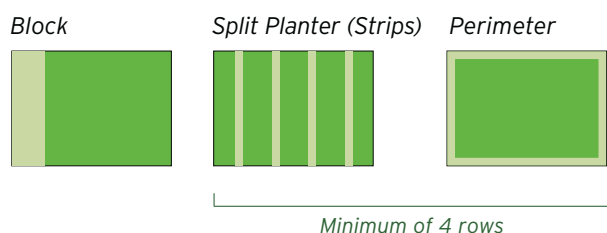
## Corn Refuge Requirements and Configuration Options

### REFUGES MUST BE ESTABLISHED FOR THE 2011 GROWING SEASON AS FOLLOWS:

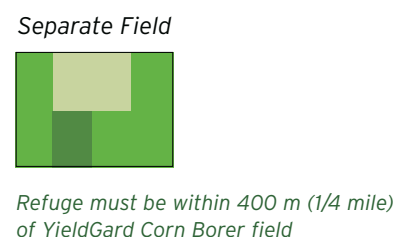
- On each farm, plant up to 80% of total corn acres with YieldGard Corn Borer and YieldGard Corn Borer with Roundup Ready Corn 2. Plant at least 20% of total corn acres to a corn refuge that does not contain a *B.t.* technology that controls European corn borer.
- Plant the refuge corn within, adjacent to, or near YieldGard Corn Borer corn fields. The refuge must be placed within 400 m (1/4 mile) to help provide a population of susceptible insects near the YieldGard Corn Borer corn field. Any corn hybrid that does not contain a *B.t.* technology which controls European corn borer and is planted on a farmer's farm can serve as a refuge.
- Corn refuge options include YieldGard VT Rootworm/RR2, Roundup Ready Corn 2 and conventional corn.
- If required, the refuge may be treated with a non-*B.t.* foliar insecticide. If the refuge is treated, the portion of the field containing *B.t.* technology must also be treated.
- Plant a refuge on every farm where YieldGard Corn Borer corn hybrids are planted.
- Plant the refuge close to, and at the same time as, YieldGard Corn Borer corn.
- Refuge configuration options include a block within a YieldGard Corn Borer field, field perimeters or end rows, or split the planter to alternate four or more consecutive rows of refuge corn with YieldGard Corn Borer corn.
- Manage the refuge the same way YieldGard Corn Borer corn is managed. Use hybrids of similar maturities in both the YieldGard and refuge plantings. Reducing inputs or planting the refuge on marginal land merely reduces the effectiveness of the refuge.
- Mixing non-*B.t.* seed with YieldGard Corn Borer corn seed for use in the refuge or on any corn acreage is not an acceptable refuge design.
- Farmers cannot utilize neighbours' corn fields for their refuge.
- Refuge fields must be owned or managed by the farmer.

## Refuge Configuration Options

### Examples of Within-Field Configurations



### Example of Separate Field Configuration



= YieldGard Corn Borer or YieldGard Corn Borer with Roundup Ready Corn 2

= Corn Refuge - minimum 20%

= Soybeans

# Roundup Ready<sup>®</sup> Corn 2



Roundup Ready<sup>®</sup> Corn 2 and corn with Roundup Ready 2 Technology are equivalent in their tolerance to Roundup<sup>®</sup> agricultural herbicides. For ease of reading, all references in the following section on Roundup Ready Corn 2 shall also refer to corn with Roundup Ready 2 Technology, unless specified as different.

The Roundup Ready 2 Technology System allows a farmer to gain the benefits of utilizing Roundup agricultural herbicides in a weed control system that provides the broadest weed control spectrum, application flexibility, and crop safety with applications made up to and including the eight leaf stage when a Roundup agricultural herbicide is applied at 0.67 L/ac.

## **MONSANTO BRANDS OF OVER-THE-TOP HERBICIDE PRODUCTS**

Roundup agricultural herbicide products sold by Monsanto for use over the top of Roundup Ready Corn 2 for the 2011 crop season are as follows:

- Roundup WeatherMAX<sup>®</sup>
- Roundup Transorb<sup>®</sup> HC
- Roundup Ultra2<sup>®</sup>

For complete information about the use of Roundup agricultural herbicides over the top of Roundup Ready Corn 2, refer to the appropriate product's label booklet or supplemental label.

You may use another glyphosate herbicide, but only if it has federally approved label instructions for use over Roundup Ready Corn 2, and the product and the use label for Roundup Ready Corn 2 have been approved for use in your specific province. Contact the product manufacturer or the local retailer for confirmation that the product carries federally approved labeling for this use. **MONSANTO DOES NOT MAKE ANY REPRESENTATIONS, WARRANTIES OR RECOMMENDATIONS CONCERNING THE USE OF GLYPHOSATE PRODUCTS SUPPLIED BY OTHER COMPANIES WHICH ARE LABELED FOR USE OVER ROUNDUP READY CORN 2. MONSANTO SPECIFICALLY DENIES ALL RESPONSIBILITY AND DISCLAIMS ANY LIABILITY FOR ANY DAMAGE FROM THE USE OF THESE PRODUCTS OVER-THE-TOP OF ROUNDUP READY CORN 2. ALL QUESTIONS AND COMPLAINTS CAUSED BY THE USE OF GLYPHOSATE PRODUCTS SUPPLIED BY OTHER COMPANIES SHOULD BE DIRECTED TO THE SUPPLIER OF THE PRODUCT IN QUESTION.**

Certain products referred to above may not be labeled for this application in your specific province. Please contact the manufacturer of this product, the local retailer, or the local extension expert for confirmation that this is an approved application.

## Weed Control Recommendations

The Roundup Ready Corn 2 system's flexibility, broad-spectrum weed control and proven crop safety offer farmers weed control programs that allow them to use the system in the way that provides the greatest benefit. Farmers can select the program that best fits the way they farm. Options include the use of a residual herbicide with a Roundup agricultural herbicide, tank-mixing other herbicides with Roundup agricultural herbicides where appropriate, and a total post emergence program.

### **AGRONOMIC PRINCIPLES**

Corn yield is very sensitive to early season weed competition. Weed control systems must provide farmers the opportunity to control weeds before they become competitive. The Roundup Ready Corn 2 system provides a mechanism to control weeds at planting and once they emerge. Failure to control weeds with the right rate, at the right time, and with the right product, can lead to increased weed competition, weed escapes, and the potential for decreased yields. Use other herbicide products with Roundup agricultural herbicides if appropriate for the weed spectrum.

### **WEED MANAGEMENT FOR ROUNDUP READY CORN 2**

Follow the guidelines below to minimize the risk of developing glyphosate-resistant weed populations in a Roundup Ready Corn 2 system.

- Start clean with a burndown herbicide or tillage. Early season weed control is critical to yield.
- Apply preemergent residual herbicides at the recommended rates if appropriate for the weed spectrum.
- Or apply a preemergent residual herbicide at the recommended rate tank-mixed with Roundup WeatherMAX at a minimum of 1.67 L/ha (0.67 L/ac).
- Follow with a postemergence in-crop application of Roundup WeatherMAX at a minimum of 1.67 L/ha (0.67 L/ac) for additional weed flushes.
- Roundup WeatherMAX may be tank-mixed with other herbicides for postemergent weed control.
- Report any incidence of repeated non-performance on a particular weed to the local Monsanto representative, retailer, or Monsanto's CustomCare<sup>®</sup> line at 1-800-667-4944.

## Glyphosate-Resistant Weeds

In 2010, the first instance of a glyphosate-resistant weed in Canada was confirmed. A glyphosate-resistant biotype of giant ragweed in a southwestern Ontario location was identified, investigated and confirmed. Monsanto actively investigates and studies weed control complaints and claims of weed resistance. Monsanto continues to work with researchers and extension experts to develop recommended control measures and communicate them to farmers.

## RECOMMENDATIONS FOR MANAGING GLYPHOSATE-RESISTANT WEEDS IN ROUNDUP READY CROPS

Farmers concerned about the potential presence of glyphosate-resistant giant ragweed in their Roundup Ready corn should consider the following management practices:

	INSTRUCTIONS AND USE RATES*
<b>Glyphosate Resistant Giant Ragweed</b>	<p>Start clean with a burndown program or tillage</p> <p>Use a residual herbicide such as Banvel® II or Marksman® either preemergence or in-crop</p> <p>In-crop, tank mix Roundup WeatherMAX with other herbicides such as Banvel II or Marksman to control emerged weeds</p>

\* Follow all pesticide label requirements

In certain areas, populations of giant ragweed are known to be resistant to glyphosate. For specific weed control recommendations for glyphosate-resistant biotypes of these weeds please refer to [www.WeedResistanceManagement.com](http://www.WeedResistanceManagement.com) or call CustomCare® at 1-800-667-4944.

## WEED CONTROL RECOMMENDATIONS

PROGRAM	INSTRUCTIONS AND USE RATES*	ADDITIONAL INFORMATION
<p><b>Residual herbicides used for early season weed control:</b></p> <p><b>Followed by Roundup WeatherMAX® in crop.</b></p>	<p>Use rates of residual herbicide registered for use in corn as defined in the individual product labels preemergent to the crop.</p> <p>Follow with Roundup WeatherMAX at 1.67 L/ha (0.67 L/ac) to 3.33 L/ha (1.33 L/ac) post sequentially after the preemergent application.</p> <p><b>Applications should be made early before weeds can compete with the crop.</b></p>	<p>Use labeled rates as appropriate for weed spectrum and soil type present.</p> <p>Use the higher rates when perennial weeds are present, when weeds are larger or weed infestations are heavy.</p>
<p><b>Residual herbicides used for extended in crop weed control:</b></p> <p><b>Tank mixed with Roundup WeatherMAX and applied in crop.</b></p>	<p>Use rates of a residual herbicide tank mixed with Roundup WeatherMAX at 1.67 L/ha (0.67 L/ac) as registered and as defined below* in the individual product labels.</p> <p>Applications should be made early before weeds can compete with the crop.</p> <p>Residual tank mix Rates*</p> <p>Atrazine (480 g ai/L) - 1.56-2.08 L/ha</p> <p>Marksman - 2.5-3.7 L/ha</p> <p>Callisto® 480SC - 0.21 L/ha</p> <p>Callisto 480SC + Atrazine (480 g ai/L) - (0.21 L/ha + 0.58 L/ha</p> <p>Primextra® II Magnum® Herbicide - 2.5 L/ha</p>	<p>Use the higher rates when perennial weeds are present, when weeds are larger or weed infestations are heavy.</p> <p>For Atrazine and Marksman - tank mix applications can be made up to and including the 5 leaf stage of the crop.</p> <p>For Callisto / Callisto + Atrazine - tank mix applications can occur from the 3-8 leaf stage of the crop.</p> <p>For Primextra II Magnum - tank mix application can occur until and including the 6 leaf stage of corn.</p>
<p><b>Total post emergence programs:</b></p> <p><b>Roundup WeatherMAX Sequential</b></p>	<p>Apply Roundup WeatherMAX at 1.67 L/ha (0.67 L/ac) early before weeds can compete with the crop and follow with a second application at 1.67 L/ha (0.67 L/ac).</p>	<p>For control of common milkweed, yellow nutsedge, round-leaved mallow, and field bindweed, a second sequential application at 1.67 L/ha (0.67 L/ac) may be made at least 2 weeks after the first application.</p> <p>A second application must be applied no later than the 8 leaf stage of the corn.</p>
<p><b>Maximum Use Rates For Roundup WeatherMAX</b></p>	<ul style="list-style-type: none"> <li>• Single application: 3.33 L/ha (1.33 L/ac) of Roundup WeatherMAX up to and including the 6 leaf stage.</li> <li>• Sequential applications: 1.67 L/ha (0.67 L/ac) followed by 1.67 L/ha (0.67 L/ac) up to and including the 8 leaf stage.</li> </ul>	
<p><b>Volunteer canola with the Roundup Ready® gene</b></p>	<p>Use rates of herbicide tank mixed with Roundup WeatherMAX at 1.67 L/ha (0.67 L/ac) as registered and as defined below in the individual product labels.</p> <p>Volunteer Genuity® Roundup Ready® canola tank-mix rates</p> <p>2,4-D (single application - 0.56-1.12 L/ha)**</p> <p>2,4-D (two applications - 0.56 L/ha followed by 0.42)**</p> <p>Peak® + Banvel® + non-ionic surfactant</p> <p>Peak 13.3 g/ha</p> <p>Banvel - 0.3 L/ha</p> <p>Non-ionic surfactant - 0.2% v/v</p> <p>Dyvel® DSp - 1.1 L/ha</p>	<p>For control of volunteer canola with the Roundup Ready® gene prior to the 4 leaf stage. Tank-mixes are more effective when treating small canola plants.</p> <p>2,4-D applications can be made until the Roundup Ready corn is 15 cm in height or the 6 leaf stage. For improved crop safety apply prior to the 4 leaf stage.</p> <p>Peak + Banvel + non-ionic surfactant — can be applied from spike to the 5 leaf stage of corn.</p> <p>Dyvel DSp can be applied as a tank-mix until the Roundup Ready corn is 15 cm in height (leaf extended).</p>

\* If using another Roundup agricultural herbicide, you must refer to the label booklet for that brand to determine appropriate use rates.

\*\* Based on a 500 g ai/L formulation.

# Genuity® Roundup Ready 2 Yield® and Roundup Ready® Soybeans



Genuity® Roundup Ready 2 Yield® and Roundup Ready® soybean varieties contain in-plant tolerance to Roundup® agricultural herbicides. This means you

can apply Roundup agricultural herbicides in-crop from first trifoliolate through flowering.

Genuity® Roundup Ready 2 Yield® and Roundup Ready® soybean varieties contain in-plant tolerance to Roundup® agricultural herbicides. Farmers are provided excellent crop safety and full yield potential, with applications made through flowering for unsurpassed weed control, proven crop safety, and maximum yield potential.

## ROUNDUP READY® SOYBEAN PATENT EXPIRY IN CANADA

In Canada, the first generation Roundup Ready® soybean trait will be the first widespread plant biotechnology trait to go off patent. Monsanto's Canadian patent on Roundup Ready soybeans expires in August 2011. The first year Canadian growers may plant Roundup Ready soybeans saved from their own seed production is 2013. In 2012 growers may buy certified seed from a company holding a valid license in 2011 for original Roundup Ready soybeans, without any contractual obligations or royalty due Monsanto for this trait. Growers may choose to save seed from their 2012 harvest for replanting the next year as long as the seed company that sells it to them does not impose any contractual prohibitions unrelated to this trait against it.

In 2011 contract obligations to not save seed under the Technology Stewardship Agreement farmers sign will still be in effect. Although the 2,088,661 patent will expire in August 2011, growers will be using the patented technology during the life of the patent to make fall 2011 seed, and they may not save that seed for planting in 2012.

Monsanto has confirmed with its seed company partners that they will be able to continue to provide farmers with soybeans containing the original Roundup Ready soybeans trait beyond patent expiration if that is a choice they wish to make for their business. This will allow original Roundup Ready soybeans trait licensees to make business plans that make the most sense for their operations and their customers.

If you have any questions please call CustomCare® at 1-800-667-4944.

## ROUNDUP® AGRICULTURAL OVER-THE-TOP HERBICIDE PRODUCTS

Roundup agricultural herbicide products sold by Monsanto for use over-the-top of Genuity® Roundup Ready 2 Yield® and Roundup Ready soybeans for the 2011 crop season are as follows:

- Roundup WeatherMAX®
- Roundup Transorb® HC
- Roundup Ultra2®

## OVER-THE-TOP HERBICIDES FOR ROUNDUP READY SOYBEANS

For complete information about the use of Roundup agricultural herbicides over-the-top of Roundup Ready® soybeans, refer to the appropriate product's label booklet. You may use another glyphosate herbicide, but only if it has federally approved label instructions for use over Roundup Ready soybeans, and the product and the use label for Roundup Ready soybeans have been approved for use in your specific Province. Contact the product manufacturer or the local retailer for confirmation that the product carries federally approved labeling for this use.

MONSANTO DOES NOT MAKE ANY REPRESENTATIONS, WARRANTIES OR RECOMMENDATIONS CONCERNING THE USE OF GLYPHOSATE PRODUCTS SUPPLIED BY OTHER COMPANIES WHICH ARE LABELED FOR USE OVER ROUNDUP READY SOYBEANS. MONSANTO SPECIFICALLY DENIES ALL RESPONSIBILITY AND DISCLAIMS ANY LIABILITY FOR ANY DAMAGE FROM THE USE OF THESE PRODUCTS OVER-THE-TOP OF ROUNDUP READY SOYBEANS. ALL QUESTIONS AND COMPLAINTS CAUSED BY THE USE OF GLYPHOSATE PRODUCTS SUPPLIED BY OTHER COMPANIES SHOULD BE DIRECTED TO THE SUPPLIER OF THE PRODUCT IN QUESTION.

## Weed Control Recommendations

### AGRONOMIC PRINCIPLES IN SOYBEANS

Starting clean with a weed-free field and making timely postemergent in-crop applications is critical to obtaining excellent weed control and maximum yield potential. The Genuity® Roundup Ready 2 Yield® and Roundup Ready soybean system provides the flexibility to use the herbicide tool(s) necessary to control weeds at planting and in-crop. Failure to control weeds with the right rate at the right time with the right product can lead to increased weed competition and the potential for decreased yield.

Note: Certain products referred to above may not be labeled for this application in your specific Province. Please contact the manufacturer of this product, the local retailer or the local extension expert for confirmation that this is an approved application.

## WEED MANAGEMENT GUIDELINES

Follow the guidelines below to minimize the risk of developing glyphosate-resistant weed populations in a Genuity® Roundup Ready 2 Yield® and Roundup Ready soybean system:

- Scout fields before and after each burndown and in-crop application.
- Start clean with a burndown herbicide or tillage.
- Apply residual herbicides at the recommended rates if appropriate for the weed spectrum.
- In-crop, apply Roundup WeatherMAX when weeds are small, at a minimum of 1.67 L/ha (0.67 L/ac).
- If an additional flush of weeds occurs, a sequential application of Roundup WeatherMAX at 1.67 L/ha (0.67 L/ac) may be needed.
- Roundup WeatherMAX may be tank-mixed with other herbicides for postemergent weed control.
- Clean equipment before moving from field to field to minimize the spread of weed seed.
- Report any incidence of repeated non-performance on a particular weed to the local Monsanto representative, retailer, or Monsanto's CustomCare® line at 1-800-667-4944.

## Glyphosate-Resistant Weeds

In 2010, the first instance of a glyphosate-resistant weed in Canada was confirmed. A glyphosate-resistant biotype of giant ragweed in a southwestern Ontario location was identified, investigated and confirmed. Monsanto actively investigates and studies weed control complaints and claims of weed resistance. Monsanto continues to work with researchers and extension experts to develop recommended control measures and communicate them to farmers.

Farmers concerned about the potential presence of glyphosate-resistant giant ragweed in their Genuity® Roundup Ready 2 Yield™ or Roundup Ready soy crops should consider the following management practices:

### RECOMMENDATIONS FOR MANAGING GLYPHOSATE-RESISTANT WEEDS IN ROUNDUP READY CROPS

	INSTRUCTIONS AND USE RATES*
<b>Glyphosate-Resistant Giant Ragweed</b>	<p>Start clean with a burndown program or tillage</p> <p>Use a residual herbicide such as FirstRate** either preemergence or in-crop</p> <p>In-crop, tank mix Roundup WeatherMAX with other herbicides such as FirstRate to control emerged weeds</p>

\* Follow all pesticide label requirements

\*\* Will not control Giant Ragweed that is also resistant to Group 2 class of herbicides

In certain areas, populations of giant ragweed are known to be resistant to glyphosate. For specific weed control recommendations for glyphosate-resistant biotypes of these weeds please refer to [www.WeedResistanceManagement.com](http://www.WeedResistanceManagement.com) or call CustomCare at 1-800-667-4944.

## WEED CONTROL RECOMMENDATIONS

PROGRAM	INSTRUCTIONS AND USE RATES*	ADDITIONAL INFORMATION
<b>Preplant Burndown</b>	<p>To start clean in no-till systems, apply a burndown application of Roundup WeatherMAX® at 1.67 L/ha (0.67 L/ac) to 3.33 L/ha (1.33 L/ac) before planting.</p> <p>See the label for appropriate rates by weed species.</p>	<p>Always start with a weed-free field.</p> <p>In no-till and reduced-till systems, apply a Roundup WeatherMAX burndown application to control existing weeds before planting.</p>
<b>Residual Herbicide Plus Roundup WeatherMAX</b>	<p>Use the recommended label rate of a soil applied residual herbicide applied preemergent to soybeans as defined in the individual products labeling. If labeled, the residual product may be tank mixed with Roundup WeatherMAX at burndown.</p> <p>Follow with Roundup WeatherMAX at 1.67 L/ha (0.67 L/ac) in crop when weeds are 2" to 8" tall. Refer to the Roundup WeatherMAX label for rate recommendations for specific weeds.</p> <p>Apply a residual herbicide in a continuous Roundup Ready soybean system.</p>	<p>A residual program may be used if agronomic conditions favor the practice.</p> <p>Reducing Roundup WeatherMAX rate when tank-mixing with a residual is not recommended. If the in-crop applications delayed and weeds are larger, apply a higher rate of this product specified by label.</p>
<b>Residual herbicides used for extended in crop weed control:</b> <b>Tank mixed with Roundup WeatherMAX and applied in crop.</b>	<p>Use rates of residual herbicide tank mixed with Roundup WeatherMAX at 1.67 L/ha (0.67 L/ac) as registered and as defined below* in the individual product labels.</p> <p>Applications should be made early before weeds can compete with the crop.</p> <p>Residual tank mix Rates* Pursuit® herbicide - 0.16-0.21 L/ha Or FirstRate® herbicide - 20.8 grams/ha</p>	<p>Use the higher rates when weed infestations are heavy.</p> <p>Pursuit tank mix applications can be made up to and including the 3rd trifoliolate stage of the crop.</p> <p>FirstRate tank mix applications can be made up to the flowering stage of soybeans.</p>
<b>Other Tank mix options with Roundup WeatherMAX and applied in crop.</b>	<p>Use rates of Classic® 25DF herbicide tank mixed with Roundup WeatherMAX at 1.67 L/ha (0.67 L/ac) as registered and as defined below* in the individual product labels.</p> <p>Applications should be made early before weeds can compete with the crop.</p> <p>Residual tank mix Rates* Classic 25DF - 36 grams/ha + Non-ionic surfactant - 0.2% v/v</p>	<p>Use the higher rates when weed infestations are heavy.</p> <p>Tank mix applications can be made during the 1 to 3 trifoliolate stage of the crop.</p>

\* If using another Roundup agricultural herbicide, you must refer to the label booklet for that brand to determine appropriate use rates.

# Genuity® Roundup Ready 2 Yield® and Roundup Ready® Soybeans



## WEED CONTROL RECOMMENDATIONS

PROGRAM	INSTRUCTIONS AND USE RATES*	ADDITIONAL INFORMATION
<b>Roundup Ready® Soybeans</b>		
<b>Roundup WeatherMAX® Sequential</b>	<p>Apply a minimum of 1.67 L/ha (0.67 L/ac) of Roundup WeatherMAX® in-crop.</p> <p>Refer to the "Weeds Controlled Table" in the Roundup WeatherMAX label for rate recommendations for specific weeds. Choose the rate to control the most difficult to control weed in your field.</p> <p>A sequential application of this product may be required to control new flushes of weeds in the Roundup Ready soybean crop.</p> <p>If a sequential application is necessary, apply 1.67 L/ha (0.67 L/ac) of Roundup WeatherMAX® no later than the flowering stage of the soybean.</p>	<p>For best results, apply 3 to 4 weeks after planting when weeds are small.</p> <p>If initial application is delayed and weeds are larger, apply a higher labeled rate of this product. But only one application per season at 3.33 L/ha (1.33 L/ac) is allowed.</p> <p>Applications should be at least 2 weeks apart for best results.</p>
<b>Volunteer corn with the Roundup Ready® gene</b>	<p>Tank mix Roundup WeatherMAX with 0.25 to 0.38 L/ha of Assure® II herbicide and apply to the 2 to 6 leaf stage of volunteer corn with the Roundup Ready gene.</p> <p>Or</p> <p>Tank mix Roundup WeatherMAX® with 0.45 to 0.60 L/ha of Venture® and apply to the 2 to 5 leaf stage of volunteer corn with the Roundup Ready gene.</p>	<p>Choose your Roundup WeatherMAX rate based on the weed species and size listed in the "Weeds Controlled Table" of the Roundup WeatherMAX Label.</p>
<b>Maximum Use Rates for Roundup WeatherMAX</b>	<ul style="list-style-type: none"> <li>• Single application: 3.33 L/ha (1.33 L/ac) of Roundup WeatherMAX®</li> <li>• Sequential applications: 1.67 L/ha (0.67 L/ac) followed by 1.67 L/ha (0.67 L/ac)</li> </ul>	
<b>For control of spreading atriplex</b>	<ul style="list-style-type: none"> <li>• For the control of spreading atriplex, apply a preplant application of Sencor® 75 DF Herbicide at 0.75 - 1.11 kg product per hectare on medium textured soils or 1.11 - 1.5 kg product per hectare on fine textured soils plus Roundup WeatherMAX With Transorb® 2 Technology Liquid Herbicide at 1.67 litres per hectare.</li> </ul>	<p>Apply up to the 10 leaf stage of spreading atriplex.</p>
<b>Genuity® Roundup Ready 2 Yield®</b>		
<b>First trifoliolate leaf stage through flowering</b>	<ul style="list-style-type: none"> <li>• All weeds listed above plus control of volunteer alfalfa and brome grass.</li> </ul>	<p>Only one application per season at 4.67 L/ha (1.87 L/ac).</p> <p>Alfalfa should have 9 or more leaves and be at least 10-15 cm tall.</p> <p>Brome grass should have at least 3 to 5 leaves and be at least 10-15 cm tall.</p> <p>Short term yellowing may occur in sprayer overlap areas with the 4.67 L/ha (1.87 L/ac) application rate. This effect is temporary and will not influence crop growth or yield.</p>
<b>Roundup WeatherMAX Use Rates on Genuity® Roundup Ready 2 Yield® soybeans</b>	<ul style="list-style-type: none"> <li>• 1.67 L/ha (0.67 L/ac) may be applied once or twice within the application window</li> <li>• 3.33 L/ha (1.33 L/ac) rate can be applied once for control of horse-nettle and tall water hemp</li> <li>• 4.67 L/ha (1.87 L/ac) rate can be applied once for control of volunteer alfalfa and brome grass</li> </ul>	<p>Do not apply the 4.67 L/ha (1.87 L/ac) rate to non-Roundup Ready 2 Yield soybeans.</p> <p>Roundup WeatherMAX® has the same tank mix approvals for Genuity Roundup Ready 2 Yield soybeans as was approved for Roundup Ready soybeans.</p>

\* If using another Roundup agricultural herbicide, you must refer to the label booklet for that brand to determine appropriate use rates.

# Genuity® Roundup Ready® Canola



Genuity® Roundup Ready® canola varieties contain in-plant tolerance to Roundup agricultural herbicides, enabling farmers to apply Roundup agricultural herbicides over the top of Genuity® Roundup Ready® canola anytime from emergence through the 6 leaf stage of development. The introduction of the Roundup Ready trait into leading canola hybrids and varieties gives farmers the opportunity for unsurpassed weed control, proven crop safety, and maximum profit potential. With Genuity® Roundup Ready® canola, farmers have the weed management tool necessary to improve canola profitability.

## **ROUNDUP AGRICULTURAL OVER-THE-TOP HERBICIDE PRODUCTS**

Roundup agricultural herbicide products sold by Monsanto for use over the top of Genuity® Roundup Ready® canola for the 2011 crop season:

- Roundup WeatherMAX®
- Roundup Transorb® HC
- Roundup Ultra2®

You may use another glyphosate herbicide, but only if it has federally approved label instructions for use over Genuity® Roundup Ready® canola, and the product and the use label for Genuity® Roundup Ready® canola have been approved for use in your specific Province. Contact the product manufacturer or the local retailer for confirmation that the product carries federally approved labeling for this use.

MONSANTO DOES NOT MAKE ANY REPRESENTATIONS, WARRANTIES OR RECOMMENDATIONS CONCERNING THE USE OF GLYPHOSATE PRODUCTS SUPPLIED BY OTHER COMPANIES WHICH ARE LABELED FOR USE OVER GENUITY® ROUNDUP READY® CANOLA. MONSANTO SPECIFICALLY DENIES ALL RESPONSIBILITY AND DISCLAIMS ANY LIABILITY FOR ANY DAMAGE FROM THE USE OF THESE PRODUCTS OVER-THE-TOP OF GENUITY® ROUNDUP READY® CANOLA. ALL QUESTIONS AND COMPLAINTS CAUSED BY THE USE OF GLYPHOSATE PRODUCTS SUPPLIED BY OTHER COMPANIES SHOULD BE DIRECTED TO THE SUPPLIER OF THE PRODUCT IN QUESTION.

Certain products may not be labeled for this application in your specific Province. Please contact the manufacturer of this product, the local retailer or the local extension expert for confirmation that this is an approved application.

For complete information about the use of Roundup agricultural herbicides over the top of Genuity® Roundup Ready® canola, refer to the appropriate products' label booklet.

## **WEED MANAGEMENT GUIDELINES**

Follow the guidelines below to minimize the risk of developing glyphosate-resistant weed populations in a Genuity® Roundup Ready® canola system:

- Scout fields before and after each burndown and in-crop application.
- Start clean with a burndown herbicide or tillage.
- In-crop, apply Roundup WeatherMAX herbicide when weeds are small.
- A sequential application of Roundup WeatherMAX herbicide may be needed.
- Roundup WeatherMAX may be tank-mixed with other herbicides for postemergent weed control.
- Add other herbicides and cultural practices where appropriate as part of the Roundup Ready cropping system.
- Clean equipment before moving from field to field to minimize the spread of weed seed.
- Report any incidence of repeated non-performance on a particular weed to the local Monsanto representative, retailer, or Monsanto's CustomCare® line at 1-800-667-4944.

## WEED CONTROL RECOMMENDATIONS

PROGRAM	INSTRUCTIONS AND USE RATES*	ADDITIONAL INFORMATION
<b>Two-Pass Program— For Annual and Perennial Weed Control</b>	<p>For broad-spectrum control of annual and perennial weeds, use an initial application of 0.83 L/ha (0.33 L/ac) of Roundup WeatherMAX®, in 5 to 10 gallons per acre water volume.</p> <p>Make a second application of 0.83 L/ha (0.33 L/ac) of Roundup WeatherMAX® no less than 10 days after initial application up to the 6 leaf stage (pre-bolting).</p>	<p>Spray canola up to the 6 leaf stage of growth. To maximize yield potential, spray canola at the 1 to 3 leaf stage to eliminate competing weeds. Short-term yellowing may occur with later applications (4 to 6 leaf stage), with little effect on crop growth, maturity or yield.</p> <p>Wait a minimum of 10 days between applications. Two applications of Roundup WeatherMAX® will:</p> <ul style="list-style-type: none"> <li>• Control late flushes of annual weeds such as wild oats, green foxtail, pigweed and wild mustard.</li> <li>• Provide season-long control of Canada thistle, foxtail barley, quackgrass and perennial sow thistle.</li> <li>• Eliminate competition from annuals and hard-to-control perennials.</li> </ul>
<b>Single Application— For Annual Weed Control</b>	<p>For broad-spectrum control of annual and easy-to-control perennial weeds, make a single application of 1.27 L/ha (0.5 L/ac) of Roundup WeatherMAX®.</p>	<p>For best results, spray canola at the 2 to 3 leaf stage. Roundup WeatherMAX® can be applied up to the 6 leaf stage. Yellowing may occur with later application with little effect on crop growth, maturity or yield.</p> <p>No additional over-the-top applications can be made.</p>
<b>Maximum Use Rate For Roundup WeatherMAX</b>	<p>Two over-the-top applications: Do not exceed 0.83 L/ha (0.33 L/ac) per application.</p>	<p>Single over-the-top applications: Do not exceed 1.27 L/ha (0.5 L/ac).</p> <p>No additional application can be made.</p>
<b>Tank-mixes in Genuity® Roundup Ready® canola</b>	<p>For season-long control of top growth of Canada thistle and control of wild buckwheat in glyphosate tolerant canola (i.e., varieties with the Roundup Ready Gene), apply a tank mixture of 0.28 L/ha of Lontrel® 360 herbicide with 0.83 L/ha of Roundup WeatherMAX with Transorb 2 Technology Liquid Herbicide, in 100 litres of water per hectare.</p>	<p>Apply when the Genuity® Roundup Ready® canola is in the 2 to 6 leaf stage.</p>

\* If using another Roundup agricultural herbicide, you must refer to the label booklet for that brand to determine appropriate use rates.

## VOLUNTEER CANOLA WITH THE ROUNDUP READY GENE

Farmers who grow Genuity® Roundup Ready® canola have successfully managed volunteer canola since the technology's introduction in 1996. In addition to cultural control methods, there are currently over 30 herbicide products that can be used to control volunteer Genuity® Roundup Ready® canola in Western Canadian cropping systems. If field scouting identifies volunteer canola as one of the weeds to be controlled, consider the field-cropping history. If Genuity® Roundup Ready® canola was grown in the previous 4 years; a tank-mix may be required for volunteer Genuity® Roundup Ready® canola control. For conventional tillage, light cultivation will also provide effective control of canola volunteers.

## PRE-SEED/PRE-PLANT

The following products can be mixed with Roundup® brand agricultural herbicides prior to planting the following crops:

### WESTERN CANADA

## REGISTERED SOLUTIONS PRE-SEED AND CHEM-FALLOW

HERBICIDE	WHEAT	BARLEY	OATS	RYE	CANARY SEED	CORN	FLAX	PEAS	LENTILS*	CHICKPEA*	SOYBEANS	CHEM-FALLOW
2,4-D	X	X		X								X
MCPA	X	X	X	X			X					
Bromoxynil (Pardner®)	X	X	X	X								X
Buctril® M	X	X	X	X	X	X	X					
MCPA Amine**						X		X	X	X		
Express® SG***	X	X						X			X	X
Express® PRO***	X	X										X
Rustler®+2,4-D	X	X		X								X
HEAT™ WG	X	X	X		X	X		X	X	X	X	X

\* Warning for lentils/chickpeas: Under conditions of extreme drought, deep seeding alone or combined with brief rain showers, rates listed above may cause injury to emerging seedlings in sprayer overlaps.

\*\* Do not use MCPA Ester formulations prior to these crops.

\*\*\* Refer to Express SG and Express PRO labels for registered glyphosate products.

### EASTERN CANADA

## REGISTERED SOLUTIONS PRE-SEED

HERBICIDE	WHEAT	BARLEY	OATS	RYE	CORN	FLAX	PEAS	LENTILS*	CHICKPEA*	SOYBEANS
2,4-D	X	X		X						
MCPA	X	X	X	X		X				
Bromoxynil (Pardner)	X	X	X	X						
Buctril M	X	X	X	X	X	X				
MCPA Amine					X**		X	X	X	

\* Warning for lentils/chickpeas: Under conditions of extreme drought, deep seeding alone or combined with brief rain showers, rates listed above may cause injury to emerging seedlings in sprayer overlaps.

\*\* Field and Sweet Corn

# Genuity® Roundup Ready® Sugarbeets



Genuity® Roundup Ready® sugarbeet varieties contain in-plant tolerance to Roundup® agricultural herbicides, enabling farmers to apply Roundup agricultural herbicides over the top of Genuity® Roundup Ready® sugarbeets anytime from emergence until 30 days prior to harvest. The introduction of the Roundup Ready trait gives farmers the opportunity for unsurpassed weed control, proven crop safety, and preservation of yield potential.

## MANAGEMENT PRACTICES

Sugarbeets are extremely sensitive to weed competition for light, nutrients and soil moisture. Research on sugarbeet weed control suggests that sugarbeets need to be kept weed-free for the first eight weeks of growth to protect yield potential. Therefore, weeds must be controlled when they are small and before they compete with Genuity® Roundup Ready® sugarbeets (exceed crop height), that is from less than 2" up to 4" in height, to preserve sugarbeet yield potential. More than one in-crop herbicide application will be required to control weed infestations to protect yield potential as Roundup® agricultural herbicides have no soil residual activity. Bolting sugarbeets must be rogued or topped in Genuity® Roundup Ready® sugarbeet fields. Genuity® Roundup Ready® sugarbeet varieties have excellent tolerance to over-the-top applications of labeled Roundup agricultural herbicides. A postemergence weed control program using Roundup WeatherMAX®, Roundup Transorb® HC or Roundup Ultra2® will provide excellent weed control in most situations. A residual herbicide labeled for use in sugarbeets may also be applied preemergence, preplant or postemergence in Genuity® Roundup Ready® sugarbeets. Contact a Monsanto Representative, local crop advisor or extension specialist to determine the best option for your situation.

## ROUNDUP AGRICULTURAL OVER-THE-TOP HERBICIDE PRODUCTS

Roundup Agricultural products sold by Monsanto for use over the top of Genuity® Roundup Ready® sugarbeets for the 2011 crop season:

- Roundup WeatherMAX
- Roundup Transorb HC
- Roundup Ultra2

You may use another glyphosate herbicide, but only if it has federally approved label instructions for use over Genuity® Roundup Ready® sugarbeets, and the product and the use label for Genuity® Roundup Ready® sugarbeets have been approved for use in your specific Province. Contact the product manufacturer or the local retailer for confirmation that the product carries federally approved labeling for this use.

MONSANTO DOES NOT MAKE ANY REPRESENTATIONS, WARRANTIES OR RECOMMENDATIONS CONCERNING THE USE OF GLYPHOSATE PRODUCTS SUPPLIED BY OTHER COMPANIES WHICH ARE LABELED FOR USE OVER GENUITY® ROUNDUP READY® SUGARBEETS. MONSANTO SPECIFICALLY DENIES ALL RESPONSIBILITY AND DISCLAIMS ANY LIABILITY FOR ANY DAMAGE FROM THE USE OF THESE PRODUCTS OVER-THE-TOP OF GENUITY® ROUNDUP READY® SUGARBEETS. ALL QUESTIONS AND COMPLAINTS CAUSED BY THE USE OF GLYPHOSATE PRODUCTS SUPPLIED BY OTHER COMPANIES SHOULD BE DIRECTED TO THE SUPPLIER OF THE PRODUCT IN QUESTION.

## WEED MANAGEMENT GUIDELINES

Follow the guidelines below to minimize the risk of developing glyphosate-resistant weed populations in a Genuity® Roundup Ready® sugarbeet system.

- Start clean with tillage and follow-up with a burndown herbicide, such as Roundup agricultural herbicides, if needed prior to planting.
- Early season weed control is critical to protect sugarbeet yield potential. Apply the first in-crop application of Roundup WeatherMAX at 1.67 L/ha (0.67 L/ac) while weeds are less than 2" in height.
- Follow with additional postemergence in-crop application of Roundup WeatherMAX at 1.67 L/ha (0.67 L/ac) for additional weed flushes before weeds exceed 4" in height.
- Use mechanical weed control/cultivation and/or residual herbicides where appropriate in your Genuity® Roundup Ready® sugarbeets.
- Use additional herbicide modes-of-action/residual herbicides and/or mechanical weed control in other Roundup Ready crops you rotate with Genuity® Roundup Ready® sugarbeets.
- Report repeated non-performance of Roundup agricultural herbicides to Monsanto or your local retailer.

### AGRONOMIC PRINCIPLES IN SUGARBEETS

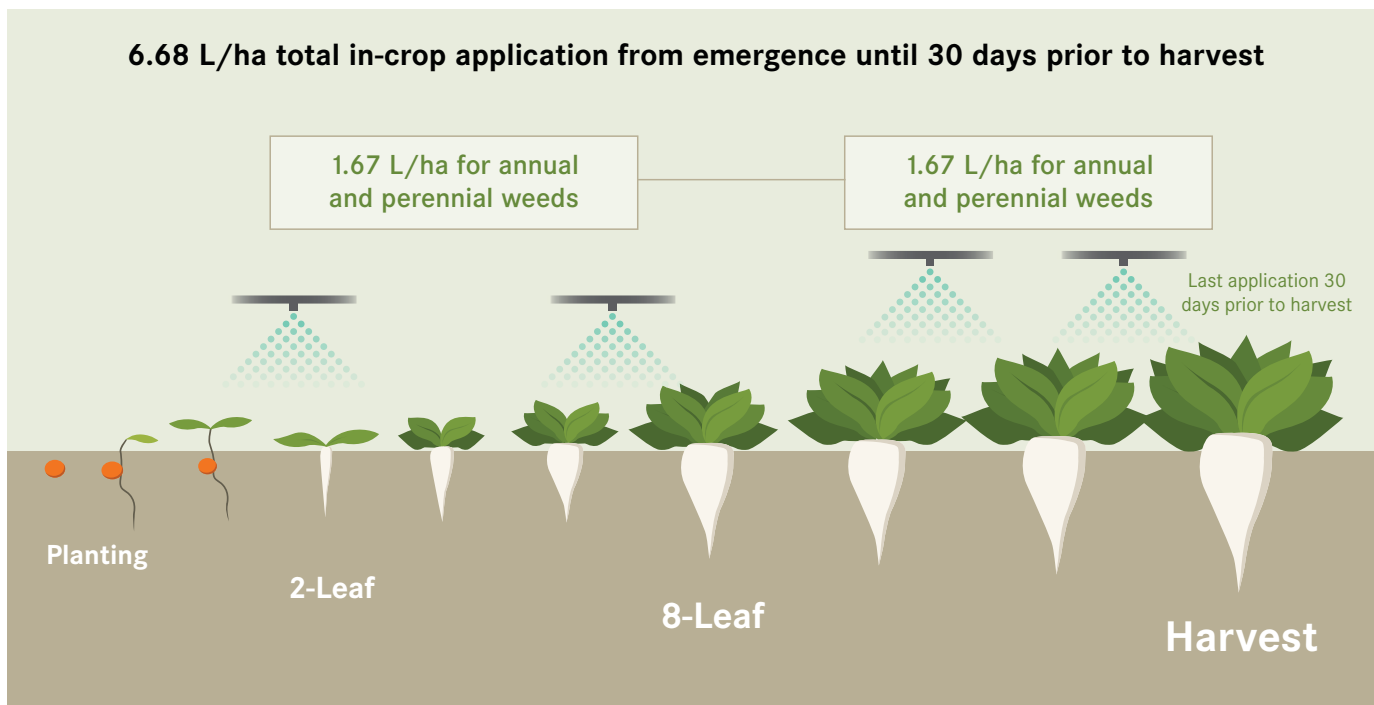
Sugarbeet yield is very sensitive to early-season weed competition. It is important to select the appropriate herbicide product, application rate and timing to minimize weed competition to protect yields. The Genuity® Roundup Ready® sugarbeet system provides a mechanism to control weeds at planting and once Genuity® Roundup Ready® sugarbeets emerge. Failure to control


weeds with the right rate, at the right time and with the right product, can lead to increased weed competition, weed escapes and the potential for decreased yields. Tank-mixtures of Roundup® agricultural herbicides with fungicides, insecticides, micronutrients, or foliar fertilizers may result in crop injury and reduced pest control or antagonism and are not recommended.

### WEED CONTROL RECOMMENDATIONS

PROGRAM	INSTRUCTIONS AND USE RATES	ADDITIONAL INFORMATION
<b>Maximum Use Rate For Roundup WeatherMAX</b>	Do not exceed 6.68 L/ha (2.67 L/ac) per season. Maximum rate for a single application is 1.67 L/ha (0.67 L/ac).	Applications can be made from emergence up to 30 days prior to harvest. Weeds should be controlled before weed height exceeds sugarbeet height.  Up to 4 applications can be made in a single cropping season.  Allow a minimum of 10 days between applications of Roundup Agricultural Herbicides.

### RECOMMENDATIONS FOR OVER-THE-TOP APPLICATIONS OF ROUNDUP AGRICULTURAL HERBICIDES IN GENUITY® ROUNDUP READY® SUGARBEETS





**Insect Resistance Management**  
*Planting Refuges, Preserving Technology*

Before opening a bag of seed, be sure to read, understand and accept the stewardship requirements, **including applicable refuge requirements for insect resistance management**, for the biotechnology traits expressed in the seed as set forth in the Monsanto Technology/Stewardship Agreement that you sign. By opening and using a bag of seed, you are reaffirming your obligation to comply with the most recent stewardship requirements.



**Monsanto Company is a member of Excellence Through Stewardship<sup>SM</sup> (ETS).** Monsanto products are commercialized in accordance with ETS Product Launch Stewardship Guidance, and in compliance with Monsanto's Policy for Commercialization of Biotechnology-Derived Plant Products in Commodity Crops. This product has been approved for import into key export markets with functioning regulatory systems. Any crop or material produced from this product can only be exported to, or used, processed or sold in countries where all necessary regulatory approvals have been granted. It is a violation of national and international law to move material containing biotech traits across boundaries into nations where import is not permitted. Growers should talk to their grain handler or product purchaser to confirm their buying position for this product. Excellence Through Stewardship<sup>SM</sup> is a service mark of Excellence Through Stewardship.

**ALWAYS READ AND FOLLOW PESTICIDE LABEL DIRECTIONS.** Roundup Ready<sup>®</sup> crops contain genes that confer tolerance to glyphosate, the active ingredient in Roundup<sup>®</sup> brand agricultural herbicides. Roundup<sup>®</sup> brand agricultural herbicides will kill crops that are not tolerant to glyphosate. **Tank mixtures:** The applicable labeling for each product must be in the possession of the user at the time of application. Follow applicable use instructions, including application rates, precautions and restrictions of each product used in the tank mixture. Monsanto has not tested all tank mix product formulations for compatibility or performance other than specifically listed by brand name. Always predetermine the compatibility of tank mixtures by mixing small proportional quantities in advance. CustomCare<sup>®</sup>, CustomCare and Design<sup>®</sup>, Genuity<sup>®</sup>, Genuity and Design<sup>®</sup>, Genuity Icons, Monsanto and Vine Design<sup>®</sup>, Roundup<sup>®</sup>, Roundup Ready<sup>®</sup>, Roundup Ready 2 Technology and Design<sup>®</sup>, Roundup Ready 2 Yield<sup>®</sup>, Roundup Transorb<sup>®</sup>, Roundup Ultra2<sup>®</sup>, Roundup WeatherMAX<sup>®</sup>, SmartStax<sup>™</sup>, SmartStax and Design<sup>™</sup>, Transorb<sup>®</sup>, VT Double PRO<sup>™</sup>, VT Triple PRO<sup>™</sup>, YieldGard<sup>®</sup>, YieldGard VT Rootworm/RR2<sup>®</sup>, and YieldGard VT Triple<sup>®</sup> are trademarks of Monsanto Technology LLC, Monsanto Canada, Inc. licensee. Poncho<sup>®</sup> is a registered trademark of Bayer. LibertyLink<sup>®</sup> and the Water Droplet Design are trademarks of Bayer. Used under license. Herculex<sup>®</sup> is a registered trademark of Dow AgroSciences LLC. Used under license. Respect the Refuge and Design is a trademark of the Canadian Seed Trade Association. Used under license. All other trademarks are the property of their respective owners. ©2010 Monsanto Canada, Inc. [22274Apgd]