

2020
TUG

Canada Technology Use Guide



This 2020 Technology Use Guide (TUG) provides a concise source of technical information about the current portfolio of biotechnology-derived products and seed treatments from Monsanto Canada ULC, a member of the Bayer Group (Monsanto). It also sets forth the requirements, recommendations or Best Management Practices (BMPs) for the use of these products. Technology Stewardship Agreement (TSA) holders will be notified when significant changes occur so that users may become familiar with the most recent information and required practices.

This TUG is not a pesticide product label. It is intended to provide additional information and to highlight approved uses from certain product labels. Read and follow all precautions and use instructions in the label booklet and separately published supplemental labeling for the agricultural herbicide product you are using, as well as any other pesticide products. Nothing in this TUG should be construed as a substitute for reading all product labeling.



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Stewardship Overview

A Message About Stewardship

Monsanto is committed to enhancing grower productivity and profitability through the introduction of new agricultural biotechnology traits and other products. These new technologies bring enhanced value and benefits to growers, and growers assume responsibility for the proper management of these products. Growers planting seed with biotechnology traits identified in the TSA and/or seed treatments agree to implement stewardship practices including, but not limited to, the following:

- Reading, signing and complying with the TSA and reading all annual license terms and updates before purchase or use of any seed containing a Monsanto trait
 - Reading and following the directions for use on all product labels
 - Reading and following the Insect Resistance Management (IRM) requirements set forth in this TUG prior to planting and complying with the applicable IRM practices for specific biotechnology traits as mandated by the Canadian Food Inspection Agency (CFIA)
 - Using seed containing Monsanto technologies solely for planting a single commercial crop
 - Complying with any additional stewardship requirements, such as grain or feed use agreements, product marketing requirements or geographic planting restrictions that Monsanto deems appropriate or necessary to implement for proper stewardship or regulatory compliance
 - Selling crops or materials containing biotechnology traits only to grain handlers that confirm their acceptance
 - Not moving seed and material containing biotechnology traits across boundaries into nations where import of these products is not permitted
 - Not using, planting, applying, selling, promoting and/or distributing a product where the product is not yet approved
- In addition, growers are encouraged to:
- Follow applicable stewardship recommendations as outlined in this TUG
 - Follow the Weed Management Recommendations and Corn Rootworm BMPs to help minimize the risk of resistance development

Why is Stewardship Important?

- 1** Signing the TSA provides growers access to Monsanto's germplasm, biotechnology trait technologies and other technologies and provides limited warranties on Monsanto Technology performance.
- 2** Following IRM requirements helps to protect against insect resistance to *Bacillus thuringiensis (B.t.)* products, enabling the long-term durability of these technologies, and meeting CFIA requirements.
- 3** Utilizing biotech seed to plant only a single commercial crop encourages investment in future biotechnology innovations, which further improves farming technology and productivity.

Crop or Material Handling Stewardship Statement

The following Excellence Through Stewardship® statement applies to Roundup Ready® Corn 2, VT Double PRO® RIB Complete® Corn Blend, Genuity® VT Triple PRO® RIB Complete® Corn Blend, SmartStax® RIB Complete® Corn Blend, Trecepta™ RIB Complete® Corn Blend, Roundup Ready® Sugarbeets, Roundup Ready® Canola, Performance Series® Sweet Corn, Roundup Ready 2 Xtend® Soybeans, Roundup Ready 2 Yield® Soybeans, TruFlex™ Canola, TruFlex™ Canola with Roundup Ready® and LibertyLink® Technologies and DEKALB® LibertyLink® Canola:

Monsanto Company is a member of Excellence Through Stewardship® (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. Trecepta® RIB Complete® Corn has been approved for import into Australia/New Zealand, Colombia, China, Japan, South Korea, Mexico, Taiwan, United States and all individual biotech traits approved for import into the European Union. Please check biotradestatus.com for trait approvals in other geographies. Any other Monsanto commercial biotech products mentioned here have been approved for import into key export markets with functioning regulatory systems. Any crop or material produced from these products 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 matter containing biotechnology traits across boundaries into nations where their import is not permitted. Growers should talk to their grain handler or product purchaser to confirm their buying position for commodity crop products.

The following Excellence Through Stewardship statement applies to HarvXtra® Alfalfa with Roundup Ready® Technology:

Forage Genetics International, LLC ("FGI") is a member of Excellence Through Stewardship® (ETS). FGI products are commercialized in accordance with ETS Product Launch Stewardship Guidance, and in compliance with FGI's Policy for Commercialization of Biotechnology-Derived Plant Products in Commodity Crops. Any crop or material produced from this product can only be exported to, or used, processed or sold only in countries where all necessary regulatory approvals have been granted. It is a violation of national and international law to move material containing biotechnology traits across boundaries into nations where their import is not permitted. Growers should talk to their grain handler or product purchaser to confirm their buying position for this product. Growers should refer to www.biotradestatus.com for any updated information on import country approvals. Excellence Through Stewardship® is a registered trademark of Excellence Through Stewardship.

Please see the product specific sections of HarvXtra® Alfalfa with Roundup Ready® Technology for important information, including material handling on this product.

The following Excellence Through Stewardship statement applies to Roundup Ready® Sugarbeets:

KWS SAAT SE ("KWS") is a member of Excellence Through Stewardship® (ETS). KWS has imposed strict rules on itself relating to the responsible use of genetic engineering and plant materials created using it. KWS has been a member of the industry initiative "Excellence Through Stewardship®" (ETS) since 2013 and is certified on the basis of this standard as to the responsible use of genetically engineered plant material throughout its lifecycle. ETS is an integral component of our quality management. This product (and any crop, material or by product produced or resulting from it) can only be exported to, or used, processed or sold in countries where all necessary regulatory and other legal approvals have been expressly granted. It is illegal to transfer material containing biotechnology traits into countries where import of this material is restricted or not permitted. Excellence Through Stewardship® is a registered trademark of Excellence Through Stewardship.



Stewardship Overview

Seed Patent Infringement

If Monsanto reasonably believes that a grower has planted saved seed in violation of the terms of the TSA and/or Monsanto's intellectual property rights, it will request invoices and records to confirm that the fields in question have been planted with newly purchased seed. This information is to be provided within seven days after written request. Monsanto may inspect and test all the grower's fields to determine whether saved seed has been planted. Any inspections will be coordinated with the grower and performed at a reasonable time to best accommodate the grower's schedule.

If you have questions about seed intellectual property or become aware of individuals who may be saving seed in violation of their TSA as noted above, please call **1-800-667-4944**. Alternatively, you may send a letter to the following address:

Intellectual Property Protection
ATTENTION: Canada Legal
#130, 160 Quarry Park Blvd. SE
Calgary, Alberta
T2C 3G3

For more information on Monsanto's practices related to seed patent infringement, please visit: <https://www.cropscience.bayer.ca/en/Technology-Protection>.

Anyone may provide anonymous or confidential information as follows:

"Anonymous" refers to reporting information to Monsanto in such a way that the identity of the person reporting the information cannot be determined. This type of reporting includes telephone calls requesting anonymity, emails and unsigned letters.

"Confidential" refers to reporting information to Monsanto in such a way that the reporting person's identity is "known" to Monsanto. Every effort will be made to protect a person's identity, but it is important to understand that a court may order Monsanto to reveal the identity of people who are "known" to have supplied relevant information.

An Important Note About Roundup Ready 2 Yield® Soybean Technology

Just as the seed and traits offered to growers have continued to evolve and offer more benefits, Monsanto and its partners have developed new technologies to detect these traits.

An example is Roundup Ready 2 Yield® soybean technology, a newer technology that is covered by a different set of patents than first-generation Roundup Ready® Soybeans. As a result, changes that affected the use of the original Roundup Ready® trait when its patent expired do not apply to Roundup Ready 2 Yield® Soybeans. Although both technologies provide tolerance to glyphosate and may appear similar in the field, the traits have different molecular signatures.

Patent Status of Original Roundup Ready® Soybeans, Roundup Ready 2 Yield® Soybeans and Roundup Ready 2 Xtend® Soybeans

The Canadian patents for the original Roundup Ready® soybean technology (event 40-3-2) expired in 2011. Monsanto's newer seed technologies, Roundup Ready 2 Yield® Soybeans and Roundup Ready 2 Xtend® Soybeans, are covered by different patents that have not expired.

Agronomic and Weed Resistance Management Stewardship

Though the patent on the original Roundup Ready® soybean trait has expired and the product is no longer sold by Monsanto, the basic agronomic stewardship requirements for a user of that technology remain. These agronomic stewardship requirements are the same as for Roundup Ready 2 Yield® Soybeans, with the following key exceptions:

- Roundup® brand or other agricultural glyphosate herbicides must be federally approved in your specific province for application on original Roundup Ready® Soybeans. Application rates over original Roundup Ready® Soybeans are different than those for use on Roundup Ready 2 Yield® Soybeans. For complete information on approved application, always read and follow the specific herbicide label.
- Report any incidence of less than expected herbicide tolerance or other seed product performance inquiry to your seed retailer or Monsanto (**1-800-667-4944**).

Coexistence of Biotech Cropping System with other Agricultural Production Systems

The coexistence of biotechnology cropping systems with other agricultural production systems and supply chains is well established and 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 the production, distribution and trade of products from different agricultural systems. For example, the production of similar commodities such as field corn, sweet corn and popcorn has occurred successfully and in proximity for many years. Another example is the successful coexistence of *Brassica napus* varieties with low erucic acid content for food use (canola) and varieties with high erucic acid content for industrial uses (rapeseed).

The introduction of biotechnology crops generated renewed discussion regarding the coexistence of biotechnology cropping systems alongside conventional cropping systems and organic production. These discussions have primarily focused on the potential marketing impact on other systems of introducing biotechnology products. The safety of biotechnology products is not an issue because their food, feed and environmental safety are extensively evaluated and demonstrated before they are allowed to enter the agricultural production system and supply chain.

The coexistence of conventional, organic and biotechnology crops has been the subject of several studies and reports. These reports conclude that coexistence among biotechnology and non-biotechnology crops is readily achievable and is already 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. Any coexistence strategy is designed to

meet market requirements and should be developed using current science-based industry standards and management practices. Those strategies must be flexible, facilitate options and choice for the grower and the food and feed supply chain and be capable of modification as changes in markets and products warrant.

Successful coexistence of all agricultural systems depends on communication, cooperation, flexibility and mutual respect for each system among growers. Agriculture has a history of innovation and change, and growers have always adapted to new approaches and 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 grower who is cultivating a crop to satisfy a particular market. That grower is inherently agreeing to employ those practices appropriately to ensure the integrity and marketability of his or her crop. In each case, the grower seeks to produce a crop that is supported by a special market price and consequently assumes responsibility for satisfying market specifications to receive that premium. That said, each grower must be aware of the planting intentions of his or her neighbour to gauge the need for appropriate BMPs.

CropLife Canada has produced an informational brochure for growers that provides a set of best practices for facilitating the coexistence of different production systems—"Cultivating Coexistence: A Best Practices Management Guide," available at <https://croplife.ca/publications/cultivating-coexistence-a-best-management-practices-guide/>. Additionally, the Canadian Seed Trade Association facilitated development of a value chain document on coexistence specifically for alfalfa. For a copy of either brochure, please contact Monsanto's Technical Support at **1-800-667-4944**.

Identity Preserved Production

Some growers may choose to preserve the identity of their crops for specific markets. Examples of Identity Preserved (IP) crops include seed, waxy or sweet corn, specialty oil or protein crops, food-grade crops and any other crop that meets specialty needs, including organic and non-biotechnology specifications. Growers of these crops assume responsibility for and receive the benefit of ensuring that their crop meets mutually agreed-upon 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 crop grower 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 and 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.

General Recommendations for *Management of Pollen Flow and Mechanical Mixing*

For all crop hybrids or varieties for which growers wish to preserve identity or otherwise keep separate, they should take steps to prevent mechanical mixing.

Growers should make sure that all seed storage areas, transportation vehicles and planter boxes are cleaned thoroughly both before and after the storage, transportation or planting of the crop. Growers should also make sure that all combines, harvesters and transportation vehicles used at harvest are cleaned thoroughly both before and after their use in connection with the harvest of the material produced from the crop. Growers should also make sure that all harvested material is stored in clean storage areas where the identity of the material 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, growers

should plant fields at a sufficient distance away from other crops as another measure to help prevent mechanical mixture during harvest.

Growers planting cross-pollinated crops, such as corn, alfalfa 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, should use the same generally accepted practices to manage mixing that are used in any of the currently grown IP crops of similar crop type.

It is generally recognized in the industry that a certain amount of incidental, trace-level pollen movement occurs, and it is not possible to achieve 100% purity of seed or grain in any crop production system. Several factors can influence the occurrence and extent of pollen movement. As stewards of technology, growers are expected to consider these factors and talk with their neighbours about their cropping intentions.

Growers should consider 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 are incapable of cross-pollinating, whereas others like alfalfa require cross-pollination to produce seed.
- **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 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. In crops such as alfalfa, a proper hay-cutting management schedule will significantly limit or eliminate bloom and thereby restrict the potential for pollen and/or viable seed formation.
- **The existence and degree of overlap in the pollination period of crops in adjacent fields varies.** Overlap will vary depending on the maturity of crops, planting dates and the weather. For corn, the typical pollen shed period lasts from five to ten days for a particular field. Therefore, viable pollen from neighbouring fields must be present during this brief period when silks in the recipient field are receptive to produce any grain with traits introduced by the out-of-field pollen.
- **The distance between fields of different varieties or hybrids of the same crop affects cross-pollination.** 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 outermost few rows of the field. In fact, many white and waxy corn production contracts ask the grower to remove the outer 12 rows (10 m) of the field to minimize most of the impurities that could result from cross-pollination with nearby yellow dent corn. 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 varies.** How far pollen can travel depends on many environmental factors, including the weather during pollination, especially wind direction and velocity, temperature and humidity. For bee-pollinated crops, the grower'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 can affect cross-pollination.** Fields oriented upwind during pollination will show dramatically lower cross-pollination for wind-pollinated crops, like corn, than fields located downwind.

Weed Management

Monsanto is committed to the proper use and long-term effectiveness of its proprietary herbicide brands through a four-part stewardship program:

- 1) Developing appropriate weed control recommendations,
- 2) Continuing research to refine and update recommendations,
- 3) Educating on the importance of effective weed management, and
- 4) Responding to weed control inquiries through a product performance evaluation program.

As a leader in the development and stewardship of Roundup® Agricultural Herbicides, the Roundup Ready® Crop System, the Roundup Ready® Xtend Crop System and other products, Monsanto invests significantly in research in conjunction with academic scientists, extension specialists and crop consultants. This includes an evaluation of the factors that can contribute to the development of herbicide resistance and how to properly manage weeds to delay the selection of herbicide resistance. Visit Mix It Up (www.mixitup.ca) for practical, BMP-based information on reducing the risk for the development of dicamba- or glyphosate-resistant weeds and for managing the risk on a field-by-field basis.

For additional information, visit www.manageresistancenow.ca to access herbicide resistance training lessons that provide in-depth educational information.

Herbicide Classification Group Number

Glyphosate, the active ingredient in products such as Roundup WeatherMAX® with Transorb® 2 Technology Liquid herbicide and Roundup Transorb® HC Liquid herbicide, is a Group 9 herbicide based on the mechanism of action classification system of the Weed

Science Society of America. Using the same system, glufosinate, the active ingredient in Liberty® brand herbicides, is a Group 10 herbicide and dicamba, the active ingredient in products such as XtendiMax® herbicide with VaporGrip® Technology, is a Group 4 herbicide. Any weed population may contain plants naturally resistant to any herbicide group. Such resistant weed plants may not be effectively managed when using a herbicide to which the weed plant is resistant but may be effectively managed utilizing another effective herbicide from a different group or a mixture of herbicides from different groups and/or by using cultural or mechanical weed control practices appropriate for the crop being grown. Consult your local company representative, Monsanto Technical Support (1-800-667-4944), your provincial extension service, www.mixitup.ca, professional consultants or other qualified authorities to determine appropriate actions for treating specific resistant weeds.

Agronomic Principles

Most crops are very sensitive to early season weed competition that affects yield. Weed control systems must provide growers the opportunity to control weeds before they become competitive. Failure to control weeds with the right rate, at the right time and with the right product(s) can lead to increased weed competition, weed escapes, the potential for selecting for weed resistance and possible decreased yields. Use diverse weed management practices appropriate for the crop system, including multiple herbicide mechanisms of action alone or in tank mixes depending on the weed spectrum in the field and according to label directions.

Read and follow all product labeling before making in-crop or other applications of Monsanto-branded glyphosate agricultural herbicides, Monsanto-branded dicamba agricultural herbicides or any other pesticide. For supplemental labels or fact sheets for Monsanto products, call 1-800-667-4944. Monsanto does not restrict your ability to use any herbicide so long as the product is specifically registered and labeled for in-crop use on the applicable crop. Read the product label or contact the product manufacturer if you have questions about the Health Canada Pest Management Regulatory Agency (PMRA) or provincial scheduling for in-crop use.

MONSANTO DOES NOT MAKE ANY REPRESENTATIONS, WARRANTIES OR RECOMMENDATIONS CONCERNING THE USE OF PRODUCTS MANUFACTURED OR MARKETED BY OTHER COMPANIES, INCLUDING BUT NOT LIMITED TO THOSE THAT ARE LABELED FOR USE ON CROPS CONTAINING MONSANTO TECHNOLOGIES. MONSANTO SPECIFICALLY DISCLAIMS ALL RESPONSIBILITY FOR THE USE OF THESE PRODUCTS IN CROPS CONTAINING MONSANTO TECHNOLOGIES. ALL QUESTIONS AND COMPLAINTS ARISING FROM THE USE OF PRODUCTS MANUFACTURED OR MARKETED BY OTHER COMPANIES OR THE PERFORMANCE OF MONSANTO TECHNOLOGY IN CONNECTION WITH THE USE OF SUCH PRODUCTS SHOULD BE DIRECTED TO THOSE COMPANIES.

Weed Management Recommendations

Proactively implementing diversified weed control strategies to help minimize selection for weed populations resistant to one or more herbicides is recommended. A diversified weed management program may include the use of multiple herbicides with different mechanisms of action and overlapping weed spectrums with or without mechanical operations (e.g., tillage) and/or other cultural practices. Research has demonstrated that using the labeled rate of the herbicide and following label use directions are important steps that help delay the selection for herbicide resistance in weeds. Scouting after a herbicide application is important because it facilitates the early identification of weed shifts and/or weed resistance and thus provides direction on future weed management practices. One of the best ways to contain resistant populations is to implement measures to avoid allowing weeds to reproduce by seed or proliferate vegetatively. Cleaning equipment between fields and avoiding movement of plant material between fields will greatly aid in reducing the spread of weed seeds.

With Roundup Ready® Technology and the Roundup Ready® Xtend Crop System, it is also important to start with a clean field, using a burndown tank mix with glyphosate, foundation residual herbicide application and/or tillage and to optimize herbicide performance by controlling weeds early, when they are small and actively growing.

In summary, the following actions should be taken:

- Start with a clean field, free of weeds.
- Use a diverse set of weed control tools, including broad-spectrum residual herbicides or mixtures that use different mechanisms of action that are effective on the target weeds.
- Add other products to Monsanto agricultural herbicides at the right rate and timing for the weed when needed and according to label recommendations.
- Control weed escapes and remove weeds before they set seed.

What To Do When Dicamba- or Glyphosate-Resistant Weeds Are Suspected or Present

If a weed is known to be resistant to dicamba or glyphosate, then a resistant population of that weed is by definition no longer controlled with labeled rates of dicamba or glyphosate, respectively. Monsanto actively investigates and studies new claims of suspected dicamba- or glyphosate-resistant weeds. Report any incidence of repeated non-performance of dicamba or glyphosate agricultural herbicides on a particular weed to the appropriate company representative, local retailer or provincial extension agent. For Monsanto branded herbicides, please call Monsanto Technical Support at **1-800-667-4944**. If dicamba- or glyphosate-resistant weed biotypes are confirmed, Monsanto provides recommended control measures, which may include additional herbicides, tank mixes (when not restricted on the label) and mechanical or cultural practices. Monsanto actively communicates all this information to growers through multiple channels, including the herbicide label, **www.weedscience.org**,

supplemental labeling, this TUG, media and written communications, **www.mixitup.ca** and grower meetings.

Growers must be aware of and proactively manage for dicamba- and glyphosate-resistant weeds when planning their weed control program. Roundup WeatherMAX® herbicide, Roundup Transorb® HC herbicide and Roundup Xtend® with VaporGrip® Technology herbicide are not warranted to control glyphosate-resistant weed populations; Roundup Xtend® with VaporGrip® Technology and XtendiMax® herbicide with VaporGrip® Technology are not warranted to control dicamba-resistant weed populations.

Herbicide-Tolerant Volunteer Plants

Volunteer plants from the previous crop can compete with a new rotational crop for nutrients and moisture, negatively affecting crop management much the same as weeds, and thus need to be managed. The effect and persistence of volunteers from a previous crop will depend on many factors including the biology of the volunteer crop type, the competitiveness of the rotational crop, the field management practices employed by the grower and environmental conditions. With the introduction of herbicide-tolerance traits into different crop types, growers need to be aware that volunteer plants from these herbicide-tolerant crops will not be controlled in a rotational crop where that same herbicide is utilized. For example, volunteer corn from a previous crop containing Roundup Ready® Technology will not be controlled by Roundup WeatherMAX® herbicide applied to a rotational Roundup Ready 2 Yield® Soybean crop. Additionally, volunteers from an herbicide-tolerant crop can be present over many years depending on the persistence of the seed in the soil or can move to other fields on equipment or via wildlife, wind, water or low-level presence in seed. Growers should plan to utilize herbicides (alone or as a tank mix) in the rotational crop (as a burndown, as a residual or over the top) that will control volunteers and are not utilized as part of an herbicide-tolerance system in that volunteer crop type. For the current control recommendations for dicamba- or glyphosate-resistant volunteers, refer to **www.mixitup.ca** or call Monsanto's Technical Support at **1-800-667-4944**.

Tank Mixtures and Surfactant/Adjuvant Use with Monsanto Agricultural Herbicides

Tank mixtures of Roundup WeatherMAX® herbicide, Roundup Transorb® HC herbicide, Roundup Xtend® with VaporGrip® Technology herbicide or XtendiMax® herbicide with VaporGrip® Technology herbicide with insecticides, fungicides, micronutrients or foliar fertilizers may result in reduced weed control, crop injury, reduced pest control or antagonism. Refer to the product label, supplemental labeling or fact sheets published separately by Monsanto for specific agricultural herbicide tank mix recommendations.

The addition of surfactants or additives containing surfactants to glyphosate spray solutions may increase the potential for crop injury. When using Roundup WeatherMAX®, Roundup Transorb® HC or Roundup Xtend® with VaporGrip® Technology herbicides,

NO additional surfactant is needed for optimal performance for applications in Roundup Ready® crops.

The addition of surfactants or additives containing surfactants to dicamba spray solutions may increase the potential for crop injury. When using XtendiMax® herbicide with VaporGrip® Technology or Roundup Xtend® with VaporGrip® Technology herbicides, NO additional surfactant is needed for optimal performance for applications in Roundup Ready® Xtend Crop Systems.

A complete list of labels can be found at www.Roundup.ca.

Approved labels, including supplemental labeling, for Monsanto agricultural herbicides must be in the possession of the user at the time of pesticide application. Read and follow all pesticide product label directions.

Treated Seed Best Management Practices and Requirements

The use of seed-applied treatments by growers, where permitted, can be an effective tool to protect seeds for a strong, healthy start.

Seed treatments can be precisely applied to help shield seeds from insects and diseases that exist in the soil during a seed's early developmental stages. Treated seed should not be used for food, feed or oil purposes.

Below are some BMPs and requirements for the handling and planting of treated seed:

- Always follow the directions on seed bags and/or tags for proper storage, handling, planting and disposal practices based on the specific treatments applied to the seed.
- Always follow personal protective equipment (PPE) requirements on seed bags and/or tags.
 - PPE generally includes wearing a long-sleeved shirt, long pants, shoes, socks and chemical-resistant gloves of a defined material/thickness.
 - Always check the specific product label, seed bag and/or tag for any additional PPE requirements and assess each activity to determine whether additional PPE is appropriate to protect workers (e.g., when cleaning out the planter).
- Eliminate flowering plants and weeds in and around the field prior to planting.
- During planting, be aware of the presence of honey bee hives, as well as crops or weeds in the flowering stage within or adjacent to the field, as these could attract pollinators. Fill the planter at least 10 metres inside the field to be planted.
- Minimize dust by taking the following steps:
 - Use advanced seed flow lubricants that minimize dust, such as Fluency Agent Advanced. Learn more at www.cropscience.bayer.ca/Products/Other/Fluency-Agent-Advanced.

- Avoid off-site movement of dust from treated seeds during planting or when opening seed containers by observing wind speed and direction.
- Avoid shaking the bottom of the treated seed bag when filling the planter. This reduces the release of dust that could have accumulated during transport.
- For pneumatic planters, direct air exhaust downward toward the soil surface, if possible, to decrease the potential for dust drift.
- Collect and properly dispose of any spilled treated seed to minimize exposure to people, livestock, wildlife and the environment. For more information on treated seed stewardship and handling spills, go to www.seed-treatment-guide.com/wp-content/uploads/2018/03/Treated-Seed-Stewardship-for-Handling-Spills.pdf.
- Return leftover seed to its original containers if this seed is intended for storage and later use.
- Completely clean any equipment and containers that have held treated seed to remove both seed and dust before using for harvested grain. There is zero tolerance for treated seed kernels in the commodity grain channel.
- Do not exceed maximum seeding rate per hectare for the crop recommended in your region or prescribed on the seed tag.

Treated Seed Best Management Practices and Requirements *continued*

Planting may be an allowable option to dispose of leftover treated seeds. However, when this option is chosen, a grower must follow the product guidelines to adhere to any annual maximum allowances, grazing and plant-back restrictions found on the seed bag and/or tags. Please refer to the specific product label to determine whether there are any planting restrictions. Additionally, if disposing of rinse water or applied foliar applications of the same active ingredient on the same hectare intended for over-seeding, calculate the total load of the active ingredient to ensure that the maximum amount applied

per year is not exceeded. Before over-seeding, confirm that it is allowed in the Province.

For additional information to help minimize the dust generated during planting, refer to the Health Canada resource on pollinator protection at www.canada.ca/en/health-canada/services/consumer-product-safety/pesticides-pest-management/growers-commercial-users/pollinator-protection.html or the CropLife Canada website at www.croplife.ca/wp-content/uploads/6175-CropLife-BMP-One-Pager-Update-April-2015-WEB.pdf.



Fluency Agent Advanced is a seed lubricant for corn and soybeans from Bayer. It is a replacement for talc, graphite and talc/graphite blended seed lubricants.

Fluency Agent Advanced is an improved version of the original Fluency Agent. It has been optimized for easier handling, including enhanced uniformity and reduced residue buildup. These characteristics allow for improved measuring, pouring and mixing of product and less residue in the seed hopper.

Fluency Agent Advanced reduces the amount of insecticide active ingredient released in treated seed dust during planting by more than 88%¹ as compared to talc, therefore reducing the risk of exposure to non-target insects, including bees.

To ensure that grower practices help promote agricultural sustainability, we encourage growers to follow these tips:

C **Communicate** planting activities to neighbouring beekeepers when practical and be aware of beehives adjacent to the planting area.

A Be **aware** of wind speed and direction during planting, particularly in areas with flowering crops.

R **Reduce** risk to pollinators by eliminating or reducing flowering weeds in fields when practical.

E **Ensure** that seed is planted correctly. To help protect the environment, clean planters and seed boxes to minimize dust release and ensure that treated seed is planted at the proper depth.

¹When using a deflector and used in accordance with label directions.

Requirements for Ontario and Quebec for 2020

Corn and soybean growers who intend to plant neonicotinoid insecticide-treated seed* in 2020 will have to follow Provincial regulations; refer to www.ontario.ca/page/neonicotinoid-regulations and <http://www.mddelcc.gouv.qc.ca/pesticides/permis/modif-reglements2017/index.htm>.

As of September 8, 2018, existing mandatory distances from lakes, streams, wetlands, water withdrawal sites and ditches must be respected for the application of Class 3A pesticides in or on the ground.

When pesticides are applied by aircraft near bicycle paths that are physically separated from vehicular traffic and have their own right of way, the same mandatory distances must be maintained as for protected immovables.

In the definition of “protected immovable,” the reference to buildings used or intended to be used to house or receive things has been deleted.

Farmers must maintain and keep a record of their pesticide use, including information on Class 3A pesticides.

For further details on Quebec government neonicotinoid regulation, refer to www.environnement.gouv.qc.ca/pesticides/permis-en/code-gestion-en/index.htm.

* Note: Sweet corn, popcorn and corn and/or soy seed planted for the purposes of pedigreed seed increases are exempt.



Acceleron® Seed Applied Solutions Portfolio of Products

The Acceleron® portfolio of products delivers coverage on four fronts—fungicides, insecticides, nematicides and bio-enhancers—to help protect your seed investment against diseases, insects, nematodes and moisture or nutrient stress. For more information, talk to your local retailer or visit www.acceleronsas.ca.

Establishing Healthy Pollinator Habitat

Pollinators are essential to agricultural systems. By providing high-quality habitats for pollinators such as bees and monarch butterflies,

you provide benefits to your farm by increasing the diversity of pollinators in your area and improving soil health. All these benefits add up to a productive and sustainable farmscape.

Consider establishing a diverse habitat that has a mixture of wildflowers, milkweed and other beneficial plants to supply nutrition and breeding areas for a variety of pollinators, including bees, butterflies and birds. Plant this habitat in sites such as field borders, pivot corners, conservation lands, ditches and buffers.

Every region is different. To get started, visit www.beesmatter.ca or reach out to your local ag extension office.



Honey Bee Health Information

From time to time, claims circulate that insect-protected biotechnology crops harm bees. The insecticidal proteins produced by the currently available insect-protected crops are derived from a common soil bacterium, *Bacillus thuringiensis* (*B.t.*), and Monsanto screens all the proteins we use for toxicity to honey bees and other non-target organisms. None of the proteins has provided any evidence of harm in either short- or long-term testing with both adult and larval honey bees. Likewise, there are no credible reports of harm caused by insect-protected biotechnology crops on honey bees.

Overwinter losses of honey bee colonies are an ongoing concern. There are many possible causes, with the Varroa mite posing the largest single threat. Additionally, parasites, diseases, pesticides used to control mites, poor nutrition, transportation stress and improperly applied pesticides are often cited as challenges to honey bee health.

Monsanto has many efforts underway to improve honey bee health:

- We are working to develop a product targeted to address Varroa mites.
- We established seed treatment BMPs to manage risks to beneficial insects such as bees.
- Our Honey Bee Advisory Council helps guide our honey bee health research and development efforts. We actively support collaborations with the bee industry and university researchers, people engaged in pollinator-dependent agriculture and corn and soybean growers to identify ways to protect and improve honey bee health.

In one such collaboration with the Honey Bee Health Coalition, we're joining growers, universities, conservation groups and others because the issue of honey bee health is too big, too important and too complex for one company or group—we have to work together. For more information, visit the organization's website:

www.honeybeehealthcoalition.org.

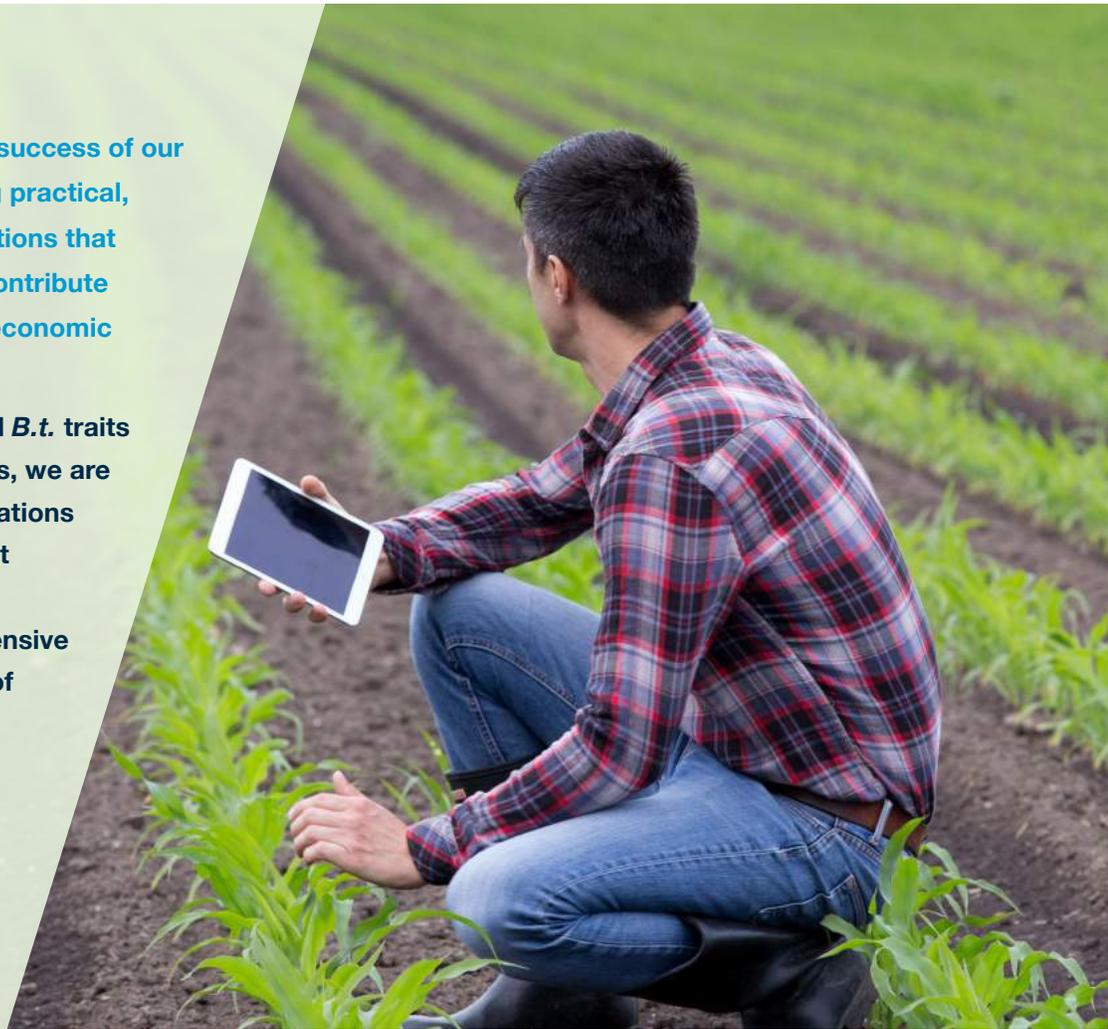
bees  matter



Commitment to Steward Insect-Protected Traits

Monsanto is committed to the success of our grower customers by providing practical, flexible and cost-effective solutions that address on-farm challenges, contribute to grower choice and provide economic benefits to our customers.

To ensure that insect-protected *B.t.* traits remain a viable tool for growers, we are committed to ongoing conversations with the corn industry on Insect Resistance Management (IRM) efforts to establish a comprehensive approach for the stewardship of corn insect-protected traits.



Monsanto's ongoing IRM efforts include the following:

- Continually working to increase overall awareness of the need for and adoption of strong IRM programs through retailers selling Monsanto insect-protected products, as well as the academic community
- Carefully evaluating the need for and practicality of updating our BMPs or agronomic recommendations as new scientific data become available; updates may include information tailored to local growing conditions, refuge compliance, scouting techniques, the addition of soil-applied insecticides, maturity and harvest schedules, soil management practices, crop rotation and the adoption of products with multiple modes of action
- Expanding our offering of multi-trait corn hybrids that provide multiple modes of action for target pests and increase protection for growers; we encourage growers to begin trying these seeds with greater protection as the product line expands in their area
- Researching and developing other insect-protection genes in our pipeline so we can continue to deliver products with new and increased modes of action
- Continuing multi-year, wide-scale monitoring of insect populations with the University of Guelph
- Actively investigating reports of suspected insect resistance by monitoring and studying performance issues in fields caused by insect pests
- Conducting thorough, generational studies on sample insect populations as appropriate to determine whether stable and inherited resistance is present

Resistance naturally evolves in response to pest control tactics over time. The risk of insect pests evolving resistance is real but may be delayed with proper planning. The best way to preserve the benefits and insect protection of *B.t.* technology is to implement an IRM plan.

Insect Resistance Management Requirements

An effective IRM program is a vital part of responsible product stewardship for insect-protected biotechnology products. Monsanto is committed to implementing an effective IRM program for all its insect-protected technologies in all countries where they are commercialized. Such programs strike a balance among available knowledge, practicality and grower acceptance to facilitate implementation of the plan.

In Canada, the Canadian Food Inspection Agency (CFIA) requires that trait developers and providers implement an IRM program; likewise, growers who purchase insect-protected technologies must follow an IRM plan. IRM programs for *B.t.* traits are based upon an assessment of the biology of the major target pests, grower 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.

A key component of an IRM plan is refuge. A refuge is a portion of the relevant crop that does not contain a *B.t.* technology for the targeted insect pests. The lack of exposure to *B.t.* proteins allows susceptible insects emerging from the refuge to mate with the rare resistant insects that may emerge from the *B.t.* crop. Susceptibility to *B.t.* technology would then be passed on to their offspring, helping to preserve the long-term effectiveness of that technology. All of Monsanto's corn products provide automatic refuge compliance through Refuge in the Bag.

Monsanto is committed to the preservation of *B.t.* technologies. Please do your part to preserve *B.t.* technologies by implementing the correct IRM plan on your farm. Failure to follow IRM requirements and comply with refuge requirements may result in the loss of a grower's access to Monsanto *B.t.* technologies.

Questions? We're Here to Help.

Monsanto works to develop and implement IRM programs that strike a balance between available knowledge and practicality, with grower acceptance and ability to implement the plan as critical components. Growers must comply with the refuge requirements for all insect-protected corn products. Please contact your seed dealer with any questions and/or call **1-800-667-4944**.

If growers observe performance problems for targeted insect pests, they should contact their local Monsanto representative, retailer or Monsanto's Technical Support at **1-800-667-4944**.

Integrated Pest Management (IPM) Recommendations

IPM describes an effective and environmentally sustainable approach to pest management that relies on a combination of common-sense practices.

IPM programs use current, comprehensive information on the life cycles of pests and their interaction with the environment. This information is used to manage pests in a manner that is least impactful to people, property and the environment.

Sustainable Agriculture

Monsanto *B.t.* insect-protected corn products are highly compatible with the goals of IPM and sustainable agriculture. The sustainability of corn agricultural systems is enhanced when growers follow recommended IPM practices, including cultural and biological control tactics, pest sampling and appropriate use of pest thresholds for management practices. These latter measures are not only important for non-*B.t.* refuge acres but are equally critical for detecting and controlling non-target pests that exceed established

thresholds on *B.t.* crops. In addition, the use of *B.t.* products with multiple modes of action for the control of lepidopteran pests (i.e., armyworms, earworms, European corn borer) and coleopteran pests (i.e., rootworms, cutworms) is recommended whenever possible to make it more difficult for pests to adapt to the *B.t.* technologies.

Pests Not Controlled

Specific *B.t.* corn products offer control against several of the key lepidopteran and coleopteran insect pests but will not control all insect pests in corn. Therefore, it is important to understand that, in some cases, severe infestations of target and/or non-target insects may require additional control measures/treatment. Fields should be scouted regularly, especially during periods of heavy or sustained pest presence. Consult local IPM monitoring guidelines to identify insects that should be routinely monitored and for recommended controls and thresholds. When insecticide treatments are required, keep sustainable agriculture in mind and select products that have the least impact on beneficial insects. Consult your local crop adviser or extension specialist for the most up-to-date information.

Monitoring Pests

Carefully monitor fields for all pests to determine the need for remedial insecticide treatments. For pests targeted by the *B.t.* product, scouting techniques and supplemental treatment decisions should take into account that larvae must hatch and feed before they will be affected by the *B.t.* protein(s). Fields should be scouted regularly following periods of heavy or sustained egg lay, especially during bloom or flowering, to determine whether significant larval survival has occurred. Consult your local crop advisor or extension specialist for assistance in proper scouting techniques and timing.

Preventing Pest Adaptation

Use the best agronomic management practices in conjunction with the appropriate seed product to help obtain the greatest yield benefits. Use seed products, seeding rates and planting technologies appropriate for each specific crop and geographical area. As much as possible, manage the crop to avoid plant stress.

- Use proper crop rotation practices and products to control pests and make it more difficult for pests to adapt. In areas where crop rotation is not practiced or where rotation occurs but high pest populations are observed, the use of products with multiple modes of action, such as SmartStax® RIB Complete® Corn Blend, is strongly recommended.
- Employ appropriate scouting techniques and treatment decisions to preserve beneficial insects that can provide additional insect pest control.
- Manage for appropriate maturity and harvest schedules. Destroy crop residue immediately after harvest to avoid regrowth and minimize selection for insect resistance in late-season infestations.
- Use soil management practices that encourage the destruction of overwintering pests.

An IPM Checklist

Pest Scouting:

- Use appropriate scouting techniques and treatment decisions.

Insecticide Applications:

- Select insecticide treatments that have minimal negative impact on beneficial insects whenever possible; these insects are conserved by insect-protected crops and can contribute to insect pest control.
- Rotate insecticide modes of action or use products with multiple modes of action to help reduce the risk of insect pests developing chemical resistance.

Cultural Practices:

- Select cultivars well adapted to your setting, giving appropriate attention to the impact of crop maturity and timing of harvest on pest severity.
- Use recommended cultural control methods to reduce pest overwintering, destroy crop residues promptly after harvest and use other soil management practices to reduce overwintering insects.

If growers observe B.t. product performance issues for targeted insect pests, they should contact their local Monsanto representative, a retailer or Monsanto's Technical Support (1-800-667-4944).





Corn Rootworm (CRW) Best Management Practices

Monsanto has implemented a comprehensive program for the management of corn rootworm, including a series of BMPs, to better assist growers in every field where growers reported unexpected damage.

We encourage growers to follow recommended IPM practices, including use of appropriate cultural control tactics, pest scouting and the appropriate use of pest thresholds and sampling.

If you are not seeing high CRW pressure in a field and are planting a single mode of action product such as Genuity® VT Triple PRO® Corn RIB Complete® Corn Blend, we highly recommend updating

your IPM program to include regular scouting to determine whether the addition of an insecticide or other IPM practice is necessary.

These BMPs are a component of IRM for CRW and provide practical options to reduce rootworm populations and limit plant injury by CRW.

1. Comply with Refuge Requirements

2. Rotate crops

Rotate to a crop that is not a CRW host, such as soybeans, at least every third year if any of the following are applicable:

- A long-term continuous corn system is in place.
- CRW populations are high.
- Problems occur with CRW trait performance.

In areas where rotational-resistant CRW variants exist, such as extended diapause eggs or soybeans, CRW management options may be necessary the following year.

3. Rotate traits

- Use *B.t.* products with multiple modes of action for CRW control whenever possible.
- If using a product with multiple modes of action for CRW control is not an option, rotate to a different *B.t.*-traited product that controls CRW.
- Use a non-*B.t.*-traited product with insecticide.

4. Manage CRW with insecticides

Adult CRW Management Considerations

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

Larval CRW Management Considerations

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

¹Culy, Edwards & Cornelius. 1992. Journal of Economic Entomology 85: 2440-2446.

Roundup Ready® Technology

Roundup Ready® Technology provides tolerance to in-crop applications of labeled glyphosate agricultural herbicides, allowing a grower to gain the benefits of utilizing glyphosate agricultural herbicides in a weed control system that provides broad weed control spectrum, application flexibility and crop safety.

Products that contain Roundup Ready® Technology include the following:

SmartStax
RIB COMPLETE

Trecepta
RIB COMPLETE

VT DoublePRO
RIB COMPLETE

**genetically
VT TRIPLE PRO CORN**
RIB COMPLETE

Roundup Ready²
CORN

Performance
Series: Herbicide Tolerance
Event Protection

Roundup Ready² YIELD
SOYBEANS

**ROUNDUP READY²
XTEND**
SOYBEANS

TruFlex
CANOLA with Roundup Ready²
Technology

TruFlex
CANOLA with Roundup Ready²
Technology
LIBERTY LINK

Roundup Ready²
CANOLA

Roundup Ready²
SUGARBEETS

HARV XTRA
with Roundup Ready² Technology

For ease of reading, all references in the following section on Roundup Ready® Technology shall refer to all products listed above unless otherwise specified.

Monsanto Agricultural Herbicide Products for Use with Roundup Ready® Technology

These agricultural herbicide products available from Monsanto for the 2020 crop season can be used over any crop containing Roundup Ready® Technology:

- Roundup WeatherMAX® herbicide
- Roundup Transorb® HC herbicide

For ease of reading, all references in the following section on Roundup WeatherMAX® herbicide shall refer equally to Roundup Transorb® HC herbicide unless specified otherwise. For complete information about the use of Roundup WeatherMAX® herbicide or Roundup Transorb® HC agricultural herbicides over crops containing Roundup Ready® Technology, refer to the appropriate product's label booklet or supplemental label. A complete list of labels can be found at www.monsanto.ca, www.roundup.ca or <http://pr-rp-hc-sc.gc.ca/ls-re/index-eng.php>. Approved labels, including supplemental labeling, for Monsanto agricultural herbicides must be in the user's possession at the time of pesticide application. Read and follow all pesticide product label directions.

Weed Management Recommendations for Crops Containing Roundup Ready® Technology

Roundup Ready® Technology enables flexible, effective broad-spectrum weed control and proven crop safety to control weeds at planting and after crop emergence. Growers can select the weed control program that best fits the way they farm and which provides them the greatest benefit. Options include the use of a residual

herbicide with Roundup WeatherMAX® herbicide, tank mixing other non-residual herbicides with Roundup WeatherMAX® herbicide, when appropriate, or a total post-emergence program.

Follow the recommendations below to minimize the risk of developing glyphosate-resistant weed populations and maintain maximum yield potential in crops containing Roundup Ready® Technology.

- Start with a clean field, including tillage and/or a burndown herbicide.
- Early season weed control is critical to maintain maximum yield potential, achieved by the following:
 - Applying a residual or pre-emergence herbicide at the recommended rate, alone or tank mixed with Roundup WeatherMAX® herbicide for the target weed spectrum.
 - Utilizing post-emergence, in-crop applications of Roundup WeatherMAX® herbicide at labeled rates for the crop containing Roundup Ready® Technology. Roundup WeatherMAX® herbicide may be mixed with other herbicides to add additional mechanisms of action for post-emergent weed control.
 - Reporting any incidence of repeated non-performance of Monsanto brand herbicides on a particular weed to your local Monsanto representative, retailer or Monsanto Technical Support (1-800-667-4944).

Current recommendations for effective and sustainable weed control for crops containing Roundup Ready® Technology can be found at www.mixitup.ca or by calling Monsanto Technical Support at 1-800-667-4944.



Roundup WeatherMAX® Herbicide Applications in Crops Containing Roundup Ready® Technology

Crop Containing Roundup Ready® Technology	In-Crop Application Rate(s)	Crop Stage Application Range	Additional Requirements	Maximum Total Application for Growing Season
SmartStax® RIB Complete® Corn Trecepta™ RIB Complete® Corn Blend VT Double PRO® RIB Complete® Corn Blend Genuity® VT Triple PRO® RIB Complete® Corn Blend Roundup Ready® Corn 2 Performance Series® Sweet Corn	1.67 L/ha	Up to and including 8 leaf stage	Max of 2 applications at this rate per season	
	3.33 L/ha	Up to and including 6 leaf stage	Only 1 application at this rate per season	
Roundup Ready 2 Yield® Soybeans Roundup Ready 2 Xtend® Soybeans	1.67 L/ha	First trifoliolate leaf stage through to flowering	Max of 2 applications at this rate per season	
	3.33 L/ha	First trifoliolate leaf stage through to flowering	Only 1 application at this rate per season	
	4.67 L/ha	First trifoliolate leaf stage through to flowering	Only 1 application at this rate per season	
Roundup Ready® Canola	0.55–1.27 L/ha	0–6 leaf		1.66 L/ha
TruFlex™ Canola with Roundup Ready® Technology	0.55–1.67 L/ha	Crop emergence to first flower	Repeat applications may be required if a 2nd flush of weeds germinates prior to canopy closure	3.33 L/ha
TruFlex™ Canola with Roundup Ready® and LibertyLink® Technologies	3.33 L/ha	Crop emergence to 6 leaf stage	Only 1 application at this rate per season	3.33 L/ha
Roundup Ready® Sugarbeets	0.83–2.30 L/ha	Crop emergence up to 30 days prior to harvest	Max of 4 in-crop applications per growing season	7.31 L/ha
HarvXtra® Alfalfa with Roundup Ready® Technology	1.67–3.33 L/ha	Crop emergence up to 5 days prior to cutting of alfalfa	Max of 3 in-crop applications per growing season	

Follow all pesticide product labeling. If there is any conflict between these recommendations and applicable pesticide product labeling, the pesticide product labeling controls. For complete information about the use of Monsanto agricultural herbicides in crops containing Roundup Ready® Technology, refer to the appropriate product's label booklet or supplemental label.

Recommendations for Managing Resistant Weeds in the Roundup Ready® Crop System

Various weed biotypes are known to be resistant to glyphosate. For the current weed control recommendations for glyphosate-resistant weed biotypes, refer to www.mixitup.ca or call Monsanto Technical Support at **1-800-667-4944**.

Recommendations for Managing Volunteer Plants from the Roundup Ready® Crop System

Volunteer plants from crops containing Roundup Ready® Technology will be tolerant to glyphosate. For the current Roundup Ready® volunteer control recommendations, refer to www.mixitup.ca or call Monsanto Technical Support at **1-800-667-4944**.



Corn technologies

RIB COMPLETE®

There is no requirement for a structured refuge for products designated as RIB Complete® Corn Blend products. The refuge seed for RIB Complete® Corn Blend products is contained in the bag, resulting in a refuge configuration that is interspersed within the field when planted. Interspersed refuge can be used only by planting seed corn specifically generated by qualified seed producers/conditioners licensed by Monsanto to produce RIB Complete® Corn Blend products. The refuge incorporated into a bag of a RIB Complete® Corn Blend hybrid provides refuge only to the area planted by that bag. If planting other insect-protected hybrids that are not RIB Complete® Corn Blend products, those hybrids will require their own refuge as specified by the technology provider, which may include a structured refuge or incorporate a manufacturer-blended refuge. Always read and understand the manufacturer's refuge requirements for insect-protected corn hybrids prior to planting.

SmartStax® RIB COMPLETE

This technology contains Cry1A.105, Cry2Ab2, Cry1F, Cry3Bb1, Cry34Ab1 and Cry35Ab1 from *B.t.*, which together control the European corn borer (*Ostrinia nubilalis*), fall armyworm (*Spodoptera frugiperda*), northern corn rootworm (*Diabrotica barberi*), western corn rootworm (*Diabrotica virgifera virgifera*) and black cutworm (*Agrotis ipsillon*) and control or suppress corn earworm (*Helicoverpa zea*). Providing several different *B.t.* proteins with different modes of action for control significantly decreases the probability that insects will become resistant to these traits, resulting in enhanced durability of biotechnology insect control via *B.t.*-protected corn products. Routine applications of insecticides under typical growing conditions and infestation levels to control these insects are usually unnecessary when SmartStax® RIB Complete® Corn Blend is planted. The seed producers/conditioners licensed by Monsanto ensure that a minimum of 5% non-*B.t.* refuge seed is included with SmartStax® RIB Complete® Corn Blend products in each bag of seed corn.

SmartStax® RIB Complete® products contain Roundup Ready® 2 Technology and LibertyLink® Technology, which provide tolerance to in-crop applications of labeled glyphosate agricultural herbicides and glufosinate herbicides, respectively, when applied according to label directions. For information on this technology and weed resistance management, refer to the Roundup Ready® Technology section.

Trecepta™ RIB COMPLETE

This technology contains Cry1A.105, Cry2Ab2 and Vip3Aa from *B.t.*, which together control the European corn borer (*Ostrinia nubilalis*), corn earworm (*Helicoverpa zea*), fall armyworm (*Spodoptera frugiperda*) and black cutworm (*Agrotis ipsillon*). Providing three different *B.t.* proteins with different modes of action for control significantly decreases the probability that insects will become resistant to these traits. This results in enhanced durability of biotechnology insect control via *B.t.*-produced corn products. Routine applications of insecticides under typical growing conditions and infestation levels to control these insects are usually unnecessary when Trecepta™ RIB Complete® Corn Blend is planted. The seed producers/conditioners licensed by Monsanto ensure that a minimum of 5% non-*B.t.* refuge seed is included with Trecepta™ RIB Complete® Corn Blend products in each bag of seed corn.

Trecepta™ RIB Complete® Corn Blend products containing insect-protection technology also contain Roundup Ready® 2 Technology, which provides tolerance to in-crop applications of labeled glyphosate agricultural herbicides. For more information on this technology and weed resistance management, refer to the Roundup Ready® Technology section.

Product-Specific Weed Management Recommendations and Additional Information

Corn yield is very sensitive to early season weed competition. Weed control systems must provide growers the opportunity to control weeds before they become competitive.

- When spring conditions allow, apply pre-emergence residual herbicides at the application rate specified on the product label.
- Alternatively, apply a pre-emergence residual herbicide at the appropriate application rate when tank mixed.
- Follow with a post-emergence in-crop application of Roundup WeatherMAX® herbicide for additional weed flushes before they exceed 10 cm in height.
- Roundup WeatherMAX® herbicide may be tank mixed with certain other herbicides for post-emergence weed control.

For complete information about the use of Monsanto agricultural herbicides on Roundup Ready® Corn 2 or corn with Roundup Ready® 2 Technology, refer to the appropriate product's label booklet or supplemental label.



This technology contains Cry1A.105 and Cry2Ab2 from *B.t.*, which together control the European corn borer (*Ostrinia nubilalis*), fall armyworm (*Spodoptera frugiperda*) and control or suppress corn earworm (*Helicoverpa zea*). Providing two different *B.t.* proteins with different modes of action for protection against above-ground insects significantly decreases the probability that insects will become resistant to these traits, resulting in enhanced durability of transgenic insect control via *B.t.*-protected corn products. Routine applications of insecticides under typical growing conditions and infestation levels to control these insects are usually unnecessary when corn containing VT Double PRO® RIB Complete® technology is planted. The seed producers/conditioners licensed by Monsanto ensure that a minimum of 5% non-*B.t.* refuge seed is included with VT Double PRO® RIB Complete® Corn Blend products in each bag of seed corn.

VT Double PRO® RIB Complete® Corn Blend products contain Roundup Ready® 2 Technology, which provides tolerance to in-crop applications of labeled glyphosate agricultural herbicides. For information on this technology and weed resistance management, refer to the Roundup Ready® Technology section.



This technology contains Cry1A.105, Cry2Ab2 and Cry3Bb1 from *B.t.*, which together control the European corn borer (*Ostrinia nubilalis*), fall armyworm (*Spodoptera frugiperda*), northern corn rootworm (*Diabrotica barberi*), western corn rootworm (*Diabrotica virgifera virgifera*) and control or suppress corn earworm (*Helicoverpa zea*). Routine applications of insecticides under typical growing conditions and infestation levels to control these insects are usually unnecessary when corn containing Genuity® VT Triple PRO® RIB Complete® technology is planted. The seed producers/conditioners licensed by Monsanto ensure that a minimum of 10% non-*B.t.* refuge seed is included with Genuity® VT Triple PRO® RIB Complete® Corn Blend products in each bag of seed corn.

As part of the IRM plan for Genuity® VT Triple PRO® RIB Complete® Corn Blend, experts recommend that growers incorporate crop rotations (out of corn), use of pyramided traits for below ground pests and, when appropriate, use of insecticides to minimize selection of resistant populations.

Genuity® VT Triple PRO® RIB Complete® Corn Blend products contain Roundup Ready® 2 Technology, which provides tolerance to in-crop applications of labeled glyphosate agricultural herbicides. For information on this technology and weed resistance management, refer to the Roundup Ready® Technology section.



Roundup Ready® Corn 2 and corn with Roundup Ready® 2 Technology contain Roundup Ready® Technology, which provides tolerance to in-crop applications of labeled glyphosate agricultural herbicides. Roundup Ready® Corn 2 and corn with Roundup Ready® 2 Technology are equivalent in their tolerance to glyphosate agricultural herbicides. For information on this technology and weed resistance management, refer to the Roundup Ready® Technology section.



Insect Pest Control

Performance Series® Sweet Corn contains Cry1A.105, Cry2Ab2 and Cry3Bb1 from *B.t.*, which together control European corn borer (*Ostrinia nubilalis*), fall armyworm (*Spodoptera frugiperda*), northern corn rootworm (*Diabrotica barberi*), and western corn rootworm (*Diabrotica virgifera virgifera*) and control or suppress corn earworm (*Helicoverpa zea*). Performance Series® Sweet Corn seed is treated for control of wireworms, white grubs, seed corn maggots and black cutworm.



Performance Series® Sweet Corn does not control silk flies, adult corn rootworm beetles, sap beetles, western bean cutworm, stinkbugs or other insect pests not listed above. It is recommended that you scout and spray according to label recommendations to control these pests.

Performance Series® Sweet Corn provides growers with a dual mode of action for many above-ground insects, including corn earworm. Performance Series® Sweet Corn can control corn earworm under typical infestation levels, but supplemental insecticide applications may be required when corn earworm populations are above economic thresholds to ensure quality ears at harvest. Protection from corn earworm must be coupled with thorough scouting and spray programs to help maximize marketable yield potential. The implementation of an appropriate IRM program is critical. Please keep in mind that different products may have different IRM requirements. On-farm mixing of any seed is NOT an approved method of IRM.

If supplemental insecticide applications are necessary for control of high levels of corn earworm, rotating insecticide modes of action will help reduce the risk of insect pests developing insecticide resistance.

- For target pests, do not spray prior to silking.
- After silking, schedule sprays based on insect flight activity and follow provincial recommendations under high infestation ratings.
- Under heavy insect pressure, spray intervals may have to be reduced.
- Monitor for secondary pests: sap beetles, stink bugs, western bean cutworm, corn silk flies, etc.

Planting Requirements

Read and follow the bag tag information prior to planting Performance Series® Sweet Corn.

- It is a best practice to plant Performance Series® Sweet Corn fields adjacent to non-*B.t.* corn fields where possible.
- It is a best practice to rotate a *B.t.* sweet corn field to a non-corn crop for one year when possible.
- Do not repackage seeds. Each package of seeds includes important legal requirements on the label. Seeds must remain in their original packaging and must not be further subdivided.
- Spraying of *B.t.* microbial formulations is prohibited in Performance Series® Sweet Corn fields.
- Post-harvest IRM requirements. A structured refuge is not required for Performance Series® Sweet Corn; however, crop destruction must occur no later than 30 days following harvest and preferably within 14 days. The allowed crop destruction methods are rotary mowing, discing or plowing down.
- Identity Preserved (IP) production. All harvested ears must be stored in areas where the identity of the ears can be preserved.

Performance Series® Sweet Corn contains Roundup Ready® 2 Technology, which provides tolerance to in-crop applications of labeled glyphosate agricultural herbicides. For information on this technology and weed resistance management, refer to the Roundup Ready® Technology section.



Performance Series® Sweet Corn

Soybean technologies

Roundup Ready 2 Yield[®] Soybeans



Roundup Ready 2 Yield[®] Soybean varieties contain Roundup Ready[®] Technology, which provides tolerance to in-crop applications of labeled glyphosate agricultural herbicides.

For information on this technology and weed resistance management, refer to the Roundup Ready[®] Technology section.

Weed Management

Product-Specific Weed Management Recommendations and Additional Information

- Include a soil-applied, pre-emergent or post-emergent residual herbicide at an appropriate rate as listed on the label.
- In crop, apply Roundup WeatherMAX[®] herbicide before weeds exceed 10 cm in height.
- Weeds such as lambsquarters, waterhemp, pigweed and giant ragweed tend to emerge throughout the season. Sequential Roundup WeatherMAX[®] herbicide applications, before weeds exceed 10 cm in height or the addition of a soil residual herbicide labeled for use in soybeans, may be required for control of subsequent weed flushes.
- For complete information about the use of Monsanto agricultural herbicides over the top of Roundup Ready 2 Yield[®] Soybeans, refer to the appropriate product's label booklet or supplemental label.

Roundup Ready 2 Xtend[®] Soybeans

Roundup Ready 2 Xtend[®] Soybeans are built on the Roundup Ready 2 Yield[®] Technology to maximize yield potential and provide tolerance to dicamba and glyphosate herbicides, providing additional weed control options for use before and after planting. For information on Roundup Ready[®] Technology and weed resistance management, refer to the Roundup Ready[®] Technology section.



Monsanto Agricultural Herbicide Products for Use in the Roundup Ready Xtend[®] Crop System

The following are products sold by Monsanto for use with Roundup Ready 2 Xtend[®] Soybean for the 2020 crop season:

- Roundup WeatherMAX[®] herbicide
- Roundup Transorb[®] HC herbicide
- XtendiMax[®] herbicide with VaporGrip[®] Technology
- Roundup Xtend[®] with VaporGrip[®] Technology herbicide

If using Roundup Transorb[®] HC, guidelines and application rates are the same as for Roundup WeatherMAX[®] herbicide as described in the Roundup Ready[®] Technology section.

For complete information about the use of Monsanto agricultural herbicides in the Roundup Ready[®] Xtend Crop System, refer to the appropriate product's label booklet or supplemental label. A complete list of specimen labels can be found at www.monsanto.ca or at <http://pr-rp.hc-sc.gc.ca/lr-re/index-eng.php>. Approved labels for Monsanto agricultural herbicides, including supplemental labeling, must be in the user's possession at the time of pesticide application. Read and follow all pesticide product label directions.

Weed Management Recommendations in Roundup Ready 2 Xtend[®] Soybeans

The chosen herbicide program and timing of application of Roundup Xtend[®] with VaporGrip[®] Technology herbicide or XtendiMax[®] herbicide with VaporGrip[®] Technology plus Roundup WeatherMAX[®] herbicide should be tailored to the target weed species and method of tillage in a given field. Always consider using additional herbicide mechanisms of action or traditional residual herbicides as needed. See the application crop stage guidelines in the chart on the following page. Always follow label requirements and use the following BMPs for sustainable, effective weed control:

- Scout fields before and after each burndown and in-crop application.
- Start with a clean field, using a burndown herbicide application, residual herbicide or tillage, making sure that weeds are controlled at planting.

- It is highly recommended to use a pre-planting or pre-emergence application of Roundup Xtend[®] with VaporGrip[®] Technology or a tank mix of Roundup WeatherMAX[®] herbicide and XtendiMax[®] herbicide with VaporGrip[®] Technology for short-term residual control of broadleaf weeds and early season weed removal. Early season application maximizes the protection of yield potential and minimizes the risk to non-target plants.
- If a pre-planting/pre-emergence application is not made, apply Roundup Xtend[®] with VaporGrip[®] Technology or Roundup WeatherMAX[®] herbicide mixed with XtendiMax[®] herbicide with VaporGrip[®] Technology soon after emergence and before weeds exceed 10 cm in height.
- Sequential post-emergence application of Roundup Xtend[®] with VaporGrip[®] Technology, Roundup WeatherMAX[®] herbicide or XtendiMax[®] herbicide with VaporGrip[®] Technology alone or tank mixed may be applied to manage additional flushes of small weeds (< 10 cm).
- Apply additional residual herbicides for broad-spectrum weed control at the recommended rates appropriate for the target weed spectrum to reduce the risk of selection for herbicide-resistant biotypes.
- Where glyphosate-resistant weeds exist, include an additional effective herbicide mechanism of action (in addition to dicamba) in the weed control system.
- For complete information about the use of Monsanto agricultural herbicides in the Roundup Ready[®] Xtend Crop System, refer to the appropriate product's label booklet or supplemental label.

Roundup Ready 2 Xtend® Soybeans *continued*

Roundup Xtend® with VaporGrip® Technology Herbicide and XtendiMax® Herbicide with VaporGrip® Technology Application Requirements for Roundup Ready 2 Xtend® Soybeans

Monsanto Brand Herbicide	In-Crop Application Rate(s)	Crop Stage Application Range	Additional Requirements	Maximum Total Application for Growing Season
XtendiMax® Herbicide with VaporGrip® Technology	0.823–1.71 L/ha	Pre-plant or pre-emergence and/or post-emergence once or twice up to early flower stage of crop (R1)	Second in-crop application should only be made for control of glyphosate-resistant weeds	3.36 L/ha
Roundup Xtend® with VaporGrip® Technology Herbicide	2.5 L/ha	Pre-planting or pre-emergence and/or post-emergence once or twice up to early flower stage of crop (R1)	Third application should only be made for control of glyphosate-resistant weeds	10 L/ha
	3.75 L/ha			
	5 L/ha	Should be applied pre-planting, pre-emergence or in-crop early post-emergence (up to the V2 growth stage)	Only 1 application at this rate per season	

FOLLOW ALL PESTICIDE PRODUCT LABELING. If there is any conflict between these recommendations and applicable pesticide product labeling, the pesticide product labeling controls. For complete information about the use of Monsanto agricultural herbicides in the Roundup Ready® Xtend Crop System, refer to the appropriate product's label booklet or supplemental label.

Recommendations for Managing Resistant Weeds in the Roundup Ready® Xtend Crop System

Various weed biotypes are known to be resistant to glyphosate or dicamba. For the current weed control recommendations for dicamba- or glyphosate-resistant weed biotypes, refer to www.mixitup.ca or call Monsanto Technical Support at **1-800-667-4944**.

Recommendations for Managing Volunteer Plants from the Roundup Ready® Xtend Crop System

Volunteer plants from the Roundup Ready® Xtend Crop System will be resistant to glyphosate and dicamba. For the current Roundup Ready® Xtend Crop System volunteer control recommendations, refer to www.mixitup.ca or call Monsanto Technical Support at **1-800-667-4944**.

Application Requirements for Monsanto Herbicides Containing Dicamba

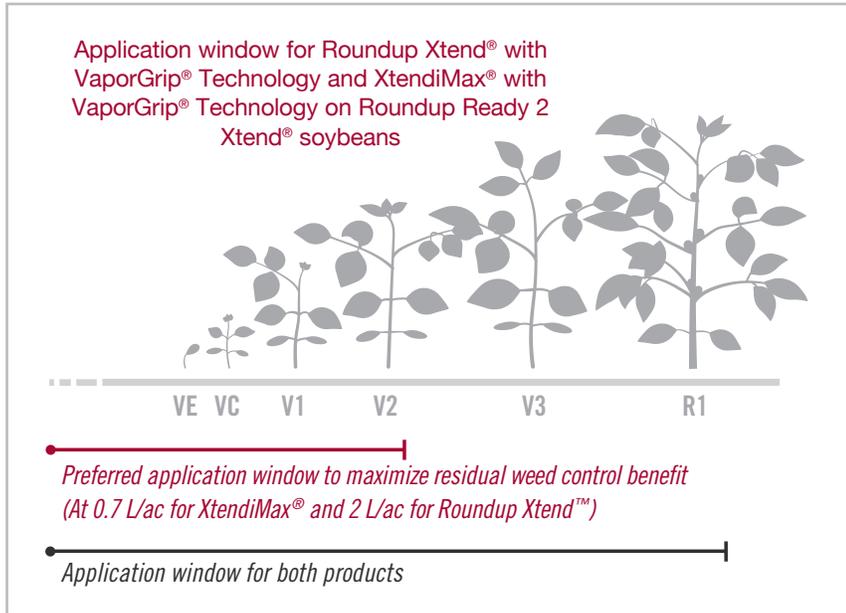
Application requirements for Roundup Xtend® with VaporGrip® Technology herbicide or XtendiMax® herbicide with VaporGrip® Technology alone or in tank mixes are as follows:

- Use nozzles and operating pressures that produce extremely coarse to ultra-coarse droplets to minimize drift.
- Ensure that ground speed is less than 25 km/h.
- Optimal wind speeds for application typically occur between 5 and 15 km/h.
- Do not spray if wind is blowing toward a sensitive crop or habitat.
- Do not spray when inversion conditions may exist, typically when wind speeds are less than 5 km/h. A temperature inversion is a layer of cool air trapped below a layer of warmer air. During a temperature inversion, the atmosphere is very stable and vertical air mixing is restricted, which can cause small, suspended droplets to remain in a concentrated cloud. Temperature inversions are

characterized by increasing temperatures with altitude and are common on evenings and nights with limited cloud cover and light to no wind. Cooling of air at the earth's surface takes place and warmer air is trapped above it. Inversions begin to form as the sun sets and often continue into the morning.

- For application to rights of way, buffer zones for the protection of sensitive terrestrial habitats are not required; however, the best available application strategies to minimize off-site drift, including meteorological conditions (e.g., wind direction, low wind speed) and spray equipment (e.g., coarse droplet sizes, minimizing height above canopy), should be used. Applicators must, however, observe the specified buffer zones for the protection of sensitive aquatic habitats. Refer to the product label for details. Leave an adequate buffer zone between treatment areas and sensitive plants.
- Do not treat areas where movement of the chemical into the soil or surface washing may bring Roundup Xtend® with VaporGrip® Technology herbicide or XtendiMax® herbicide with VaporGrip® Technology into contact with the roots of desirable plants.
- Do not spray when the temperature is expected to exceed 30°C.
- Do not use ammonium sulfate (AMS) or ammonium-based additives, adjuvants or sprayable fluid fertilizers.
- Do not add water conditioners or buffering agents that acidify the spray solution.
- Triple-rinse spraying equipment prior to applying herbicide to other crops that are sensitive to either glyphosate or dicamba. Prepare a cleaning solution with a commercial tank cleaner according to the manufacturer's directions. Ensure the triple-rinse procedure includes all parts of the spray equipment that may have come in contact with herbicides including, but not limited to, tanks, booms, spray lines and pumps.

Rates and Window of Application

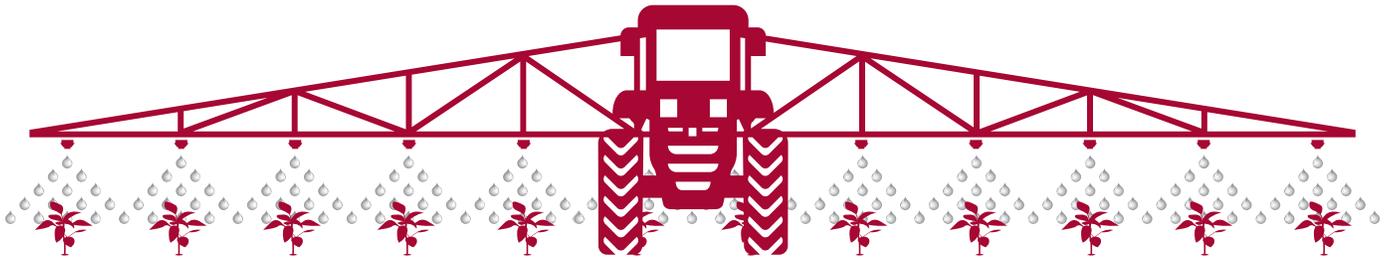


Additional Information

In-crop applications of Roundup Xtend® with VaporGrip® Technology herbicide or XtendiMax® herbicide with VaporGrip® Technology under stressful environments may cause temporary loss of turgor, a response commonly described as leaf droop in Roundup Ready 2 Xtend® Soybeans. Typically, affected plants recover in 1-3 days depending on the level of droop and environmental conditions.

A plant back interval of 120 days is required for those crops not on the label of Roundup Xtend® with VaporGrip® Technology or XtendiMax® herbicide with VaporGrip® Technology.

Application Requirements for Roundup Xtend® with VaporGrip® Technology Herbicide and XtendiMax® Herbicide with VaporGrip® Technology (Alone or in Tank Mix)



								
NOZZLES Use nozzles and operating pressures that produce Extremely Coarse (XC) to Ultra Coarse (UC) droplets to minimize drift	WEED HEIGHT Spray weeds less than 10 cm tall	LABEL BUFFER Maintain the required label buffer to protect sensitive areas	GROUND SPEEDS Make sure ground speed is less than 25 km/h	TRIPLE RINSE Use triple rinse tank clean-out procedure	BOOM HEIGHT Maintain boom height 50 cm above crop canopy to reduce the risk of drift	WIND SPEED Optimal wind speeds for application typically occur between 5 and 15 km/h	AMMONIUM SULFATE Ammonium sulfate and ammonium-based additives are restricted in applications	WATER VOLUME Minimum carrier volume is 10 GPA





TruFlex™ Canola with Roundup Ready® Technology is part of an improved system designed for a range of growing conditions, providing high-yield potential hybrids and improved tolerance to glyphosate herbicides, thus delivering better weed control and crop safety.



TruFlex™ Canola with Roundup Ready® and LibertyLink® Technologies are part of an improved system designed for a range of growing conditions, providing high-yield potential hybrids that have tolerance to glyphosate and glufosinate herbicides, thus providing additional weed control options and enabling a wider glyphosate application window for grower flexibility and better weed control and crop safety.



DEKALB® LibertyLink® Canola contains the LibertyLink® trait, combining in-plant tolerance to glufosinate herbicides with a high-yield potential product.



Roundup Ready® Canola hybrids contain Roundup Ready® Technology, providing in-plant tolerance to glyphosate herbicides.

Canola

technologies

TruFlex™ Canola with Roundup Ready® Technology



TruFlex™ Canola with Roundup Ready® Technology is part of an improved system designed for a range of growing conditions, providing high-yield potential hybrids and improved tolerance to glyphosate herbicides, thus delivering better weed control and crop safety over current Roundup Ready® Canola products.

TruFlex™ Canola enables a wider glyphosate application window, providing growers with up to 10-14 more spray days than current technology. TruFlex™ Canola allows for the control of a broad spectrum of tough-to-control weeds including cleavers, foxtail barley and wild buckwheat. It will also help to enable season-long dandelion control. TruFlex™ Canola allows growers the option of applying Roundup WeatherMAX® herbicide in-crop at a rate of 1.34 L/acre for a single application or 0.67 L/acre for two applications, controlling 24 new weed species—all with improved crop safety. With the added benefit of a wider window of application that extends past the six-leaf stage all the way to the first flower, growers will have more flexibility over Roundup Ready® Canola products to manage their in-crop applications.

Weed Management

Recommendations

Follow all pesticide product labeling. If there is any conflict between these recommendations and applicable pesticide product labeling, the pesticide product label controls. Follow the recommendations below to help minimize the risk of developing glyphosate-resistant weed populations in TruFlex™ Canola:

- Scout fields before and after each burndown and in-crop application.
- Start with a clean field, using a burndown herbicide application, residual herbicide or tillage, making sure that weeds are controlled at planting.
- In-crop, apply Roundup WeatherMAX® herbicide before weeds exceed 7.5 cm in height per label directions.
- A sequential application of Roundup WeatherMAX® herbicide may be needed per label directions.
- If weather or a late flush of weeds occurs, you may spray up to first flower, when 50% of plants in the field have started to flower.
- Use mechanical weed control, cultivation and/or residual herbicides where appropriate in your TruFlex™ Canola.

- Use additional herbicide mechanisms of action, residual herbicides and/or mechanical weed control in other Roundup Ready® crops rotated with TruFlex™ Canola.
- Equipment should be cleaned before moving from field to field to help minimize the spread of weed seed.
- There are several options for control of volunteer TruFlex™ Canola in rotational crops, including soybeans with Roundup Ready® Technology and Roundup Ready® Sugarbeets. Talk to your local seed representative or dealer for suggestions that fit your situation and area (**1-800-667-4944**).
- Report any incidence of repeated non-performance of Roundup® Agricultural Herbicides or other glyphosate products on a particular weed to the appropriate company representative, local retailer or government extension agent.





Additional Information

- Spray when canola is at emergence to the six-leaf stage of growth. To help maximize yield potential, spray TruFlex™ Canola at the one- to three-leaf stage to eliminate competing weeds.
- No more than two in-crop applications may be made from emergence through first flower, with a total in-crop application not exceeding 1.34 L/acre.
- No more than 0.67 L/acre may be applied in-crop after the six-leaf stage.
- Wait a minimum of 10 days between applications. Two applications of Roundup WeatherMAX® herbicide can achieve the following:
 - Control late flushes of annual weeds such as wild buckwheat, foxtail, pigweed and wild mustard
 - Provide season-long control of dandelion, Canada thistle, quackgrass, perennial sow thistle, common milkweed and foxtail barley
 - Provide better yield potential by eliminating competition from both annuals and hard-to-control perennials
- If using another approved glyphosate agricultural herbicide, you must refer to the label booklet or supplemental labeling for the use of that product on TruFlex™ Canola for appropriate use rates.
- Maximum use rates apply to the total amount applied of all glyphosate-containing products. See the Roundup WeatherMAX® herbicide label for more information on maximum use rates.

Various weed biotypes are known to be resistant to glyphosate. For the current weed control recommendations for glyphosate-resistant weed biotypes, refer to www.mixitup.ca or call **1-800-667-4944**. Approved supplemental labeling for Monsanto herbicide products can also be obtained by calling 1-800-667-4944.

TruFlex™ Canola with Roundup Ready® and LibertyLink® Technologies



TruFlex™ Canola with Roundup Ready® and LibertyLink® Technologies¹ is part of an improved system designed for a range of growing conditions, providing high-yield potential hybrids that have tolerance to glyphosate and glufosinate herbicides, thus providing additional weed control options and enabling a wider glyphosate application window for grower flexibility and better weed control and crop safety.

TruFlex™ Canola with Roundup Ready® and LibertyLink® Technologies has tolerance to glyphosate and glufosinate herbicides, providing growers with additional weed control options for use before, at and after planting.

TruFlex™ Canola with Roundup Ready® and LibertyLink® Technologies enables a wider glyphosate application window, providing growers with up to 10–14 more glyphosate spray days than current technology. TruFlex™ Canola with Roundup Ready® and LibertyLink® Technologies allows for the control of a broad spectrum of tough-to-control weeds including cleavers, foxtail barley and wild buckwheat, as well as glyphosate-resistant weeds. It will also help enable season-long dandelion control. TruFlex™ Canola with

Roundup Ready® and LibertyLink® Technologies also allow growers the option of applying Roundup WeatherMAX® herbicide in-crop at a rate of 1.34 L/acre for a single application or 0.67 L/acre for two applications, controlling 24 new weed species—all with improved crop safety. And with the added benefit of a wider window of application that extends past the six-leaf stage all the way to the first flower, growers will have more flexibility to manage their in-crop applications.

For canola products containing the LibertyLink® trait, growers must hold both a valid and current Monsanto Technology Stewardship Agreement and a BASF Liberty® and Trait Agreement before purchasing such products.

¹Product names may change



Weed Management

Recommendations

Follow all pesticide product labeling. If there is any conflict between these recommendations and applicable pesticide product labeling, the pesticide product labeling controls. Follow the recommendations below to help minimize the risk of developing glyphosate-resistant weed populations in TruFlex™ Canola with Roundup Ready® and LibertyLink® Technologies:

- Scout fields before and after each burndown and in-crop application.
- Start with a clean field, using a burndown herbicide application, residual herbicide or tillage, making sure that weeds are controlled at planting.
- In-crop, apply Roundup WeatherMAX® herbicide before weeds exceed 8 cm in height.
- A sequential application of Roundup WeatherMAX® herbicide may be needed.
- If weather or a late flush of weeds occurs, you may spray Roundup WeatherMAX® herbicide up to first flower, when 50% of plants in the field have started to flower. Liberty® herbicide may be applied only up to the early bolting stage.
- Use mechanical weed control, cultivation and/or residual herbicides where appropriate in your TruFlex™ Canola with Roundup Ready® and LibertyLink® Technologies.
- Use additional herbicide mechanisms of action, residual herbicides and/or mechanical weed control in other Roundup Ready® crops rotated with TruFlex™ Canola with Roundup Ready® and LibertyLink® Technologies.
- Equipment should be cleaned before moving from field to field to help minimize the spread of weed seeds.
- There are several options for control of volunteer TruFlex™ Canola with Roundup Ready® and LibertyLink® Technologies in rotational crops, including soybeans with Roundup Ready® Technology and Roundup Ready® Sugarbeets. Talk to your local seed representative or dealer for suggestions that fit your area (**1-800-667-4944**).
- Report any incidence of repeated non-performance of Roundup® Agricultural Herbicides or other glyphosate products on a particular weed to the appropriate company representative (**1-800-667-4944**), local retailer or government extension agent.

Additional Information

- Spray Roundup WeatherMAX® herbicide when canola is at emergence to the six-leaf stage of growth. To help maximize yield potential, spray TruFlex™ Canola with Roundup Ready® and LibertyLink® Technologies at the one- to three-leaf stage to eliminate competing weeds.
- No more than two in-crop applications of Roundup WeatherMAX® herbicide may be made from emergence through first flower, with a total in-crop application not exceeding 1.34 L/acre.

- No more than 0.67 L/acre may be applied in-crop after the six-leaf stage.
- If using another approved glyphosate agricultural herbicide, you must refer to the label booklet or supplemental labeling for the use of that product on TruFlex™ Canola with Roundup Ready® and LibertyLink® Technologies for appropriate use rates.
- Maximum use rates apply to the total amount applied of all glyphosate-containing products. See the Roundup WeatherMAX® herbicide label for more information on maximum use rates.

A tank mix of Roundup WeatherMAX® herbicide and glufosinate may result in reduced weed control. An early application of Roundup WeatherMAX® herbicide is recommended up to the three-leaf stage, followed by an application of Liberty® herbicide (no later than the six-leaf stage).

Application of Liberty® Herbicide

Apply Liberty® herbicide at 0.54–1.62 L/acre, plus a permitted tank mix graminicide, over the top of TruFlex™ Canola with Roundup Ready® and LibertyLink® Technologies from emergence to 10 days after crop emergence or when weeds are 8 cm or less.

A second application of Liberty® herbicide can be made to canola treated initially with up to 1.62 L/acre if new weed germination or growth is present:

- A first application of up to 1.62 L/acre may be followed by a second application of up to 1.35 L/acre,

OR

- A first application of up to 1.35 L/acre may be followed by a second application of up to 1.62 L/acre.

Do not apply more than a total of 2.97 L/acre per year.

Do not apply glufosinate within 65 days of harvest.

Slight discoloration of the canola may be visible after application. This effect is temporary and will not influence the crop growth, maturity or yield.

Refer to all federal, provincial and local herbicide labeling for planting restrictions.

Do not graze the treated crop or cut for hay.

DEKALB® LibertyLink® Canola



DEKALB® LibertyLink® Canola contains the LibertyLink® trait, combining in-plant tolerance to glufosinate herbicides with a high-yield potential product. The LibertyLink® trait allows growers to spray registered glufosinate herbicide in-crop for non-selective, post-emergence control of a spectrum of grass and broadleaf weeds.

Do not spray this product with glyphosate.



For canola products containing the LibertyLink® trait, growers must hold both a valid and current Monsanto Technology Stewardship Agreement and a BASF Liberty® and Trait Agreement before purchasing such products.

Weed Management

Recommendations

Follow all pesticide product labeling. If there is any conflict between these recommendations and applicable pesticide product labeling, the pesticide product labeling controls. Follow the recommendations below to help minimize the risk of developing glufosinate-resistant weed populations in DEKALB® LibertyLink® Canola:

- Scout fields before and after each burndown and in-crop application.
- Start with a clean field, using a burndown herbicide application, residual herbicide or tillage, making sure that weeds are controlled at planting.
- In-crop, apply glufosinate herbicide before weeds exceed 7.5 cm in height per label directions.
- A sequential application of glufosinate, per label directions, may be needed.
- Use mechanical weed control, cultivation and/or residual herbicides where appropriate in your DEKALB® LibertyLink® Canola.
- Use additional herbicide mechanisms of action, residual herbicides and/or mechanical weed control in other LibertyLink® crops rotated with DEKALB® LibertyLink® Canola.
- Equipment should be cleaned before moving from field to field to help minimize the spread of weed seed.
- There are several options for control of volunteer DEKALB® LibertyLink® Canola in rotational crops. Talk to your local seed representative or dealer for suggestions that fit your area (**1-800-667-4944**).
- Report any incidence of repeated non-performance of glufosinate agricultural herbicides on a particular weed to the appropriate company representative, local retailer or government extension agent.

Additional Information

- Spray when canola is at the cotyledon to early bolt stage of growth.
- Slight discoloration of the canola may be visible after application. This effect is temporary and will not influence the crop growth, maturity or yield.
- Wait a minimum of 10 days between applications. Two applications of glufosinate can achieve the following:
 - Control late flushes of annual weeds such as foxtail, pigweed and wild mustard
 - Provide season-long suppression of Canada thistle, quackgrass and perennial sow thistle
 - Provide better yield potential by eliminating competition from both annuals and hard-to-control perennials

- Do not apply glufosinate within 65 days of harvest.
- Do not graze the treated crop or cut for hay.
- Do not spray glufosinate agricultural herbicides on DEKALB® LibertyLink® Canola.

Various weed biotypes are known to be resistant to glyphosate. For the current weed control recommendations for glyphosate-resistant weed biotypes, refer to www.mixitup.ca or call **1-800-667-4944**. Approved supplemental labeling for Monsanto herbicide products can also be obtained by calling **1-800-667-4944**.

Application of Liberty® Herbicide

Apply Liberty® herbicide at 0.54–1.62 L/acre, plus a permitted tank mix gramaticide, over the top of DEKALB® LibertyLink® Canola from emergence to 10 days after crop emergence or when weeds are 8 cm or less.

A second application of Liberty® herbicide can be made to canola treated initially with up to 1.62 L/acre if new weed germination or growth is present:

- A first application of up to 1.62 L/acre may be followed by a second application of up to 1.35 L/acre,

OR

- A first application of up to 1.35 L/acre may be followed by a second application of up to 1.62 L/acre.

Do not apply glufosinate within 65 days of harvest.

Refer to all federal, provincial and local herbicide labeling for planting restrictions.

Roundup Ready® Canola



Roundup Ready® Canola hybrids contain Roundup Ready® Technology, providing in-plant tolerance to glyphosate herbicides.

For information on this technology and weed resistance management, refer to the Roundup Ready® Technology section.

Weed Management

Product-Specific Weed Management Recommendations and Additional Information

- To help maximize yield potential by eliminating competing weeds, spray Roundup WeatherMAX® herbicide when Roundup Ready® Canola is at the one- to three-leaf stage and before weeds exceed 8 cm in height.
- A second application may be required to achieve the following:
 - Control late flushes of annual weeds such as foxtail, pigweed and wild mustard
 - Provide season-long suppression of Canada thistle, quackgrass and perennial sow thistle
 - Protect yield potential by eliminating competition from both annuals and hard-to-control perennials
- Some short-term, visible yellowing may occur with later applications (four- to six-leaf stage). This effect is temporary and will not influence crop growth, maturity or yield.

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



Additional Canola Information

Volunteer Canola Containing Roundup Ready® and/or LibertyLink® Technologies

Canola can present unique challenges as a volunteer plant because of the persistence of seeds in the soil; a small seed size that allows it to easily be moved by equipment, wind or water; pollen movement from flowering plants; and the ability for a single plant to produce a large number of seeds.

The introduction of herbicide tolerance in canola did not change the fundamental reasons that volunteer canola can occur but does require that growers consider that Roundup Ready® Technology, LibertyLink® Technology or other herbicide tolerance traits may be present in volunteers when developing volunteer management plans for canola.

In addition to cultural control methods, numerous herbicide products can be used to control volunteer canola containing Roundup Ready® Technology, LibertyLink® Technology or other herbicide tolerance traits in cropping systems.

- If field scouting identifies volunteer canola prior to a burndown or pre-harvest application with a glyphosate herbicide, it is recommended to tank mix additional herbicides labeled for that use and control volunteer canola (including other herbicide-tolerant canola types) to ensure that all volunteer canola, including any canola volunteers containing Roundup Ready® Technology or LibertyLink® Technology, are controlled.
- If field scouting identifies volunteer canola in another crop containing Roundup Ready® Technology or LibertyLink® Technology, it is recommended to tank mix additional herbicides labeled for use in that crop type that control volunteer canola, including other herbicide-tolerant canola types, with Roundup WeatherMAX® herbicide or other labeled glyphosate herbicides to ensure that all volunteer canola, including any canola volunteers

containing Roundup Ready® Technology, LibertyLink® Technology or other herbicide-tolerant canola types, are controlled.

- Where conventional tillage is used, light cultivation provides effective control of all canola volunteers, including any containing Roundup Ready® Technology.

For additional information visit www.mixitup.ca or call the Monsanto Technical Support Line at **1-800-667-4944**.



HarvXtra[®] Alfalfa with Roundup Ready[®] Technology



HarvXtra[®] Alfalfa with Roundup Ready[®] Technology products

contain the biotechnology-derived trait developed to maximize alfalfa quality compared to commercially available alfalfa harvested at the same growth stage by reducing the amount of lignin in the plant.

This technology is designed to ease the yield versus quality trade-off currently faced by alfalfa producers by enabling them to maintain high-quality alfalfa longer. These products also contain Roundup Ready[®] Technology, providing in-plant tolerance to glyphosate. For information on this technology and weed resistance management, refer to the Roundup Ready[®] Technology section.

Planting Limitation

For the 2020 growing season, this product is only available for planting in a limited geography, and growers must direct any product produced from HarvXtra[®] Alfalfa with Roundup Ready[®] Technology seed or crops (including hay and hay products) only to domestic use in Canada or the United States. It is a violation of national and international law to move material containing biotechnology traits across boundaries into nations where their import is not permitted. Growers should talk to their product purchaser to confirm their buying position for this product.

HarvXtra[®] Alfalfa with Roundup Ready[®] Technology is for sale and planting only in the following provinces in 2020: Ontario, Quebec, New Brunswick, Nova Scotia, Prince Edward Island and Newfoundland.



■ Approved Usage Area

HarvXtra[®] Alfalfa with Roundup Ready[®] Technology is not permitted to be planted or harvested for seed production in Canada.

HarvXtra[®] Alfalfa with Roundup Ready[®] Technology is not permitted to be planted in any wildlife feed plots.

HarvXtra[®] Alfalfa with Roundup Ready[®] Technology may not be planted for the production of sprouts.

Fly-on planting of HarvXtra[®] Alfalfa with Roundup Ready[®] Technology is not allowed.

Hay and Forage Management Requirements

HarvXtra[®] Alfalfa with Roundup Ready[®] Technology gives growers options for managing for high-quality hay/forage production, including timely cutting to promote high forage quality (i.e., generally before 10% bloom) or slightly delayed harvest for higher tonnage without sacrificing acceptable forage quality while still preventing seed.

- In areas where conventional alfalfa seed production or Adventitious Presence (AP) sensitive seed production is intermingled with forage production, HarvXtra[®] Alfalfa with Roundup Ready[®] Technology must be harvested at or before 10% bloom to help minimize potential pollen flow from HarvXtra[®] Alfalfa with Roundup Ready[®] Technology to conventional alfalfa.
- In all other areas, HarvXtra[®] Alfalfa with Roundup Ready[®] Technology is recommended to be harvested at or before 10% bloom and must be harvested prior to 50% bloom.
- Growers are responsible for controlling any feral alfalfa resulting from HarvXtra[®] Alfalfa with Roundup Ready[®] Technology use.

Growers who are unwilling to or who cannot make these commitments to stewardship should not grow HarvXtra[®] Alfalfa with Roundup Ready[®] Technology.

To preserve the quality potential of forage and hay in established stands, apply Roundup WeatherMAX[®] herbicide after weeds have emerged but before alfalfa regrowth interferes with application spray coverage of the target weeds.

HarvXtra® Alfalfa with Roundup Ready® Technology Stand Takeout

Use appropriate, commercially available herbicide treatments in reduced tillage systems or in combination with tillage to terminate a HarvXtra® Alfalfa with Roundup Ready® Technology stand.

If necessary, use tillage and/or additional herbicide application(s) after stand takeout and prior to planting of the subsequent rotational crop to manage any newly emerged or surviving alfalfa.

Note: Glyphosate herbicides are not effective for terminating HarvXtra® Alfalfa with Roundup Ready® Technology stands.

Management of HarvXtra® Alfalfa with Roundup Ready® Technology Volunteers in Rotational Crop Fields

In a timely manner, use recommended and commercially available mechanical and/or herbicidal methods to manage volunteer HarvXtra® Alfalfa with Roundup Ready® Technology in rotational crop fields.

- Implement treatments before volunteers become too large to control or begin to compete with the rotational crop.
- Herbicide alternatives are available for the management of volunteer alfalfa in grass crops.
- Rotation with certain broadleaf crops is not advisable if the grower is not willing to implement recommended stand termination practices.
- If no known mechanical or herbicidal options are available to manage volunteer HarvXtra® Alfalfa with Roundup Ready® Technology in the desired rotational crop, you should change to a crop with established volunteer management practices for that rotation.

Alfalfa In-Crop Rotation

Avoid planting alfalfa in a field from which an alfalfa crop has recently been removed. Recommended rotational crop sequences fall into two categories—grass crops (e.g., corn and cereal crops) and broadleaf crops.



Note: Glyphosate herbicides are not effective for terminating HarvXtra® Alfalfa with Roundup Ready® Technology volunteers.

For more information and the latest updates on HarvXtra® Alfalfa with Roundup Ready® Technology, go to www.harvxtra.ca.

Weed Management

Product-Specific Weed Management Recommendations and Additional Information

An initial application of Roundup WeatherMAX® herbicide should be done at or before the three- to four-trifoliolate growth stage.

To preserve the quality potential of forage and hay in established stands, apply Roundup WeatherMAX® herbicide after weeds have emerged but before alfalfa regrowth interferes with application spray coverage of the target weeds. To help control flushes of weeds in established alfalfa, apply Roundup WeatherMAX® herbicide before weeds exceed 10 cm in height, up to five days before cutting. Applications between cuttings may be done as a single application or in multiple applications. Sequential applications should be at least 25 days apart.

Use other approved herbicide products tank mixed or in sequence with Roundup WeatherMAX® herbicide as part of a HarvXtra® Alfalfa with Roundup Ready® Technology weed control program, if appropriate for the weed spectrum present.

Note: Because of the genetic diversity of alfalfa, up to 10% of the seedlings are susceptible to and will not survive the first application of labeled glyphosate agricultural herbicides. The initial application is necessary to eliminate the effects of stand gaps created by loss of plants that are not glyphosate tolerant in later applications and to ensure adequate spray coverage of emerging weeds before crop canopy interference.

It has been reported that some growers using alfalfa containing Roundup Ready® Technology may have a limited, temporary crop response where glyphosate application is closely followed by freezing or near-freezing conditions or by large temperature swings. Because glyphosate-based herbicides are most effective in controlling actively growing weeds, application in these conditions is not recommended. If freezing or near-freezing temperatures or large temperature swings are forecasted within five days after a planned glyphosate application to your HarvXtra® Alfalfa with Roundup Ready® Technology, you should delay the application until those conditions are no longer forecasted.

For complete information about the use of Monsanto agricultural herbicides in HarvXtra® Alfalfa with Roundup Ready® Technology, refer to the appropriate product's label booklet or supplemental label.



Roundup Ready[®]
Sugarbeets



Roundup Ready® Sugarbeet varieties contain Roundup Ready® Technology, which provides in-plant tolerance to glyphosate herbicide. For information on this technology and weed resistance management, refer to the Roundup Ready® Technology section.

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

Weed Management

Product-Specific Weed Management Recommendations and Additional Information

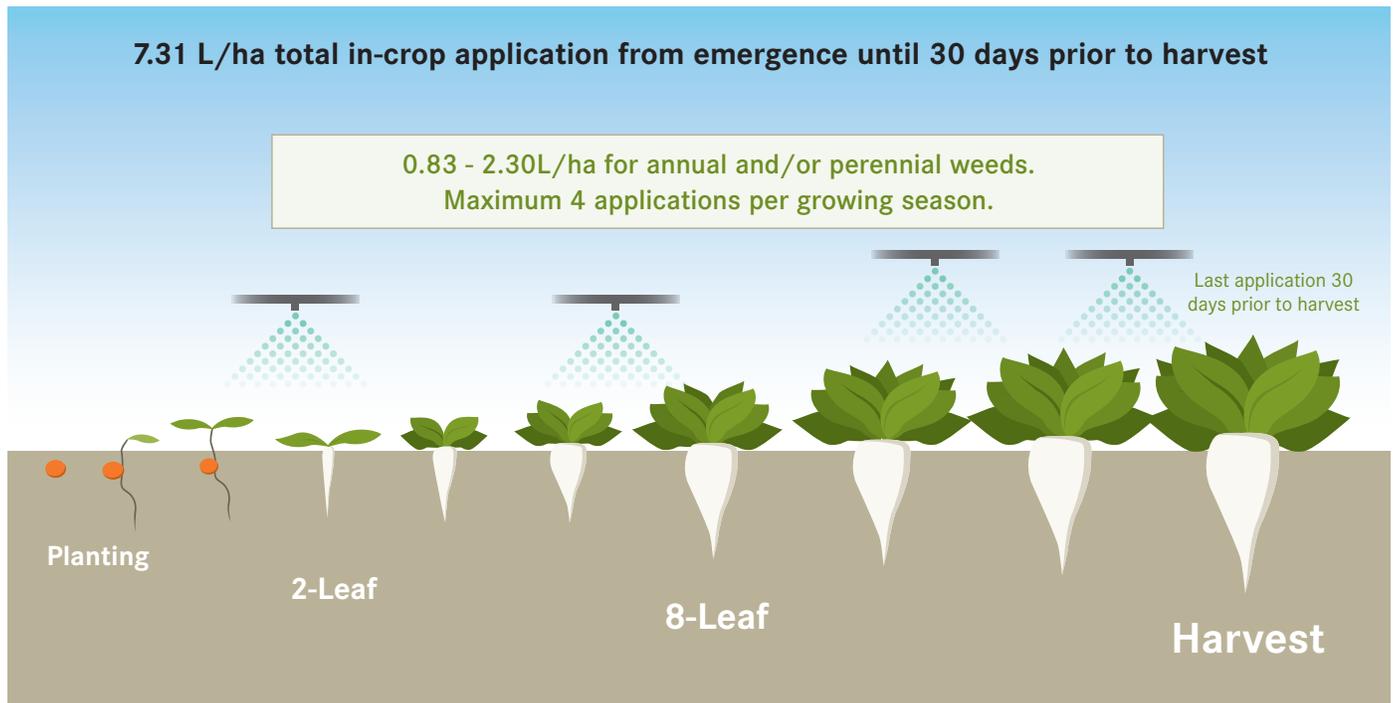
Sugarbeets are extremely sensitive to weed competition for light, nutrients and soil moisture and can lose yield potential rapidly if weeds are not controlled. Sugarbeet weed control research suggests that sugarbeets need to be kept weed-free for the first eight weeks of growth to protect yield potential. Therefore, weeds must be controlled when they are small and before they compete with Roundup Ready® Sugarbeets (exceed crop height), that is from less than 5 cm up to 10 cm in height, to preserve sugarbeet yield potential. More than one in-crop herbicide application will be

required to help control weed infestations to protect yield potential, as Roundup WeatherMAX® herbicide has no soil residual activity. A residual herbicide labeled for use in sugarbeets may also be applied pre-planting, pre-emergence or post-emergence in Roundup Ready® Sugarbeets.

Bolting sugarbeets must be rogued or topped in Roundup Ready® Sugarbeet fields.

For additional information, visit www.mixitup.ca or call Monsanto Technical Support at **1-800-667-4944**.

Recommendations for Applications of Roundup WeatherMAX® Agricultural Herbicide in Roundup Ready® Sugarbeets



Always refer to herbicide label for proper use rates, weeds controlled and application timing. The weed spectrum on your farm may require the use of herbicide products different from the ones listed here for the best weed control.

This Technology Stewardship Agreement (“Agreement”) is entered into between you (“Grower”) and Monsanto Canada ULC, a member of the Bayer Group (“Monsanto”), and consists of the terms on this page and any applicable Riders.

This Agreement grants Grower a limited license to use the following technologies/products in accordance with the terms of this Agreement (as defined below):

Canola Products

Roundup Ready® Canola
TruFlex™ Canola with Roundup Ready® Technology
TruFlex™ Canola with Roundup Ready® and LibertyLink® Technologies*
DEKALB® LibertyLink® Canola*

Corn Products

Roundup Ready® Corn 2
VT Double PRO® RIB Complete® Corn
Trecepta® RIB Complete® Corn Blend
Genuity® VT Triple PRO® RIB Complete® Corn
SmartStax® RIB Complete® Corn
Performance Series® Sweet Corn

Soybean Products

Roundup Ready 2 Xtend® Soybeans
Roundup Ready 2 Yield® Soybeans

and Monsanto Plant Breeders Rights (“PBR”) protected varieties and any future seed technologies developed, licensed or owned by Monsanto that are made available to Grower (“Monsanto Technologies”). Seed containing Monsanto Technologies are referred to herein as “Seed”. The licensed Canadian patents for Monsanto Technologies and/or PBR certificates can be found at the following web page: monsantotechnology.com and/or on the product label.

This Agreement includes an Alfalfa Rider and a Sugarbeet Rider, attached hereto, which is between Grower and Forage Genetics International, LLC (“FGI”) and KWS SAAT SE (“KWS”), respectively. The Alfalfa Rider grants Grower a limited license to use HarvXtra® Alfalfa with Roundup Ready® Technology. The Sugarbeet Rider grants Grower a limited license to use Roundup Ready® Sugarbeets.

This Agreement also contains Grower’s stewardship responsibilities and requirements associated with the use of Seed and Monsanto Technologies.

*For canola products containing the LibertyLink® trait, grower must hold a valid and current BASF Liberty® and Trait Agreement before Grower purchases such products. Product names may change.

1. GROWER AGREES:

- a. To acquire Seed only from authorized seed companies in Canada with technology license(s) from Monsanto for the applicable Monsanto Technology(ies) or from a licensed company’s dealer authorized to sell such licensed Seed in Canada.
- b. To obtain and read before planting and strictly follow the applicable requirements of this Agreement and the Technology Use Guide (“TUG”) as may be unilaterally amended by Monsanto from time to time, which the TUG is incorporated into and is a part of this Agreement. Further, Grower acknowledges that compliance with the foregoing stewardship requirements is a fundamental term of this Agreement, and Grower may lose its limited use license to use these products if Grower fails to comply with this Agreement, including by failing to follow the IRM program (as defined below) required by this Agreement. Monsanto further advises Grower to follow the recommendations and best management practices provided in the TUG, and seed bag and/or tag. Grower may obtain additional copies of the TUG by contacting Monsanto at 1-800-667-4944 or by going to tug.bayer.com.
- c. To pay all applicable royalties and technology fees for the use of the Monsanto Technologies and applicable fees due Monsanto that are part of, associated with the Seed purchase price of, or that are invoiced for, the Seed. If Grower fails to pay Monsanto or any wholly owned Monsanto subsidiaries for costs of Seed, Monsanto Technologies, and/or royalties, Grower agrees to pay Monsanto default late fees at the rate of 18% per annum (or the maximum allowed by law, whichever is less) plus reasonable legal fees and disbursements and all other costs of collection incurred by Monsanto or any of its affiliates. Monsanto or any affiliates has the right of set-off.
- d. To use Seed solely for a single planting of a commercial crop in Canada.
- e. Not to transfer any Seed to any other person or entity for planting and not to export any Seed.
- f. Not to save or clean any crop produced from Seed for planting, and not to supply seed produced from Seed to anyone for planting.
- g. Not to plant and/or clean Seed for seed production unless, and only if, Grower has entered into a valid, written Seed production agreement with a seed company that is licensed by Monsanto to produce Seed (a “Licensee”), which agreement requires Grower to either physically deliver to the Licensee, sell for non-seed purposes or use for non-seed purposes all of the Seed produced and not to purchase or otherwise obtain from the Licensee any of the Seed produced unless, after physical delivery by Grower to the Licensee, that Seed has been conditioned, packaged and delivered by the Licensee to Grower in the same manner as Seed sold by the Licensee to growers who have not entered into a Seed production agreement.
- h. Not to harvest any volunteer crops from fields planted the previous year with Seed.
- i. Not to plant any Seed, or any Seed produced from Seed, for crop breeding, research, molecular analysis or generation of herbicide or other registration data. Grower may not conduct research on Grower’s crop produced from Seed without Monsanto’s prior written consent, except to make agronomic comparisons and conduct yield testing solely for Grower’s own use. Monsanto makes available separate license agreements to academic institutions for research.

j. To use on crops containing Monsanto Technology only pesticides labeled for such use and follow current label directions. MONSANTO DOES NOT MAKE ANY REPRESENTATIONS, WARRANTIES OR RECOMMENDATIONS CONCERNING THE USE OF PRODUCTS MANUFACTURED OR MARKETED BY OTHER COMPANIES, INCLUDING BUT NOT LIMITED TO THOSE THAT ARE LABELED FOR USE IN CROPS CONTAINING MONSANTO TECHNOLOGY. MONSANTO SPECIFICALLY DISCLAIMS ALL RESPONSIBILITY FOR THE USE OF THESE PRODUCTS IN CROP(S) CONTAINING MONSANTO TECHNOLOGY. ALL QUESTIONS AND COMPLAINTS ARISING FROM THE USE OF PRODUCTS MANUFACTURED OR MARKETED BY OTHER COMPANIES, OR THE IMPACT TO MONSANTO TECHNOLOGY FROM THE USE OF SUCH PRODUCTS, SHOULD BE DIRECTED TO THOSE COMPANIES.

k. To accept and continue the obligations of this Agreement on any new land purchased or leased by Grower that has Seed planted on it by a previous owner or possessor of the land; and to timely notify in writing purchasers or lessees of land owned by Grower that has Seed planted on it that the Monsanto Technology is subject to this Agreement and they must have or obtain their own Agreement to harvest or use, transfer or sell the harvested crop.

l. To keep and provide Monsanto and its representatives following Monsanto’s actual (or attempted) oral communication, and no later than seven (7) days after the date of its written or electronic request:

1. copies of all records, receipts, or other documents that could be relevant to Grower’s performance of this Agreement, including but not limited to, a list of all locations planted by or on behalf of Grower, crop insurance records, disaster assistance applications, all records of Agriculture and Agri-Food Canada or any other government agency or organization administering the AgriStability, AgriInsurance, AgriInvest, or AgriRecovery programs or similar programs whether federally or provincially, and grower/dealer/retailer/appliator records for seed and chemical purchases and applications; and
2. the identity of, and access to, land farmed by or at the direction of Grower (including refuge areas) and bins, wagons, or seed storage containers used or under the control or direction of Grower, for purposes of examining and taking samples of crops, crop residue or seeds located therein.

m. To promptly notify Monsanto should any Grower Information provided to Monsanto herein change.

n. To direct crops or materials produced from the Seed only to appropriate grain handlers and/or markets to prevent movement to markets where the grain has not yet received regulatory approval for import and to notify such grain handlers that its crop has not yet received that approval. Grower acknowledges that any crop or material produced from Seed can only be exported to, or used, processed or sold in countries where all necessary regulatory approvals have been granted, and Grower purchases the Seed with that knowledge.

2. GROWER RECEIVES:

- a. A limited use license to purchase and to plant Seed pursuant to the terms of this Agreement in Canada and to apply labeled glyphosate, dicamba or glufosinate herbicides over the top of crops as applicable, unless otherwise restricted by law. Monsanto (or the respective licensor) retains ownership of the Monsanto Technologies owned by it, including the genes, technologies, and varieties. These licenses do not authorize Grower to plant Seed in Canada that has been purchased in another country or plant Seed in another country that has been purchased in Canada.
- b. A limited use license under applicable Canadian patents (other than the Dow AgroSciences Patent Rights), to use Monsanto Technologies subject to the conditions listed in this Agreement and with respect to alfalfa and/or sugarbeet Seed, the conditions listed in the Alfalfa Rider and/or Sugarbeet Rider. Dow AgroSciences LLC and Agrigenetics, Inc. (collectively “Dow AgroSciences”) licenses Grower under its applicable Canadian patents (the “Dow AgroSciences Patent Rights”) the right to use Dow AgroSciences’ Event TC1507 and Event DAS 59122-7 to the extent either is present in any SmartStax® Seed obtained by Grower pursuant to this Agreement, with Monsanto being authorized to act on Dow AgroSciences’ behalf for this Agreement, subject to the conditions listed in this Agreement.

3. GENERAL TERMS:

a. **Term:** This Agreement will remain in effect until either Grower or Monsanto chooses to terminate the Agreement, as provided below.

b. **Modification:** Monsanto may unilaterally revise the terms and conditions of this Agreement including the TUG, or seed bag, label and/or tag incorporated herein from time to time. Monsanto will notify Grower of any amended terms. If the Grower has provided Monsanto an e-mail address in conjunction with this Agreement, Monsanto may send Agreement amendments and new stewardship information to Grower by e-mail or mail. Continuing use of Monsanto Technologies after receipt of any amended terms constitutes Grower’s agreement to be bound by the amended terms of this Agreement.

c. **Transferability:** Grower may not transfer its rights or obligations to anyone else without the written consent of Monsanto. If Grower’s rights or obligations are transferred with Monsanto’s consent or by operation of law, this Agreement is binding on the person or entity receiving the transferred rights or obligations. Monsanto may assign this Agreement to an affiliate without Grower’s consent.

d. **Binding Effect:** If any provision of this Agreement is determined to be void or unenforceable, the remaining provisions shall remain in full force and effect.

e. Termination: Grower may terminate this Agreement in whole, for any reason, effective immediately by delivering written notice via certified mail to Monsanto. Grower must deliver the notice of termination to Monsanto Canada ULC, Attn: Trait Operations, #130, 160 Quarry Park Blvd. SE, Calgary, AB T2C 3G3. Monsanto may terminate this Agreement for any reason, in whole or in part, effective immediately by delivering written notice to Grower at the address provided by Grower. Upon termination, whether by Grower or by Monsanto, Grower's responsibilities and the other terms herein shall survive (such as but not limited to Grower's obligation to use Seed for a single commercial crop) as to Seed previously purchased or used by Grower. If Grower breaches the terms of this Agreement, Monsanto may terminate effective immediately Grower's rights under this Agreement. Grower will not be entitled to obtain a future limited-use license from Monsanto unless Monsanto provides Grower with specific written notice expressly recognizing the breach and termination of this Agreement and granting a new limited-use license. Grower expressly acknowledges that Grower's submission of a new Technology Stewardship Agreement and Monsanto's issuance of a new license number shall not satisfy the specific written notice reference above and that any such action shall have no legal effect. If Grower is found by any court to have breached any term of this Agreement and/or to have infringed one or more of the Canadian patents or PBRs, Grower agrees that, among other things, Monsanto and Dow AgroSciences, as appropriate, shall be entitled to interim, interlocutory, and permanent injunctions enjoining Grower and any individual and/or entity acting on Grower's behalf or in concert therewith from making, using, selling, or offering Seed for sale. Additionally, Grower agrees that any such finding of infringement by Grower shall entitle Monsanto and Dow AgroSciences, as appropriate, to patent infringement damages or an accounting of profits to the full extent authorized by the Patent Act, R.S.C., 1985, c. P-4. Grower will also be liable for all breach of contract damages.

f. Legal Fees and Disbursements: If Grower is found by any court to have infringed one or more of the Canadian patents covering Monsanto Technologies or otherwise to have breached this Agreement, Grower agrees to pay Monsanto and the licensed Monsanto Technology provider(s) and Dow AgroSciences, as appropriate, their legal fees and disbursements related to the case plus any other expenses incurred in the investigation of the breach and/or infringement.

g. Governing Law: This Agreement and the parties' relationship shall be governed by the laws of the Province of Alberta and Canada (without regard to the choice of law rules).

h. Waiver: The failure of Monsanto or any owners of patents to exercise one or more of its rights under this Agreement on one or more occasions shall not be deemed a waiver on the part of Monsanto or such patent owner to exercise such right(s) on any subsequent occasion.

i. Entire Agreement: This Agreement, along with provisions in the TUG and/or on seed bag and/or tag, incorporated into this Agreement, encompass the entire agreement of the parties, and supersede all previous understandings and agreements between the parties, whether oral or written. Grower also agrees that such provisions (the terms, warranties, and disclaimers and limitations as to warranties, damages, and remedies) are terms and conditions of sale and cannot be modified or amended at any time except in writing signed by Monsanto.

4. GROWER CLAIMS AND REMEDIES:

a. Notice Requirement: As a condition precedent to Grower or any other person with an interest in Grower's crop asserting any claim, action, or dispute against Monsanto and/or any seller of Seed regarding performance or non-performance of Monsanto Technologies or Seed, Grower must provide a written, prompt, and timely notice to Monsanto (regarding performance or non-performance of the Monsanto Technologies) and to the seller of any Seed (regarding performance or non-performance of the Seed) within sufficient time to allow an in-field inspection of the crop(s) about which any controversy, claim, action, or dispute is being asserted. The notice will be timely only if it is delivered 15 days or less after Grower first observes the issue(s) regarding performance or non-performance of the Monsanto Technology and/or the Seed. The notice shall include a statement setting forth the nature of the claim, name of the Monsanto Technology, and Seed hybrid or variety. Grower must deliver the notice to Monsanto Canada ULC, Attn: Trait Operations, #130, 160 Quarry Park Blvd. SE, Calgary, AB T2C 3G3.

b. Limited Warranty and Disclaimer of Warranties: Monsanto warrants the Monsanto Technologies licensed hereunder only to the extent specifically set forth on the seed bag and/or tag and warrants that the Monsanto Technologies licensed hereunder will perform only as specifically set forth in the TUG when used in accordance with directions. This warranty applies only to Monsanto Technologies contained in planting Seed that has been purchased from Monsanto and seed companies licensed by Monsanto or the seed company's authorized dealers and distributors. EXCEPT FOR THE EXPRESS WARRANTIES IN THE LIMITED WARRANTY SET FORTH ABOVE, MONSANTO MAKES NO OTHER WARRANTIES OF ANY KIND, AND DISCLAIMS ALL OTHER WARRANTIES, WHETHER ORAL OR WRITTEN, EXPRESSED OR IMPLIED, INCLUDING ANY WARRANTY OF THE NON-INFRINGEMENT OF THIRD PARTY PATENTS AND IMPLIED WARRANTIES OF MERCHANTABILITY OR FITNESS FOR PARTICULAR PURPOSE.

c. Grower's Exclusive Limited Remedy: THE EXCLUSIVE REMEDY OF GROWER AND THE LIMIT OF THE LIABILITY OF MONSANTO OR ANY SELLER FOR ANY AND ALL LOSSES, INJURY OR DAMAGES RESULTING FROM THE USE OR HANDLING OF SEED (INCLUDING CLAIMS BASED IN CONTRACT, NEGLIGENCE, PRODUCT LIABILITY, STRICT LIABILITY, TORT, OR OTHERWISE) SHALL BE THE PRICE PAID BY GROWER FOR THE QUANTITY OF THE SEED INVOLVED OR, AT THE ELECTION OF MONSANTO OR THE SEED SELLER, THE REPLACEMENT OF THE SEED. IN NO EVENT SHALL MONSANTO OR ANY SELLER BE LIABLE FOR ANY INCIDENTAL, CONSEQUENTIAL, SPECIAL, OR PUNITIVE DAMAGES.

d. Forum Selection: ANY CLAIM, SUIT, ACTION OR PROCEEDING ARISING OUT OF OR RELATING IN ANY WAY WITH THIS AGREEMENT AND/OR THE USE OF THE SEED OF THE MONSANTO TECHNOLOGIES SHALL EXCLUSIVELY BE BROUGHT IN ANY CANADIAN PROVINCIAL COURT IN THE PROVINCE OF ALBERTA HAVING JURISDICTION OVER THE SUBJECT MATTER THEREOF OR THE FEDERAL COURT, AS APPLICABLE. THE PARTIES WAIVE AND AGREE NOT TO RAISE ANY OBJECTION THAT EITHER MIGHT NOW OR HEREINAFTER HAVE TO THE BRINGING OF ANY SUCH SUIT, ACTION OR PROCEEDING IN ANY SUCH COURT.

2020 ALFALFA RIDER

TERMS AND CONDITIONS

The following terms and conditions of the Alfalfa Rider (the “Rider”) supplement the Technology Stewardship Agreement (the “TSA” or the “Agreement”), are enforceable under that Agreement as well as independently and separately enforceable from the Agreement, and are applicable to Grower’s purchase or use of HarvXtra® Alfalfa with Roundup Ready® Technology. This Rider is entered into between Grower and Forage Genetics International, LLC (“FGI”) and consists of the terms and conditions set forth below. Capitalized terms used but not defined herein shall have the meanings ascribed to them in the Agreement.

This Rider grants Grower a limited license to use the following technologies in accordance with the terms of this Rider: HarvXtra® Alfalfa with Roundup Ready® Technology, and Plant Breeders rights protections owned or exclusively licensed to FGI and any future seed technologies developed, licensed or owned by FGI that are made available to Grower (“FGI Technologies”), with Monsanto authorized to act on FGI’s behalf. Seed containing FGI Technologies are collectively referred to herein as (“Alfalfa Seed”). The licensed Canadian patents and/or PBR certificates for FGI Technologies can be found at the following web page: monsantotechnology.com and/or on the product label.

This Rider also contains Grower’s stewardship responsibilities and requirements associated with the use of Alfalfa Seed and FGI Technologies.

1. GROWER AGREES:

- a. To acquire Alfalfa Seed only from authorized seed companies in Canada with technology license(s) from FGI for the applicable FGI Technology(ies) or from a licensed company’s dealer authorized to sell such licensed Alfalfa Seed in Canada.
- b. To obtain and read before planting and strictly follow the applicable requirements of the Technology Use Guide (“TUG”) and seed bag tag, as each may be amended from time to time, which TUG and seed bag tag are incorporated into and are a part of this Rider and to cooperate and comply with these requirements which FGI or Monsanto communicates or makes available to Grower. Further, Grower acknowledges that compliance with the foregoing stewardship requirements is a fundamental term of this Rider, and Grower may lose its limited use license to use these products if Grower fails to follow this Rider. FGI further advises Grower to follow the recommendations provided in the TUG and seed bag tag. Grower may obtain additional copies of the TUG by contacting Monsanto at 1-800-667-4944 or by going to tug.bayer.com.
- c. To pay all applicable royalties and technology fees for the use of the FGI Technologies and applicable fees due FGI that are part of, associated with the Alfalfa Seed purchase price or that are invoiced for the Alfalfa Seed. If Grower fails to pay FGI or any wholly owned FGI subsidiaries, for costs of Alfalfa Seed, FGI Technologies, and/or royalties, Grower agrees to pay FGI default late fees at the rate of 18% per annum (or the maximum allowed by law, whichever is less) plus reasonable legal fees and disbursements, and all other costs of collection incurred by FGI or any of its subsidiaries. FGI or any subsidiary has the right of set-off.
- d. To use Alfalfa Seed solely for a commercial crop in Canada as provided below. Grower may use a single planting of HarvXtra® Alfalfa with Roundup Ready® Technology for multiple cuttings.
- e. Only to plant HarvXtra® Alfalfa with Roundup Ready® Technology in the following provinces: Ontario, Quebec, New Brunswick, Nova Scotia, Prince Edward Island and Newfoundland (the “Eastern Provinces”).
- f. That all crops or hay products produced from plantings of HarvXtra® Alfalfa with Roundup Ready® Technology in the Eastern Provinces can only be used on farm or otherwise used in the United States or Canada.
- g. Not to transfer any Seed to any other person or entity for planting, and not to export any Alfalfa Seed.
- h. Not to save or clean any crop produced from Alfalfa Seed for planting, and not to supply seed produced from Alfalfa Seed to anyone for planting.
- i. Not to plant and/or clean Alfalfa Seed for seed.
- j. Not to plant any Alfalfa Seed, or any seed produced from Alfalfa Seed, for crop breeding, research, or generation of herbicide or other registration data. Grower may not conduct research on Grower’s crop produced from Alfalfa Seed without FGI’s prior written consent, except to make agronomic comparisons and conduct yield testing solely for Grower’s own use. FGI makes available separate license agreements to academic institutions for research.
- k. To use on crops containing FGI Technology only pesticides labeled for such a use and follow current label directions. FGI DOES NOT MAKE ANY REPRESENTATIONS, WARRANTIES OR RECOMMENDATIONS CONCERNING THE USE OF PRODUCTS MANUFACTURED OR MARKETED BY OTHER COMPANIES, INCLUDING BUT NOT LIMITED TO THOSE THAT ARE LABELED FOR USE IN CROPS CONTAINING FGI TECHNOLOGY. FGI SPECIFICALLY DISCLAIMS ALL RESPONSIBILITY FOR THE USE OF THESE PRODUCTS IN CROP(S) CONTAINING FGI TECHNOLOGY. ALL QUESTIONS AND COMPLAINTS ARISING FROM THE USE OF PRODUCTS MANUFACTURED OR MARKETED BY OTHER COMPANIES, OR THE IMPACT TO FGI TECHNOLOGY FROM THE USE OF SUCH PRODUCTS, SHOULD BE DIRECTED TO THOSE COMPANIES.
- l. To accept and continue the obligations of this Rider on any new land purchased or leased by Grower that has Alfalfa Seed planted on it by a previous owner or possessor of the land; and to timely notify in writing purchasers or lessees of land owned by Grower that has Alfalfa Seed planted on it that the FGI Technology is subject to this Rider and they must have or obtain their own Technology Stewardship Agreement and Rider.
- m. To keep and provide FGI, Monsanto and their representatives following FGI and/or Monsanto’s actual (or attempted) oral communication, and no later than seven (7) days after the date of its written or electronic request:
 1. copies of all records, receipts, or other documents that could be relevant to Grower’s performance of this Agreement and Rider, including but not limited to, a list of all locations planted by or on behalf of Grower, crop insurance records, disaster assistance applications, all records of Agriculture and Agri-Food Canada or any other government agency or organization administering the AgriStability, AgrilInsurance, AgrilInvest, or AgriRecovery programs or similar programs whether federally or provincially, and grower/dealer/retailer/applcator records for seed and chemical purchases and applications; and
 2. the identity of, and access to, land farmed by or at the direction of Grower (including refuge areas) and bins, wagons, or seed storage containers used or under the control or direction of Grower, for purposes of examining and taking samples of crops, crop residue or seeds located therein.
- n. To promptly notify FGI or Monsanto should any Grower Information provided herein change.
- o. To direct any crops or hay products produced from HarvXtra® Alfalfa with Roundup Ready® Technology seed or crops only to United States or Canada domestic use, except where FGI expressly grants permission in writing. Grower further agrees that it will only sell or convey such crops or hay products to persons or entities that agree they will not ship such crops or hay products outside the United States or Canada, except where FGI expressly grants permission in writing.
- p. Grower acknowledges that any crop or hay product produced from Alfalfa Seed can only be exported to, or used, processed or sold in countries where all necessary regulatory approvals have been granted, and Grower purchases the Alfalfa Seed with that knowledge.
- q. Until FGI expressly grants permission in writing (which will be withheld pending necessary import approvals), not to export, or to sell or convey to any person or entity that intends to export, HarvXtra® Alfalfa with Roundup Ready® Technology seed or crops or hay products produced from such seed to export countries where all necessary regulatory approvals have not been granted.
- r. HarvXtra® Alfalfa with Roundup Ready® Technology seed may not be planted for the production of sprouts.

NOTICE REGARDING GROWER INFORMATION

- Please review our privacy policy at <https://www.cropscience.bayer.ca/en/Privacy-Statement> (the “Privacy Policy”) for more information about how Monsanto handles your personal information. If you have any questions or concerns relating to Monsanto’s privacy practices, please contact Monsanto’s privacy officer by e-mail at AskUs@cropscience.bayer.ca.
- For more information about how FGI handles your personal information or if you have other questions or concerns relating to FGI’s privacy practices, please contact FGI’s privacy officer by e-mail at info@foragegenetics.com or by telephone at 1-855-227-8917.
- By providing the personal information in the Agreement and by using the FGI Technologies contemplated in this Alfalfa Rider you are consenting to the collection, use and disclosure of your personal information by Monsanto, its affiliates, agents, and representatives; and by FGI, its agents, representatives and licensees (including your contact information, information about your farming practices and information about the specific nature and quantity of alfalfa that you farm using FGI Technologies) via electronic communication or otherwise, for the purposes of administering and enforcing this Alfalfa Rider, and to assist FGI in establishing and maintaining a business relationship with you including to better understand your needs and preferences, to develop and produce new products and services, and to assist FGI in developing its business and operations.

2. GROWER RECEIVES FROM FGI:

a. A limited use license to purchase and to plant Alfalfa Seed pursuant to the terms of this Rider in Canada, and to apply labeled glyphosate herbicides over the top of crops as applicable, unless otherwise restricted by law. FGI (or the respective licensor) retains ownership of the FGI Technologies owned by it, including the gene technologies and varieties. These licenses do not authorize Grower to plant Alfalfa Seed in Canada that has been purchased in another country or plant Alfalfa Seed in another country that has been purchased in Canada.

b. A limited use license under applicable Canadian patents, to use FGI Technologies subject to the conditions listed in this Rider.

3. GENERAL TERMS:

a. Term: This Rider will remain in effect until either Grower or FGI chooses to terminate the Rider, as provided below.

b. Modification: FGI or Monsanto may unilaterally revise the terms and conditions of this Rider, including the Agreement and TUG incorporated herein, from time to time. FGI or Monsanto will send Grower any amended terms, including information regarding new and existing FGI Technologies and any additions or deletions to the Canadian patents licensed under this Rider. If Grower has provided FGI or Monsanto an e-mail address in conjunction with the Agreement or this Rider, FGI or Monsanto may send Rider amendments and new stewardship information to Grower by e-mail or mail. Grower's continued use of FGI Technologies after receipt of any amended terms constitutes Grower's agreement to be bound by the amended terms of this Rider.

c. Transferability: Grower may not transfer its rights or obligations to anyone else without the written consent of FGI. If Grower's rights or obligations are transferred with FGI's consent or by operation of law, this Rider is binding on the person or entity receiving the transferred rights or obligations.

d. Binding Effect: If any provision of this Rider is determined to be void or unenforceable, the remaining provisions shall remain in full force and effect.

e. Termination: Grower may terminate this Rider effective immediately by delivering written notice to FGI. Grower must deliver the notice of termination to Monsanto Canada ULC, Attn: Trait Operations, #130, 160 Quarry Park Blvd. SE, Calgary, AB T2C 3G3. FGI may terminate this Rider for any reason, in whole or in part, by delivering written notice to Grower. Upon termination, whether by Grower, Monsanto, or FGI, Grower's responsibilities and the other terms herein shall survive (such as but not limited to Grower's obligation to use Alfalfa Seed for a single commercial crop) as to Alfalfa Seed previously purchased or used by Grower. If Grower breaches the terms of this Rider, FGI may terminate effective immediately Grower's rights under this Rider. Grower will not be entitled to obtain a future limited-use license from FGI unless FGI provides Grower with specific written notice expressly recognizing the breach and termination of this Rider and granting a new limited-use license. Grower expressly acknowledges that Grower's submission of a new Technology Stewardship Agreement or Rider and FGI's or Monsanto's issuance of a new license number shall not satisfy the specific written notice reference above and that any such action shall have no legal effect. If Grower is found by any court to have breached any term of this Rider and/or to have infringed one or more of the Alfalfa Patent Rights, Grower agrees that, among other things, FGI and Monsanto, as appropriate, shall be entitled to interim, interlocutory, and permanent injunctions enjoining Grower and any individual and/or entity acting on Grower's behalf or in concert therewith from making, using, selling, or offering Alfalfa Seed for sale. Additionally, Grower agrees that any such finding of infringement by Grower shall entitle Monsanto and FGI, as appropriate, to patent infringement damages or an accounting of profits to the full extent authorized by the *Patent Act*, R.S.C., 1985, c. P-4. Grower will also be liable for all breach of contract damages.

f. Legal Fees and Disbursements: If Grower is found by any court to have infringed one or more of the Alfalfa Patent Rights or otherwise to have breached any term of this Rider, Grower agrees to pay FGI and Monsanto, as appropriate their legal fees and disbursements related to the case plus any other expenses incurred in the investigation of the breach and/or infringement.

g. Governing Law and Forum: This Rider and the parties' relationship shall be governed by the laws of Alberta and Canada (without regard to the choice of law rules). ANY CLAIM, SUIT, ACTION OR PROCEEDING ARISING OUT OF OR RELATING IN ANY WAY WITH THIS RIDER, AGREEMENT, FGI, THE ALFALFA SEED AND/OR THE USE OF THE SEED OR THE FGI TECHNOLOGIES SHALL EXCLUSIVELY BE BROUGHT IN ANY CANADIAN PROVINCIAL COURT IN THE PROVINCE OF ALBERTA HAVING JURISDICTION OVER THE SUBJECT MATTER THEREOF, OR THE FEDERAL COURT, AS APPLICABLE. THE PARTIES WAIVE AND AGREE NOT TO RAISE ANY OBJECTION THAT EITHER MIGHT NOW OR HEREAFTER HAVE TO THE BRINGING OF ANY SUCH SUIT, ACTION OR PROCEEDING IN ANY SUCH COURT.

h. Waiver: The failure of FGI or Monsanto or any owners of patents or PBRs to exercise one or more of its rights under this Agreement on one or more occasions shall not be deemed a waiver on the part of FGI or Monsanto or such patent owner to exercise such right(s) on any subsequent occasion.

i. Entire Agreement: This Agreement and Rider, along with provisions in the TUG and/or on bag tags, which are incorporated herein, encompass the entire agreement of the parties, and supersede all previous understandings and agreements between the parties, whether oral or written. Grower hereby acknowledges and represents that Grower has not relied on any representation, assertion, guarantee, warranty, collateral contract or other assurance, except those set out in this Agreement and Rider, made by or on behalf of any other party or any other person or entity whatsoever, prior to Grower's signing of this Agreement and Rider or purchasing Alfalfa Seed pursuant to the license granted hereunder. Grower also agrees that such provisions (the terms, warranties, and disclaimers and limitations as to warranties, damages, and remedies) are terms and conditions of sale and cannot be modified or amended at any time except in writing signed by FGI.

4. GROWER CLAIMS AND REMEDIES:

a. Notice requirement: As a condition precedent to Grower or any other person with an interest in Grower's crop asserting any claim, action, or dispute against FGI and/or any seller of Alfalfa Seed regarding performance or non-performance of FGI Technologies or Alfalfa Seed, Grower must provide a written, prompt, and timely notice to FGI (regarding performance or non-performance of the FGI Technologies) and to the seller of any Alfalfa Seed (regarding performance or non-performance of the Alfalfa Seed) within sufficient time to allow an in-field inspection of the crop(s) about which any controversy, claim, action, or dispute is being asserted. The notice will be timely only if it is delivered 15 days or less after Grower first observes the issue(s) regarding performance or non-performance of the FGI Technology and/or the Alfalfa Seed. The notice shall include a statement setting forth the nature of the claim, name of the FGI Technology, and Alfalfa Seed hybrid or variety. Grower must deliver the notice to Monsanto Canada ULC, Attn: Trait Operations, #130, 160 Quarry Park Blvd. SE, Calgary, AB T2C 3G3.

b. Limited Warranty and Disclaimer of Warranties: FGI warrants the FGI Technology licensed hereunder only to the extent specifically set forth on the seed bag and/or tag and warrants that the FGI Technologies licensed hereunder will perform as specifically set forth in the TUG when used in accordance with directions. This warranty applies only to HarvXtra® Alfalfa with Roundup Ready® Technology contained in planting Alfalfa Seed that has been purchased from FGI and seed companies licensed by FGI or the seed company's authorized dealers or distributors. **EXCEPT FOR THE EXPRESS WARRANTIES IN THE LIMITED WARRANTY SET FORTH ABOVE, FGI MAKES NO OTHER WARRANTIES OF ANY KIND, AND DISCLAIMS ALL OTHER WARRANTIES, WHETHER ORAL OR WRITTEN, EXPRESSED OR IMPLIED INCLUDING THE IMPLIED WARRANTIES OF MERCHANTABILITY, FITNESS FOR PARTICULAR PURPOSE, AND NON-INFRINGEMENT OF THIRD PARTY PATENTS. THIS WARRANTY IS VOID IF THE SEED IS REPACKAGED BY ANY PARTY OTHER THAN FGI OR PARTIES AUTHORIZED BY FGI.**

c. Grower's Exclusive Limited Remedy: THE EXCLUSIVE REMEDY OF GROWER AND THE LIMIT OF THE LIABILITY OF FGI OR ANY SELLER FOR ANY AND ALL LOSSES, INJURY OR DAMAGES RESULTING FROM THE USE OR HANDLING OF ALFALFA SEED (INCLUDING CLAIMS BASED IN CONTRACT, NEGLIGENCE, PRODUCT LIABILITY, STRICT LIABILITY, TORT, OR OTHERWISE) SHALL BE THE PRICE PAID BY GROWER FOR THE QUANTITY OF THE ALFALFA SEED INVOLVED OR, AT THE ELECTION OF FGI OR THE SEED SELLER, THE REPLACEMENT OF THE ALFALFA SEED. IN NO EVENT SHALL FGI OR ANY SELLER BE LIABLE FOR ANY INCIDENTAL, CONSEQUENTIAL, SPECIAL, OR PUNITIVE DAMAGES.

2020 SUGARBEET RIDER

TERMS AND CONDITIONS

The following terms and conditions of the Sugarbeet Rider (the “Rider”) supplement the Technology Stewardship Agreement (the “TSA” or the “Agreement”), are enforceable under that Agreement as well as independently and separately enforceable from the Agreement, and are applicable to Grower’s purchase or use of Roundup Ready® Sugarbeet. This Rider is entered into between Grower and KWS SAAT SE (KWS) and consists of the terms and conditions set forth below. Capitalized terms used but not defined herein shall have the meanings ascribed to them in the Agreement.

This Rider grants Grower a limited license to use Roundup Ready® Sugarbeet in accordance with the terms of this Rider and any future seed technologies developed, licensed or owned by KWS (“KWS Technologies”), with respect to which KWS has authorized Monsanto to act on KWS’s behalf in accordance with the parties’ commercial services agreement that are made available to Grower. Seed containing KWS Technologies is referred to herein as (“Sugarbeet Seed”). The licensed Canadian patents for KWS Technologies can be found at the following web page: www.monsantotechnology.com and/or on the product label.

This Rider also contains Grower’s stewardship responsibilities and requirements associated with the use of Sugarbeet Seed and KWS Technologies.

1. GROWER AGREES:

- a. To acquire Sugarbeet Seed only from authorized seed companies in Canada with technology license(s) from KWS for the applicable KWS Technology(ies) or from a licensed company’s representative authorized to sell such licensed Sugarbeet Seed in Canada.
- b. To obtain and read before planting and strictly follow the applicable requirements of the Technology Use Guide (“TUG”) and seed package label, as each may be amended from time to time, which TUG and seed package label are incorporated into and are a part of this Rider; and to cooperate and comply with these and any additional stewardship programs KWS or Monsanto communicates or makes available to Grower. Further, Grower acknowledges that compliance with the foregoing stewardship requirements is a fundamental term of this Rider, and Grower may lose its limited use license to use these products if Grower fails to follow the stewardship guidelines required by this Rider. KWS further advises Grower to follow the recommendations provided in the TUG and seed package label. Grower may obtain additional copies of the TUG by contacting Monsanto at 1-800-667-4944 or by going to tug.bayer.com.
- c. To use Sugarbeet Seed solely for a commercial crop in Canada as provided below. Grower may use a single planting of Roundup Ready® Sugarbeet to be processed for sugar, for energy production, or for animal feed.
- d. Not to transfer any Sugarbeet Seed to any other person or entity for planting, and not to export any Sugarbeet Seed.
- e. Not to plant any Sugarbeet Seed, or any seed produced from Sugarbeet Seed, for crop breeding, research, molecular analysis, generation of herbicide, or other registration data. Grower may not conduct research on Grower’s crop produced from Sugarbeet Seed without KWS’s prior written consent, except to make agronomic comparisons and conduct yield testing solely for Grower’s own use.
- f. To use on crops containing KWS Technology only pesticides labeled for such use and follow current label directions. KWS DOES NOT MAKE ANY REPRESENTATIONS, WARRANTIES OR RECOMMENDATIONS CONCERNING THE USE OF PRODUCTS MANUFACTURED OR MARKETED BY OTHER COMPANIES, INCLUDING BUT NOT LIMITED TO THOSE THAT ARE LABELED FOR USE IN CROPS CONTAINING KWS TECHNOLOGY. KWS SPECIFICALLY DISCLAIMS ALL RESPONSIBILITY FOR THE USE OF THESE PRODUCTS IN CROP(S) CONTAINING KWS TECHNOLOGY. ALL QUESTIONS AND COMPLAINTS ARISING FROM THE USE OF PRODUCTS MANUFACTURED OR MARKETED BY OTHER COMPANIES, OR THE IMPACT TO KWS TECHNOLOGY FROM THE USE OF SUCH PRODUCTS, SHOULD BE DIRECTED TO THOSE COMPANIES.

- g. To keep and provide KWS and its representatives following KWS’s actual (or attempted) oral communication, and no later than seven (7) days after the date of its written or electronic request:

1. copies of all records, receipts, or other documents that could be relevant to Grower’s performance of this Rider, including but not limited to, a list of all locations planted by or on behalf of Grower, crop insurance records, disaster assistance applications, all records of Agriculture and Agri-Food Canada or any other government agency or organization administering the AgriStability, AgriInsurance, AgriInvest, or AgriRecovery programs or similar programs whether federally or provincially, and grower/dealer/retailer/applicator records for seed and chemical purchases and applications; and
2. the identity of, and access to, land farmed by or at the direction of Grower (including refuge areas) and bins, wagons, or seed storage containers used or under the control or direction of Grower, for purposes of examining and taking samples of crops, crop residue or seeds located therein.

- h. To promptly notify KWS and Monsanto should any Grower Information provided herein change.

2. GROWER RECEIVES FROM KWS:

- a. A limited use license to purchase and to plant Sugarbeet Seed pursuant to the terms of this Rider in Canada, except in any province where the products do not have all the necessary approvals and to apply labeled glyphosate herbicides over the top of crops as applicable, unless otherwise restricted by law. KWS (or the respective licensor) retains ownership of the KWS Technologies owned by it, including the gene technologies. These licenses do not authorize Grower to plant Sugarbeet Seed in Canada that has been purchased in another country or plant Sugarbeet Seed in another country that has been purchased in Canada.
- b. A limited use license under applicable Canadian patents, to use KWS Technologies subject to the conditions listed in this Rider.

3. GENERAL TERMS:

- a. **Term:** This Rider will remain in effect until either Grower or KWS chooses to terminate the Rider, as provided below.
- b. **Modification:** KWS may unilaterally revise the terms and conditions of this Rider, including the Agreement and TUG incorporated herein, from time to time. KWS or Monsanto will notify Grower of any amended terms. If Grower has provided KWS or Monsanto an e-mail address in conjunction with the Agreement or this Rider, KWS or Monsanto may send Rider amendments and new stewardship information to Grower by e-mail or mail. Grower’s continued use of KWS Technologies after receipt of any amended terms constitutes Grower’s agreement to be bound by the amended terms of this Rider.
- c. **Transferability:** Grower may not transfer its rights or obligations to anyone else without the written consent of KWS. If Grower’s rights or obligations are transferred with KWS’s consent or by operation of law, this Rider is binding on the person or entity receiving the transferred rights or obligations.
- d. **Binding Effect:** If any provision of this Rider is determined to be void or unenforceable, the remaining provisions shall remain in full force and effect.
- e. **Termination:** Grower may terminate this Rider effective immediately by delivering written notice to KWS. Grower must deliver the notice of termination to Monsanto Canada ULC, Attn: Trait Operations, #130, 160 Quarry Park Blvd. SE, Calgary, AB T2C 3G3. KWS may terminate this Rider for any reason, in whole or in part, by delivering written notice to Grower. Upon termination, whether by Grower, Monsanto, or KWS, Grower’s responsibilities and the other terms herein shall survive (such as but not limited to Grower’s obligation to use Sugarbeet Seed for a single commercial crop) as to Sugarbeet Seed previously purchased or used by Grower. If Grower breaches the terms of this Rider, KWS may terminate effective immediately Grower’s rights under this Rider. Grower will not be entitled to obtain a future limited-use license from KWS unless KWS provides Grower with specific written notice expressly recognizing the breach and termination of this Rider and granting a new limited-use license. Grower expressly acknowledges that Grower’s submission of a new Technology Stewardship Agreement or Rider and KWS’s issuance of a new license number shall not satisfy the specific written notice reference above and that any such action shall have no legal effect. If Grower is found by any court to have breached any term of this Rider and/or to have infringed one or more of the Sugarbeet Patent Rights, Grower agrees that, among other things, KWS shall be entitled to interim, interlocutory, and permanent injunctions enjoining Grower and any individual and/or entity acting on Grower’s behalf or in concert therewith from making, using, selling, or offering Sugarbeet Seed for sale. Additionally, Grower agrees that any such finding of infringement by Grower shall entitle Monsanto and KWS, as appropriate, to patent infringement damages or an accounting of profits to the full extent authorized by the *Patent Act*, R.S.C., 1985, c. P-4. Grower will also be liable for all breach of contract damages.
- f. **Legal Fees and Disbursements:** If Grower is found by any court to have infringed one or more of the Sugarbeet Patent Rights or otherwise to have breached any term of this Rider, Grower agrees to pay KWS as appropriate, their legal fees and disbursements related to the case plus any other expenses incurred in the investigation of the

breach and/or infringement.

g. Governing Law and Forum: This Rider and the parties' relationship shall be governed by the laws of the Province of ALBERTA and Canada (without regard to the choice of law rules). ANY CLAIM, SUIT, ACTION OR PROCEEDING ARISING OUT OF OR RELATING IN ANY WAY WITH THIS RIDER, AGREEMENT, KWS TECHNOLOGIES, THE SUGARBEET SEED AND/OR THE USE OF THE SEED OR THE KWS TECHNOLOGIES SHALL EXCLUSIVELY BE BROUGHT IN ANY CANADIAN PROVINCIAL COURT IN THE PROVINCE OF ALBERTA HAVING JURISDICTION OVER THE SUBJECT MATTER THEREOF, OR THE FEDERAL COURT, AS APPLICABLE. THE PARTIES WAIVE AND AGREE NOT TO RAISE ANY OBJECTION THAT EITHER MIGHT NOW OR HEREAFTER HAVE TO THE BRINGING OF ANY SUCH SUIT, ACTION OR PROCEEDING IN ANY SUCH COURT.

h. Waiver: The failure of KWS or any owners of patents to exercise one or more of its rights under this Rider on one or more occasions shall not be deemed a waiver on the part of KWS or such patent owner to exercise such right(s) on any subsequent occasion.

i. Entire Agreement: This Agreement and Rider, along with provisions in the TUG and/or on package labels, if applicable, which are incorporated herein, encompass the entire agreement of the parties, and supersede all previous understandings and agreements between the parties, whether oral or written. Grower hereby acknowledges and represents that Grower has not relied on any representation, assertion, guarantee, warranty, collateral contract or other assurance, except those set out in this Agreement and Rider, made by or on behalf of any other party or any other person or entity whatsoever, prior to Grower's signing of this Agreement and Rider or purchasing Sugarbeet Seed pursuant to the license granted hereunder. Grower also agrees that such provisions (the terms, warranties, and disclaimers and limitations as to warranties, damages, and remedies) are terms and conditions of sale and cannot be modified or amended at any time except in writing signed by KWS or Monsanto.

4. GROWER CLAIMS AND REMEDIES:

a. Notice Requirement: As a condition precedent to Grower or any other person with an interest in Grower's crop asserting any claim, action, or dispute against KWS and/or any seller of Sugarbeet Seed regarding performance or non-performance of KWS Technologies or Sugarbeet Seed, Grower must provide a written, prompt, and timely notice to KWS (regarding performance or non-performance of the KWS Technologies) and to the seller of any Sugarbeet Seed (regarding performance or non-performance of the Sugarbeet Seed) within sufficient time to allow an in-field inspection of the crop(s) about which any controversy, claim, action, or dispute is being asserted. The notice will be timely only if it is delivered 15 days or less after Grower first observes the issue(s) regarding performance or non-performance of the KWS Technology and/or the Sugarbeet Seed. The notice shall include a statement setting forth the nature of the claim, name of the KWS Technology, and Sugarbeet Seed product. Grower must deliver the notice to Monsanto Canada ULC, Attn: Trait Operations, #130, 160 Quarry Park Blvd. SE, Calgary, AB T2C 3G3.

b. Limited Warranty and Disclaimer of Warranties: KWS warrants the KWS Technology licensed hereunder only to the extent specifically set forth on the seed container and/or package label and warrants that the KWS Technologies licensed hereunder will perform only as specifically set forth in the TUG when used in accordance with directions. This warranty applies only to Roundup Ready® Sugarbeet contained in planting Sugarbeet Seed that has been purchased from KWS and seed companies licensed by KWS or the seed company's authorized dealers or distributors. EXCEPT FOR THE EXPRESS WARRANTIES IN THE LIMITED WARRANTY SET FORTH ABOVE, KWS MAKES NO OTHER WARRANTIES OF ANY KIND, AND DISCLAIMS ALL OTHER WARRANTIES, WHETHER ORAL OR WRITTEN, EXPRESSED OR IMPLIED INCLUDING THE IMPLIED WARRANTIES OF MERCHANTABILITY, FITNESS FOR PARTICULAR PURPOSE, AND NON-INFRINGEMENT OF THIRD PARTY PATENTS. THIS WARRANTY IS VOID IF THE SEED IS REPACKAGED BY ANY PARTY OTHER THAN KWS.

c. Grower's Exclusive Limited Remedy: THE EXCLUSIVE REMEDY OF GROWER AND THE LIMIT OF THE LIABILITY OF KWS OR ANY SELLER FOR ANY AND ALL LOSSES, INJURY OR DAMAGES RESULTING FROM THE USE OR HANDLING OF SUGARBEET SEED (INCLUDING CLAIMS BASED IN CONTRACT, NEGLIGENCE, PRODUCT LIABILITY, STRICT LIABILITY, TORT, OR OTHERWISE) SHALL BE THE PRICE PAID BY GROWER FOR THE QUANTITY OF THE SUGARBEET SEED INVOLVED OR, AT THE ELECTION OF KWS OR THE SEED SELLER, THE REPLACEMENT OF THE SUGARBEET SEED. IN NO EVENT SHALL KWS OR ANY SELLER BE LIABLE FOR ANY INCIDENTAL, CONSEQUENTIAL, SPECIAL, OR PUNITIVE DAMAGES.



IMPORTANT: Produce Marketing and Stewardship Requirements for Performance Series® Sweet Corn: This product has been approved for import into key export markets with functioning regulatory systems. Any crop or material produced from this product can be exported to, or used, processed or sold only in countries where all necessary regulatory approvals have been granted. It is a violation of national and international law to move material containing biotechnology traits across boundaries into nations where their import is not permitted. It is the growers' responsibility to talk to their produce handler or purchaser to confirm their buying position for this produce so that the marketing requirements can be met.

Herbicide Information for Performance Series® Sweet Corn: Roundup® brand glyphosate-only agricultural herbicides are approved for use on Performance Series® Sweet Corn (containing Roundup Ready® 2 Technology) in Canada. If the directions for use on sweet corn with Roundup Ready® 2 Technology (which includes Performance Series® Sweet Corn) are not listed in the product label attached to the product you purchased, contact your Monsanto company representative.

Performance Series® Sweet Corn Insect Resistance Management (IRM) – Post-Harvest Requirements: Crop destruction must occur no later than 30 days following harvest, and preferably within 14 days. The allowed crop destruction methods are: rotary mowing, discing or plowing down. Crop destruction methods should destroy any surviving resistant insects.

Monsanto Company Is a Member of Excellence Through Stewardship® (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. These products have been approved for import into key export markets with functioning regulatory systems. Any crop or material produced from these products can be exported to, or used, processed or sold only in countries where all necessary regulatory approvals have been granted. It is a violation of national and international law to move material containing biotechnology traits across boundaries into nations where their import is not permitted. Growers should talk to their grain handler or product purchaser to confirm their buying position for these products. "Excellence Through Stewardship" is a registered trademark of Excellence Through Stewardship.

ALWAYS READ AND FOLLOW PESTICIDE LABEL DIRECTIONS. Roundup Ready 2 Xtend® soybeans contain genes that confer tolerance to glyphosate and dicamba. Agricultural herbicides containing glyphosate will kill crops that are not tolerant to glyphosate, and those containing dicamba will kill crops that are not tolerant to dicamba. Contact your Bayer dealer or call the Bayer technical support line at 1-800-667-4944 for recommended Roundup Ready® Xtend Crop System weed control programs. Roundup Ready® technology contains genes that confer tolerance to glyphosate, an active ingredient in Roundup® brand agricultural herbicides. Agricultural herbicides containing glyphosate will kill crops that are not tolerant to glyphosate. Liberty® Technology contains gene(s) that confer tolerance to glufosinate. Glufosinate will kill crops that are not tolerant to glufosinate. Contact your Bayer dealer or call the technical support line at 1-800-667-4944 for recommended Roundup Ready® Xtend Crop System weed control programs.

Acceleron® seed applied solution for canola contains the active ingredients difenoconazole, metalaxyl (M and S isomers), fludioxonil and thiamethoxam. Acceleron® seed applied solution for corn (fungicides and insecticide) is a combination of four separate individually registered products, which together contain the active ingredients metalaxyl, prothioconazole, fluroxystrobin and clothianidin. Acceleron® seed applied solution for soybeans (fungicides and insecticide) is a combination of four separate individually registered products, which together contain the active ingredients flupyrroxad, pyraclostrobin, metalaxyl and imidacloprid.

Acceleron®, Bayer, Bayer Cross Design, DEKALB®, Genuity™, Performance Series®, RIB Complete and Design®, RIB Complete®, Roundup Ready 2 Technology and Design™, Roundup Ready 2 Xtend®, Roundup Ready 2 Yield®, Roundup Ready®, Roundup Transorb®, Roundup WeatherMAX®, Roundup Xtend®, Roundup®, SmartStax®, Trecepta™, TruFlex™, VaporGrip®, VT Double PRO®, VT Triple PRO® and XtendiMax® are trademarks of Bayer Group, Monsanto Canada ULC licensee. Liberty®, LibertyLink® and the Water Droplet Design are trademarks of BASF. Used under license. HarvXtra® is a registered trademark of Forage Genetics International. Used under license. ©2019 Bayer Group. All rights reserved.

