CANADA TECHNOLOGY USE GUIDE

2024

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Contents

Stewardship Overview

This Technology Use Guide (TUG) is a valuable source of technical information about Bayer's current portfolio of seed products containing biotechnology-derived traits, related crop protection products, and seed treatments. It sets forth some of the requirements, recommendations, and Best Management Practices (BMPs) for the use of these products.

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

A Message About Stewardship

Bayer is committed to enhancing grower productivity and profitability through the introduction of innovative seed, trait, and crop protection 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 biotech traits and/or seed treatments agree to implement all stewardship requirements, which include, but are not limited to, the following:

- Complete, sign and submit a Technology Stewardship Agreement (TSA) and obtain a grower license number from Bayer to purchase and use seed and trait technologies covered by the TSA. If you have not read and signed a TSA, you can complete the licensing process online at these links:
  ENGLISH: **traits.bayer.ca/en/stewardship/**
  FRENCH: **traits.bayer.ca/fr/stewardship/**
- Read and comply with the current terms of the TSA before purchasing or using any seed product covered by the TSA. This TUG includes the current terms and conditions of the TSA.
- Note that the terms of the TSA and the TUG are updated by Bayer from time to time. The most recent versions of the TSA and TUG can be found online at this link: **tug.bayer.com**.
- Read, understand, and follow all the requirements and directions for use on all product labels.
- Read and understand the applicable Insect Resistance Management (IRM) requirements set out in this TUG prior to planting seed containing specific biotech traits, and comply with the specific IRM requirements for those traits as mandated by the Canadian Food Inspection Agency (CFIA).
- Use seed products that contain Bayer technologies solely for planting a single commercial crop, as defined in the current TSA.
- Comply with any additional stewardship requirements, such as grain or feed use requirements, product marketing requirements, or geographical planting restrictions that Bayer deems appropriate or necessary for proper stewardship or to comply with regulations.
- Sell crops or material containing biotech traits only to grain handlers who confirm their acceptance of applicable stewardship requirements or ensure such crops or materials are consumed by livestock on domestic farming operations where permitted to be used for animal feed.
- Do not move seed or material containing biotech traits across international boundaries or into nations where import is not permitted.
- Do not use, plant, apply, sell, promote, or distribute a product within a province where the product is not yet registered by the appropriate regulatory authorities.
- Follow all applicable stewardship recommendations as outlined in this TUG.
- Follow the Herbicide Resistance Management Recommendations and the Corn Rootworm BMPs to help minimize the risk of developing weed or insect resistance, respectively.
- Always read, understand, and follow pesticide label directions and requirements. The label is the law.
- It is important to only use pesticides that are approved in your province and only for the applications that are permitted on the pesticides' labels. Applying a pesticide in a manner not permitted on its label is a violation of federal and provincial laws, could subject you to fines, and may result in adverse license effects, including, but not limited to, termination of your TSA.
- Not all pesticide products (even if they have the same active ingredients) have the same use requirements or the same instructions for use. Do not assume that because a pesticide product is approved for use in a specific manner and at a specific time, that the same use is allowed for a different pesticide product, even with the same active ingredients.
- If you have a question about a Bayer pesticide product, please call **1-888-283-6847**.

Why is Stewardship Important?

1. Signing a TSA gives a grower access to Bayer products and Bayer technologies, including patented and/or proprietary seeds and traits. Growers also receive limited warranties on Bayer technology performance and the opportunity to participate, when eligible, in various Bayer programs.

2. Following IRM requirements helps to prevent the development of insect resistance to *B.t.* technologies, enables the long-term durability of these technologies, and meets CFIA requirements.

3. Using seed containing Bayer technologies for planting a single commercial crop encourages investment in seed innovations that help sustain long-term productivity and profitability for growers.

Crop or Material Handling Stewardship Statement

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

Bayer is a member of Excellence Through Stewardship® (ETS). Bayer products are commercialized in accordance with ETS Product Launch Stewardship Guidance, and in compliance with Bayer'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 only be exported to, or used, processed or sold in countries where all necessary regulatory approvals have been granted. It is a violation of national and international law to move material containing biotech traits across boundaries into nations where import is not permitted. Growers should talk to their grain handler or product purchaser to confirm their buying position for these products. Excellence Through Stewardship® is a registered trademark of Excellence Through Stewardship.

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 & Co. KGaA (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.

Intellectual Property Rights

If Bayer reasonably believes that a grower may have planted saved seed in violation of the terms of the TSA and/or contrary to Bayer's intellectual property rights, Bayer or Bayer's agents will request invoices and business records to confirm that the grower has not planted saved seed and instead planted the field(s) with seed purchased from an authorized dealer. This information is to be provided within seven days after a written request. At times, Bayer may also enforce its rights to inspect, test, and sample a grower's field(s) pursuant to the terms of the TSA.

If you have questions about Bayer's contractual rights and/or intellectual property rights for seed or traits or become aware of anyone who may be saving seed or otherwise planting unauthorized seed in violation of their TSA, please call **1-888-283-6847.** Or, you may send a letter to:

Seed and Trait Stewardship
#130, 160 Quarry Park Blvd. SE
Calgary, Alberta T2C 3G3

For more information on Bayer's practices related to contractual violations and/or patent infringement, please visit: **www.cropscience.bayer.ca/en/Technology-Protection**.

Anyone may provide anonymous or confidential information as follows:

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

An Important Note About Roundup Ready 2 Yield®, Roundup Ready 2 Xtend® and XtendFlex® Soybean Technologies

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

Agronomic and Weed Resistance Management Stewardship

Though Bayer no longer licenses the Roundup Ready® soybean trait, the basic agronomic stewardship requirements for a user of that technology remains. These agronomic stewardship requirements are the same as for Roundup Ready 2 Yield® Soybeans, Roundup Ready 2 Xtend® Soybeans and XtendFlex® 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 Bayer (**1-888-283-6847**).

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." Additionally, the Seeds Canada Trade Association facilitated development of a value chain document on coexistence specifically for alfalfa. For a copy of either brochure, please contact Bayer's Technical Support at **1-888-283-6847.**

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

Bayer 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, Roundup Xtend® 2 herbicide with VaporGrip® Technology and other products, Bayer 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 **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® 2 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, Bayer Technical Support (**1-888-283-6847**), 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 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.

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 or dicamba, 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 Bayer 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. Bayer 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 Bayer branded herbicides, please call Bayer Technical Support at **1-888-283-6847**. If dicamba- or glyphosate-resistant weed biotypes are confirmed, Bayer provides recommended control measures, which may include additional herbicides, tank mixes (when not restricted on the label) and mechanical or cultural practices. Bayer 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, Roundup Xtend® herbicide with VaporGrip® Technology and Roundup Xtend® 2 herbicide with VaporGrip® Technology are not warranted to control glyphosate-resistant weed populations; Roundup Xtend® herbicide with VaporGrip® Technology, Roundup Xtend® 2 herbicide with VaporGrip® Technology, XtendiMax® herbicide with VaporGrip® Technology and XtendiMax® 2 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 Bayer's Technical Support at **1-888-283-6847**.

Tank Mixtures and Surfactant/Adjuvant Use with Bayer Agricultural Herbicides

Bayer agricultural herbicides may be tank mixed with a fertilizer, a supplement, or with registered pest control products, whose labels also allow tank mixing, provided the entirety of both labels, including Directions For Use, Precautions, Restrictions, Environmental Precautions, and Spray Buffer Zones are followed for each product. In cases where these requirements differ between the tank mix partner labels, the most restrictive label must be followed. Do not tank mix products containing the same active ingredient unless specifically listed on its label. In some cases, tank mixing pest control products can result in reduced pesticide efficacy or increased host crop injury. The user should contact Bayer CropScience Inc. at **www.cropscience.bayer.ca** for information before applying any tank mix that is not specifically recommended on the label.

Tank mixtures of Roundup WeatherMAX® herbicide, Roundup Transorb® HC herbicide, Roundup Xtend® herbicide with VaporGrip® Technology, Roundup Xtend® 2 herbicide with VaporGrip® Technology, XtendiMax® herbicide with VaporGrip® Technology or XtendiMax® 2 herbicide with VaporGrip® Technology 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 Bayer 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® herbicide, Roundup Transorb® HC herbicide, Roundup Xtend® herbicide with VaporGrip® Technology or Roundup Xtend® 2 herbicide with VaporGrip® Technology, NO additional surfactant is needed for optimal performance for applications in Roundup Ready® crops.

Read and follow all product labeling before making in-crop or other applications of Bayer-branded glyphosate agricultural herbicides, Bayer-branded dicamba agricultural herbicides or any other pesticide. For supplemental labels or fact sheets for Bayer products, call 1-888-283-6847. Bayer 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.

BAYER 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 BAYER TECHNOLOGIES. BAYER SPECIFICALLY DISCLAIMS ALL RESPONSIBILITY FOR THE USE OF THESE PRODUCTS IN CROPS CONTAINING BAYER TECHNOLOGIES. ALL QUESTIONS AND COMPLAINTS ARISING FROM THE USE OF PRODUCTS MANUFACTURED OR MARKETED BY OTHER COMPANIES OR THE PERFORMANCE OF BAYER TECHNOLOGY IN CONNECTION WITH THE USE OF SUCH PRODUCTS SHOULD BE DIRECTED TO THOSE COMPANIES.

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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, XtendiMax® 2 herbicide with VaporGrip® Technology, Roundup Xtend® with VaporGrip® Technology herbicide or Roundup Xtend® 2 with VaporGrip® Technology herbicide, 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 Bayer 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).
- During planting when using seed treated with insecticides, 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.
- Use burndown herbicides to control any flowering weeds prior to any plantings that may attract pollinators.
- Minimize dust by taking the following steps:
  - Use advanced seed flow lubricants that minimize dust, such as Fluency Agent Advanced. Learn more at **www.solvay.com/en/product/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 **https://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 the maximum seeding rate per hectare for the crop recommended in your region or prescribed on the seed tag.

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 your Province.

Requirements for Ontario and Quebec for 2024

Specifically for Ontario, corn and soybean growers who intend to plant neonicotinoid insecticide-treated seed* in 2024 will have to follow Provincial regulations; refer to **https://www.ontario.ca/page/neonicotinoid-rules-growers**. Growers must complete a one-time Pest Risk Assessment Report (PRAR) plus a one-time Integrated Pest Management (IPM) course (if not previously done) prior to purchase of neonicotinoid insecticide-treated seed and sign an IPM Written Declaration Form at **https://forms.mgcs.gov.on.ca/en/dataset/012-2122** stating that you have considered IPM principles to decrease the risk of early season insect damage.

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

Québec growers should refer to provincial regulations prior to purchasing and planting neonicotinoid treated seeds: **https://www.quebec.ca/en/agriculture-environment-and-natural-resources/environmental-protection/pesticides/application-agricultural-areas/understand-agronomic-justification-prescription**. Key points are:

- Pesticides in Class 3A includes treated seeds of cereals, canola, soybean and corn (grain, silage, and sweet), with clothianidin, imidacloprid or thiamethoxam.
- An agronomist must write a justification and a signed prescription for the grower to purchase Class 3A treated seeds.
- Prescriptions must be crop specific.
- Copies of the prescriptions must be retained by the agronomist, the grower, and the purchase location.

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.cropscience.bayer.ca/en/**.

When using a seed flow lubricant with this treated seed, only a dust-reducing fluency agent such as Fluency Agent Advanced (**www.solvay.com/en/product/fluency-agent-advanced**) is permitted. Talc and graphite are not permitted to be used as a seed flow lubricant for corn seed treated with this insecticide. Carefully follow use directions for the seed flow lubricant. In addition, do not load or clean planting equipment near bee colonies, and avoid places where bees may be foraging, such as flowering crops or weeds. When turning on the planter, avoid engaging the system where emitted dust may contact honey bee colonies. Finally, spilled or exposed seeds and dust must be incorporated into the soil or cleaned up from the soil surface.

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.

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.

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 Bayer screens all the proteins we use for toxicity to honeybees and other non-target organisms. None of the proteins have provided any evidence of harm in either short- or long-term testing with both adult and larval honeybees. Likewise, there are no credible reports of harm caused by insect-protected biotechnology crops on honeybees.

Overwinter losses of honeybee 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.

Bayer has many efforts underway to improve honeybee health:

- We established seed treatment BMPs to manage risks to beneficial insects such as bees.
- Healthy Hives is a multiyear, $1.8 million research initiative well on its way to finding measurable and tangible solutions for improving honey bee colony health. Read more here: **https://www.bayer.com/en/us/healthy-hives**.
- 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 honeybee health. In one such collaboration with the Honey Bee Health Coalition, we're joining growers, universities, conservation groups and others because the issue of honeybee 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**.

HONEY BEE HEALTH COALITION

Commitment to Steward Insect-Protected Traits

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

Bayer'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 Bayer insect-protected products, as well as the academic community.
- Carefully evaluating the need for and practicality of updating our Best Management Practices 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 increasing durability of traits. We encourage growers to begin trying these seeds 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 multiyear, 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 technologies 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. Bayer 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 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 insect protection 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 *B.t.* technology for the targeted insect pests. The lack of exposure to the insect protection technology allows susceptible insects emerging from the refuge to mate with the rare resistant insects that may emerge from the insect protected crop. Susceptibility to insect technology would then be passed on to their offspring, helping to preserve the long-term effectiveness of that technology. All of Bayer's corn products provide automatic refuge compliance through Refuge in the Bag.

Bayer is committed to the preservation of insect protection technologies. Please do your part to preserve insect protection 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 Bayer insect protection technologies.

Questions? We're Here to Help.

Bayer 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 **1-888-283-6847**.

If growers observe performance problems for targeted insect pests, they should contact their local Bayer representative, retailer or Bayer's Technical Support at **1-888-283-6847**.

Integrated Pest Management 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

Bayer 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-insect-protected refuge acres but are equally critical for detecting and controlling non-target pests that exceed established thresholds on insect-protected crops. In addition, the use of insect-protected 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 insect-protected technologies.

Pests Not Controlled

Specific 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.

Integrated Pest Management Recommendations continued

Monitoring Pests

Carefully monitor fields for all pests to determine the need for remedial insecticide treatments. For pests targeted by the insect-protected product, scouting techniques and supplemental treatment decisions should take into account that larvae must hatch and feed before they will be affected by the insect-protected 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® PRO with RNAi Technology or SmartStax® RIB Complete®, 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.
- Check with local crop consultants or other local experts for current recommendations.

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 insect-protected product performance issues for targeted insect pests, they should contact their local Bayer representative, a retailer or Bayer's Technical Support (**1-888-283-6847**).*

Corn Rootworm Best Management Practices

Bayer 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, we highly recommend updating your IPM program to include regular scouting to determine whether the addition of other IPM practice is necessary. In areas where rotational-resistant CRW variants or extended diapause CRW may be present, CRW management options may be necessary the following year.

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

1 *Comply with refuge requirements*

2 *Rotate crops*

Rotating to a crop that is not a CRW host, such as soybeans, is the most effective strategy to eliminate CRW from a field. Consider crop rotation at least every third year if any of the following factors are applicable:

- A long-term continuous corn system is in place.
- CRW populations are high.
- Problems occur with CRW trait performance.
- Ensure that volunteer corn is managed in subsequent crops.

3 *Rotate traits*

- Use insect-protected 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 insect protection-traited product that controls CRW.
- Use a non-insect protection-traited product with IPM practices.

4 *Monitor adult CRW with sticky traps*

- Adult monitoring should be conducted weekly starting from the R1 stage (typically late July to early August) for 6 weeks using plant evaluations or yellow sticky traps. Call your local Bayer representatives (agronomist) if you are interested in monitoring CRW on your farm for more information.
- If adult CRW population exceeds recommended action thresholds using either method, you should consider rotating the field to a non-host crop for CRW or the use of a foliar insecticide registered for management of adult CRW to help reduce the population the next growing season. Call your local Bayer representatives if you have any concerns about CRW pressure or best management practices to implement.

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


ROUNDUP READY TECHNOLOGY
2024
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ROUNUDUP 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.

Bayer Roundup Ready® Technology for 2024

SmartStax® RIB COMPLETE®

SmartStax® PRO with RNAi® TECHNOLOGY

Trecepta® RIB COMPLETE® CORN

VTDoublePRO® RIB COMPLETE®

Roundup Ready® CORN 2

Performance Series® Herbicide Tolerance Insect Protection

XTENDFLEX® SOYBEANS

ROUNDUP READY 2 XTEND® SOYBEANS

Roundup Ready 2 YIELD® SOYBEANS

TruFlex® CANOLA

TruFlex® CANOLA

LIBERTY LINK®

Roundup Ready® CANOLA

Roundup Ready® SUGARBEETS

HARVXTRA™ with Roundup Ready® Technology

Roundup Ready® Technology

Products that contain Roundup Ready® Technology include the following:

SmartStax® PRO with RNAi Technology, SmartStax® RIB Complete®, Trecepta® RIB Complete®, VT Double PRO® RIB Complete®, Roundup Ready® Corn 2, Performance Series® Sweet Corn, XtendFlex® Soybeans, Roundup Ready 2 Xtend® Soybeans, Roundup Ready 2 Yield® Soybeans, TruFlex® canola, TruFlex® LibertyLink® canola, Roundup Ready® Canola, Roundup Ready® Sugarbeets, and HarvXtra® Alfalfa with Roundup Ready® 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.

Bayer Agricultural Herbicide Products for Use with Roundup Ready® Technology

These agricultural herbicide products available from Bayer for the 2024 crop season can be used over any crop containing Roundup Ready® Technology:

- Roundup WeatherMAX® herbicide with Transorb® 2 Technology
- 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 **cropscience.bayer.ca**, **www.roundup.ca** or **https://www.canada.ca/en/health-canada/services/consumer-product-safety/pesticides-pest-management/public/protecting-your-health-environment/public-registry.html**. Approved labels, including supplemental labeling, for Bayer 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 permitted residual herbicide tank mix with Roundup WeatherMAX® herbicide, tank mixing other permitted 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 where permitted 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 many other herbicides labeled for tank mixing to add additional mechanisms of action for post-emergent weed control.
  - Reporting any incidence of repeated non-performance of Bayer brand herbicides on a particular weed to your local Bayer representative, retailer or Bayer Technical Support (**1-888-283-6847**).

Current recommendations for effective and sustainable weed control for crops containing Roundup Ready® Technology can be found at **www.mixitup.ca** or by calling Bayer Technical Support at **1-888-283-6847**.

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 Bayer Technical Support at **1-888-283-6847**.

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 Bayer Technical Support at **1-888-283-6847**.

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® Trecepta® RIB Complete® VT Double PRO® RIB Complete® Roundup Ready® Corn 2 Performance Series® Sweet Corn	0.68 L/acre (1.67 L/ha)	Up to and including 8 leaf stage	Max of 2 applications at this rate per season	
	1.35 L/acre (3.33 L/ha)	Up to and including 6 leaf stage	Only 1 application at this rate per season	
XtendFlex® Soybeans Roundup Ready 2 Xtend® Soybeans Roundup Ready 2 Yield® Soybeans	0.68 L/acre (1.67 L/ha)	First trifoliate leaf stage through to flowering	Max of 2 applications at this rate per season	
	1.35 L/acre (3.33 L/ha)	First trifoliate leaf stage through to flowering	Only 1 application at this rate per season	
	1.89 L/acre (4.67 L/ha)	First trifoliate leaf stage through to flowering	Only 1 application at this rate per season	
TruFlex® canola TruFlex® LibertyLink® canola	0.22–0.68 L/acre (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	1.35 L/acre (3.33 L/ha)
	1.35 L/acre (3.33 L/ha)	Crop emergence to 6 leaf stage	Only 1 application at this rate per season	1.35 L/acre (3.33 L/ha)
Roundup Ready® Canola	0.22–0.51 L/acre (0.55–1.27 L/ha)	0–6 leaf		0.67 L/acre (1.66 L/ha)
Roundup Ready® Sugarbeets	0.34–0.93 L/acre (0.83–2.30 L/ha)	Crop emergence up to 30 days prior to harvest	Max of 4 in-crop applications per growing season	2.96 L/acre (7.31 L/ha)
HarvXtra® Alfalfa with Roundup Ready® Technology	0.68–1.35 L/acre (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 Bayer agricultural herbicides in crops containing Roundup Ready® Technology, refer to the appropriate product's label booklet or supplemental label.

Bayer Corn Technologies for 2024

RIB COMPLETE® There is no requirement for a structured refuge for products designated as RIB Complete® products. The refuge seed for RIB Complete® 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 Bayer to produce RIB Complete® products. The refuge incorporated into a bag of a RIB Complete® hybrid provides refuge only to the area planted by that bag. If planting other insect-protected hybrids that are not RIB Complete® 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 PRO with RNAi Technology Products with SmartStax® PRO with RNAi Technology contain Cry1A.105, Cry2Ab2, Cry1F, Cry3Bb1, Cry34Ab1 and Cry35Ab1 from *B.t.* and DvSnf7 double stranded RNA. Together this technology controls 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). Products with SmartStax® PRO Technology also contain Roundup Ready® 2 Technology and LibertyLink® Technology that provide tolerance to in-crop applications of labeled glyphosate herbicides and glufosinate herbicides, respectively, when applied according to label directions.[1,2]

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® is planted. The seed producers/conditioners licensed by Bayer ensure that a minimum of 5% non-*B.t.* refuge seed is included with SmartStax® RIB Complete® 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 CORN 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*), western bean cutworm (*Striacosta albicosta*) and black cutworm (*Agrotis ipsilion*). 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® is planted. The seed producers/conditioners licensed by Bayer ensure that a minimum of 5% non-*B.t.* refuge seed is included with Trecepta® RIB Complete® products in each bag of seed corn.

Trecepta® RIB Complete® 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.

Bayer Corn Technologies for 2024

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 Bayer ensure that a minimum of 5% non-*B.t.* refuge seed is included with VT Double PRO® RIB Complete® products in each bag of seed corn.

VT Double PRO® RIB Complete® 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.

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 permitted to be 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 labeled for tank mixing for post-emergence weed control.

For complete information about the use of Bayer 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.

[1]Routine applications of insecticides to control these insects under typical growing conditions and infestation levels are usually unnecessary for these products.

[2]Applications of soil-applied insecticides (i.e., application of an insecticide to the soil surface, in furrows and/or incorporated into the soil) are not recommended for control of corn rootworm except under limited circumstances and under consultation with an extension agent, crop consultant or other local experts. Soil applied insecticides should not be necessary for corn rootworm control with this product.


BAYER SWEET CORN TECHNOLOGIES
2024
SWEET CORN
BAYER
BAYER SWEET CORN TECHNOLOGIES

Performance Series® Sweet Corn

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.


BAYER SOYBEAN TECHNOLOGIES
2024
SOYBEAN
BAYER SOYBEAN TECHNOLOGIES

Bayer Soybean Technologies for 2024

XtendFlex® Soybeans are built on the Roundup Ready 2 Xtend® Technology to help maximize yield potential, and they have tolerance to dicamba, glyphosate and glufosinate herbicides,* which will provide additional weed control options for use before, at and after planting.

Roundup Ready 2 Xtend® Soybeans are built on the Roundup Ready 2 Yield® Technology to help maximize yield potential, and they have tolerance to dicamba and glyphosate herbicides, providing additional weed control options for use before, at and after planting.

Roundup Ready 2 Yield® Soybeans combine in-plant tolerance to glyphosate herbicides with a high-yield potential product.

*Only use herbicides labeled for use in the Roundup Ready® Xtend Crop System and/or LibertyLink® System.

XtendFlex® Soybeans

XtendFlex® Soybeans are built on the Roundup Ready 2 Xtend® soybean technology. XtendFlex® Soybeans will enable growers to continue to maximize their yield potential through planting new, elite genetics on their farm as well as benefit from soybean technology with tolerance to dicamba, glyphosate and glufosinate herbicides.* Such flexibility offers growers three effective herbicide options against tough-to-control weeds.

Weed Management

Starting clean with a weed-free field and controlling subsequent weeds when they are small are critical steps to obtaining excellent weed control and maximum yield potential. XtendFlex® Soybeans are designed to provide the flexibility to use the diversity of herbicide tools, including dicamba, glyphosate and now glufosinate herbicide* tolerance necessary to control weeds before planting, at planting and in-crop. Failure to control weeds with the right rate, at the right time and with the right product can lead to increased weed competition, the potential for selecting for herbicide resistance and possible decreased yield.

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-, glufosinate- and/or dicamba-resistant weed populations in a XtendFlex® Soybean system:

- It is highly recommended to use a pre-planting or pre-emergence application of Roundup Xtend® 2 herbicide with VaporGrip® Technology or a tank mix of Roundup WeatherMAX® herbicide, XtendiMax® herbicide with VaporGrip® Technology and XtendiMax® 2 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® herbicide with VaporGrip® Technology, Roundup Xtend® 2 herbicide with VaporGrip® Technology, Roundup WeatherMAX® herbicide mixed with XtendiMax® herbicide with VaporGrip® Technology or XtendiMax® 2 herbicide with VaporGrip® Technology soon after emergence and before weeds exceed 10 cm in height.
- Sequential post-emergence application of Roundup Xtend® herbicide with VaporGrip® Technology, Roundup Xtend® 2 herbicide with VaporGrip® Technology, Roundup WeatherMAX® herbicide, XtendiMax® herbicide with VaporGrip® Technology or XtendiMax® 2 herbicide with VaporGrip® Technology alone or tank mixed may be applied to manage additional flushes of small weeds (< 10 cm).
- Liberty® 200 SN Herbicide may be used at a minimum of 0.61 L/acre (1.5 L/ha) when weeds are 7.5 cm or less. Please refer to the Liberty® 200 SN herbicide label.
- 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 where labeled for such use.
- For complete information about the use of Bayer agricultural herbicides in the Roundup Ready® Xtend Crop System, refer to the appropriate product's label.
- Report any incidence of non-performance of applied herbicides against a particular weed species to your appropriate company representative or local retailer. For Bayer products, please call **1-888-283-6847**.

*Only use herbicides labeled for use in the Roundup Ready® Xtend Crop System and/or LibertyLink® System.

Recommendations for Managing Resistant Weeds in XtendFlex® Soybeans

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 Bayer Technical Support at **1-888-283-6847**.

Recommendations for Managing Volunteer Plants from XtendFlex® Soybeans

Volunteer plants from XtendFlex® Soybeans will be resistant to glyphosate, dicamba and glufosinate. For the current XtendFlex® soybeans volunteer control recommendations, refer to **www.mixitup.ca** or call Bayer Technical Support at **1-888-283-6847**.

Liberty® 200 SN Herbicide

- Liberty® 200 SN herbicide can not be tank mixed with Roundup Xtend® herbicide with VaporGrip® Technology, Roundup Xtend® 2 herbicide with VaporGrip® Technology, XtendiMax® herbicide with VaporGrip® Technology, XtendiMax® 2 herbicide with VaporGrip® Technology, Roundup WeatherMax® herbicide or Roundup Transorb® HC herbicide.
- Apply from emergence up to first bloom or R1 growth stage.
- Apply a minimum of 0.61 L/acre (1.5 L/ha) per application.
- Do not apply more than 1.01 L/acre (2.5 L/ha) of Liberty® 200 SN herbicide in a single application.
- Do not apply more than 2.02 L/acre (5 L/ha) of Liberty® 200 SN herbicide on XtendFlex® Soybeans per year.
- Do not apply within 70 days of harvest.
- Do not graze the treated field within 20 days of application.
- Consult product label for full use directions and restrictions.
- Liberty® 200 SN Herbicide may be tank mixed with other herbicides per the label when used in Eastern Canada and British Colombia.
- Do not tank mix Liberty® 200 SN Herbicide with fertilizers or any other chemical additives unless recommended on the 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.

Bayer Agricultural Herbicide Products for Use in the Roundup Ready Xtend® Crop System

The following are products sold by Bayer for use with Roundup Ready 2 Xtend® Soybean for the 2024 crop season:

- Roundup WeatherMAX® herbicide
- Roundup Transorb® HC herbicide
- XtendiMax® herbicide with VaporGrip® Technology
- XtendiMax® 2 herbicide with VaporGrip® Technology
- Roundup Xtend® 2 herbicide with VaporGrip® Technology

For XtendFlex® Soybeans, the products above may be applied as well as Liberty® 200 SN 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 Bayer 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 **pr-rp.hc-sc.gc.ca/ls-re/index-eng.php**. Approved labels for Bayer 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

Weed Management Recommendations in Roundup Ready 2 Xtend® Soybeans

The chosen herbicide program and timing of application of Roundup Xtend® herbicide with VaporGrip® Technology, Roundup Xtend® 2 herbicide with VaporGrip® Technology, XtendiMax® herbicide with VaporGrip® Technology plus Roundup WeatherMAX® herbicide or XtendiMax® 2 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® herbicide with VaporGrip® Technology, Roundup Xtend® 2 herbicide with VaporGrip® Technology, a tank mix of Roundup WeatherMAX® herbicide and XtendiMax® herbicide with VaporGrip® Technology or a tank mix of Roundup WeatherMAX® herbicide and XtendiMax® 2 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® herbicide with VaporGrip® Technology, Roundup Xtend® 2 herbicide with VaporGrip® Technology, Roundup WeatherMAX® herbicide mixed with XtendiMax® herbicide with VaporGrip® Technology or Roundup WeatherMAX® herbicide mixed with XtendiMax® 2 herbicide with VaporGrip® Technology soon after emergence and before weeds exceed 10 cm in height.
- Sequential post-emergence application of Roundup Xtend® herbicide with VaporGrip® Technology, Roundup Xtend® 2 herbicide with VaporGrip® Technology, Roundup WeatherMAX® herbicide, XtendiMax® herbicide with VaporGrip® Technology or XtendiMax® 2 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 Bayer agricultural herbicides in the Roundup Ready® Xtend Crop System, refer to the appropriate product's label booklet or supplemental label.

*Bayer will not authorize the use of dicamba herbicides containing the dimethylamine (DMA) salt of dicamba for use in Roundup Ready 2 Xtend® Soybeans even if the PMRA were to approve those herbicides for use in Roundup Ready 2 Xtend® Soybeans.

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 Bayer Technical Support at **1-888-283-6847**.

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 Bayer Technical Support at **1-888-283-6847**.

Application Requirements for Bayer Herbicides Containing Dicamba

Application requirements for Roundup Xtend® herbicide with VaporGrip® Technology, Roundup Xtend® 2 herbicide with VaporGrip® Technology, XtendiMax® herbicide with VaporGrip® Technology or XtendiMax® 2 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 the 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® herbicide with VaporGrip® Technology, Roundup Xtend® 2 herbicide with VaporGrip® Technology, XtendiMax® herbicide with VaporGrip® Technology or XtendiMax® 2 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.

Roundup Xtend® herbicide with VaporGrip® Technology, Roundup Xtend® 2 herbicide with VaporGrip® Technology, XtendiMax® herbicide with VaporGrip® Technology and XtendiMax® 2 herbicide with VaporGrip® Technology Application Requirements for Roundup Ready 2 Xtend® Soybeans and XtendFlex® Soybeans

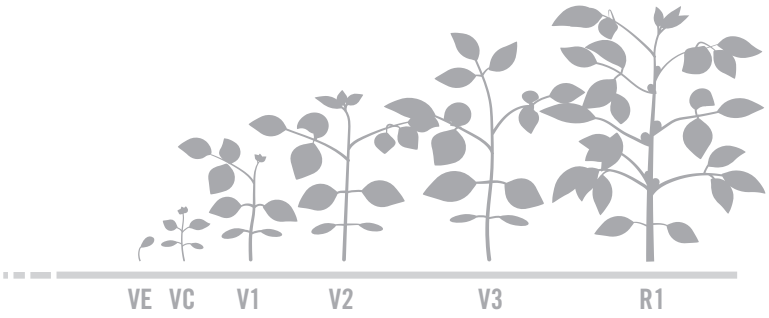
Bayer Brand Herbicide	In-Crop Application Rate(s)	Crop Stage Application Range	Additional Requirements	Maximum Total Application for Growing Season
XtendiMax® herbicide with VaporGrip® Technology	0.333–0.69 L/acre (0.823–1.71 L/ha)	Pre-plant or pre-emergence and/or post-emergence once or twice up to early flower stage of crop (R1)	Second in-crop application should only be made for control of glyphosate-resistant weeds	1.36 L/acre (3.36 L/ha)
Roundup Xtend® herbicide with VaporGrip® Technology	1.01 L/acre (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	4.05 L/acre (10 L/ha)
	1.52 L/acre (3.75 L/ha)			
	2.02 L/acre (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 Bayer 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*

Rates and Window of Application

Roundup Xtend® herbicide with VaporGrip® Technology, Roundup Xtend® 2 herbicide with VaporGrip® Technology, XtendiMax® herbicide with VaporGrip® Technology and XtendiMax® 2 herbicide with VaporGrip® Technology Application Requirements for Roundup Ready 2 Xtend® Soybeans and XtendFlex® Soybeans



Preferred application window to maximize residual weed control benefit (at 0.7 L/acre for XtendiMax® and 2 L/acre for Roundup Xtend®)

Application window for both products

Additional Information

In-crop applications of Roundup Xtend® herbicide with VaporGrip® Technology, Roundup Xtend® 2 herbicide with VaporGrip® Technology, XtendiMax® herbicide with VaporGrip® Technology or XtendiMax® 2 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® herbicide with VaporGrip® Technology, Roundup Xtend® 2 herbicide with VaporGrip® Technology, XtendiMax® herbicide with VaporGrip® Technology or XtendiMax® 2 herbicide with VaporGrip® Technology.

Application Requirements for Roundup Xtend® herbicide with VaporGrip® Technology, Roundup Xtend® 2 herbicide with VaporGrip® Technology, XtendiMax® herbicide with VaporGrip® Technology and XtendiMax® 2 herbicide with VaporGrip® Technology (Alone or in Tank Mix)

NOZZLES
Use nozzles and operating pressures that produce extremely coarse to ultra-coarse droplets to minimize drift

WIND SPEED
Optimal wind speeds for application typically occur between 5 and 15 km/h

WATER VOLUME
Minimum carrier volume is 10 GPA (15 GPA is recommended when using a DRA)

BOOM HEIGHT
Maintain boom height 50 cm above crop canopy to reduce the risk of drift

LABEL BUFFER
Maintain the required label buffer to protect sensitive areas

AMMONIUM SULFATE
Ammonium sulfate and ammonium-based additives are restricted in applications

WEED HEIGHT
Spray weeds less than 10 cm tall

GROUND SPEEDS
Make sure ground speed is less than 25 km/h

TRIPLE RINSE
Use triple rinse tank clean-out procedure

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 Bayer agricultural herbicides in the Roundup Ready® Xtend Crop System, refer to the appropriate product's label booklet or supplemental label.

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, 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 tank mixing and use in soybeans, may be required for control of subsequent weed flushes. The residual is applied first with follow-up applications of Roundup WeatherMAX® applied as needed.
- For complete information about the use of Bayer agricultural herbicides over the top of Roundup Ready 2 Yield® Soybeans, refer to the appropriate product's label booklet or supplemental label.


BAYER CANOLA TECHNOLOGIES
2024
CANOLA
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BAYER CANOLA TECHNOLOGIES

Bayer Canola Technologies for 2024

TruFlex® canola 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® LibertyLink® canola 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.

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.

TruFlex® Canola

TruFlex® canola 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 Roundup Ready® Canola. 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 (3.31 L/ha) for a single application or 0.67 L/acre (0.65 L/ha) 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 at **1-888-283-6847**.
- 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 (3.31 L/ha).
- No more than 0.67 L/acre (1.65 L/ha) may be applied in-crop after the six-leaf stage.
- Wait a minimum of 10 days between applications. Two applications of Roundup WeatherMAX® herbicide help achieve the following:
  - Control of late flushes of annual weeds such as wild buckwheat, foxtail, pigweed and wild mustard.
  - Season-long control of dandelion, Canada thistle, quackgrass, perennial sow thistle, common milkweed and foxtail barley.
  - 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 **1-888-283-6847**. Approved supplemental labeling for Bayer herbicide products can also be obtained by calling **1-888-283-6847**.

TruFlex® LibertyLink® Canola

TruFlex® LibertyLink® canola* 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, better weed control and crop safety.

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

TruFlex® LibertyLink® canola enables a wider glyphosate application window, providing growers with up to 10–14 more glyphosate spray days than Roundup Ready® Canola. TruFlex® LibertyLink® canola 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® LibertyLink® canola also allows growers the option of applying Roundup WeatherMAX® herbicide in-crop at a rate of 1.34 L/acre (3.31 L/ha) for a single application or 0.67 L/acre (1.61 L/ha) 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 Bayer 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 glyphosate-resistant weed populations in TruFlex® 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 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® LibertyLink® canola.
- Use additional herbicide mechanisms of action, residual herbicides and/or mechanical weed control in other Roundup Ready® crops rotated with TruFlex® LibertyLink® canola.
- 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® LibertyLink® 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 area by calling **1-888-283-6847**.
- Report any incidence of repeated non-performance of Roundup® Agricultural Herbicides or other glyphosate products on a particular weed to the appropriate company representative at **1-888-283-6847**, 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® LibertyLink® canola 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 3.31(L/ha).
- No more than 0.67 L/acre (1.65 L/ha) may be applied in-crop after the six-leaf stage.

*Product names may change.

- 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® LibertyLink® 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.

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® 150 SN Herbicide

Apply Liberty® 150 SN herbicide at 0.54–1.62 L/acre (1.33–4.0 L/ha), plus a permitted tank mix graminicide, over the top of TruFlex® LibertyLink® canola from emergence to 10 days after crop emergence or when weeds are 8 cm or less.

A second application of Liberty® 150 SN herbicide can be made to canola treated initially with up to 1.62 L/acre (4.0 L/ha) if new weed germination or growth is present:

- A first application of up to 1.62 L/acre (4.0 L/ha) may be followed by a second application of up to 1.35 L/acre (3.34 L/ha),

OR

- A first application of up to 1.35 L/acre (3.34 L/ha) may be followed by a second application of up to 1.62 L/acre (4.0 L/ha).

Do not apply more than a total of 2.97 L/acre (7.34 L/ha) per year.

Do not apply glufosinate within 60 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 Bayer 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 8 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 at **1-888-283-6847**.
- 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 60 days of harvest.
- Do not graze the treated crop or cut for hay.
- Do not spray glyphosate 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 **1-888-283-6847**. Approved supplemental labeling for Bayer herbicide products can also be obtained by calling **1-888-283-6847**.

Application of Liberty® 150 SN Herbicide

Apply Liberty® 150 SN herbicide at 0.54–1.62 L/acre (1.33–4.0 L/ha) plus a permitted tank mix graminicide, 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® 150 SN herbicide can be made to canola treated initially with up to 1.62 L/acre (4.0 L/ha) if new weed germination or growth is present:

- A first application of up to 1.62 L/acre (4.0 L/ha) may be followed by a second application of up to 1.35 L/acre (3.34 L/ha),

OR

- A first application of up to 1.35 L/acre (3.34 L/ha) may be followed by a second application of up to 1.62 L/acre (4.0 L/ha).

Do not apply glufosinate within 60 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 Bayer 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 tank mixing and that control 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 tank mixing and use in that crop type that control volunteer canola, including other herbicide-tolerant canola types, with Roundup WeatherMAX® herbicide or other glyphosate herbicides labeled for tank mixing and that use 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 Bayer Technical Support Line at **1-888-283-6847**.

HarvXtra® Alfalfa with Roundup Ready® Alfalfa 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 2024 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 purchasers 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 2024: Ontario, Quebec, New Brunswick, Nova Scotia, Prince Edward Island and Newfoundland.

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 labeled 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 labeled 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.

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-trifoliate 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 herbicide products labeled for tank mixing and use in a tank mix or labeled for use 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 Bayer 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.

Roundup Ready SUGARBEETS

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

Weed Management

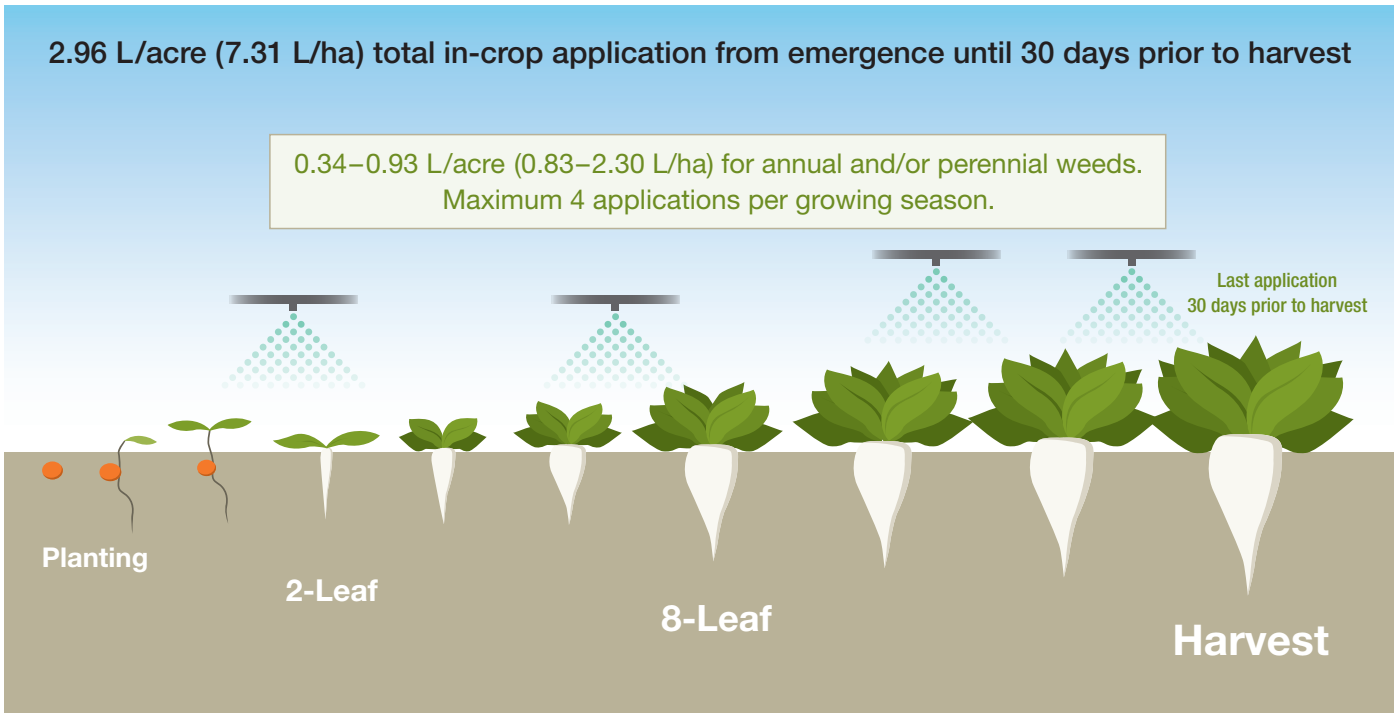
Product-Specific Weed Management Recommendations and Additional Information

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 Bayer Technical Support at **1-888-283-6847**.

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.

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 only be exported to, or used, processed or sold in countries where all necessary regulatory approvals have been granted. It is a violation of national and international law to move material containing biotech traits across boundaries into nations where import is not permitted. 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 that is attached to the product you purchased, contact your Bayer representative.

Performance Series® Sweet Corn Insect Resistance Management (IRM) — Post-Harvest Requirements: Crop destruction must occur no later than 30 days following harvest, but 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.

Bayer is a member of Excellence Through Stewardship® (ETS). Bayer products are commercialized in accordance with ETS Product Launch Stewardship Guidance, and in compliance with Bayer'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 only be exported to, or used, processed or sold in countries where all necessary regulatory approvals have been granted. It is a violation of national and international law to move material containing biotech traits across boundaries into nations where import is not permitted. Growers should talk to their grain handler or product purchaser to confirm their buying position for these products. Excellence Through Stewardship® is a registered trademark of Excellence Through Stewardship.

ALWAYS READ AND FOLLOW PESTICIDE LABEL DIRECTIONS. It is a violation of federal law to use any pesticide product other than in accordance with its labeling. NOT ALL formulations of dicamba or glyphosate are approved for in-crop use with products with Roundup Ready 2 Xtend® soybeans. TruFlex® canola contains Roundup Ready® Technology. NOT ALL formulations of dicamba, glyphosate or glufosinate are approved for in-crop use with products with XtendFlex® Technology. ONLY USE FORMULATIONS THAT ARE SPECIFICALLY LABELED AND APPROVED FOR SUCH USES. Contact the Pest Management Regulatory Agency with any questions about the approval status of dicamba herbicide products for in-crop use with Roundup Ready 2 Xtend® soybeans or products with XtendFlex® Technology.

Roundup Ready® Technology contains genes that confer tolerance to glyphosate. **Roundup Ready® 2 Technology contains genes that confer tolerance to glyphosate. Products with XtendFlex® Technology contains genes that confer tolerance to glyphosate, glufosinate and dicamba. LibertyLink® Technology** contains genes that confer tolerance to glufosinate. **Roundup Ready 2 Xtend® soybeans contains genes that confer tolerance to glyphosate and dicamba. Glyphosate** will kill crops that are not tolerant to glyphosate. **Dicamba** will kill crops that are not tolerant to dicamba. **Glufosinate** will kill crops that are not tolerant to glufosinate. Contact your Bayer retailer, refer to the Bayer Technology Use Guide, or call the technical support line at 1-888-283-6847 for recommended Roundup Ready® Xtend Crop System weed control programs.