# PREHARVEST STAGING GUIDE













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# Introduction

## **BENEFITS OF PREHARVEST**

Preharvest is the best time for controlling weeds such as Canada thistle, quackgrass, perennial sow-thistle, dandelion, toadflax, and milkweed.

A preharvest weed control application is an excellent management strategy to control perennial weeds at a time of year when these weeds are looking to store energy down in their roots.

This Preharvest Staging Guide provides information on how to maximize the efficacy and benefits of Roundup WeatherMAX<sup>®</sup> with Transorb<sup>®</sup> 2 Technology herbicide and Roundup Transorb<sup>®</sup> HC herbicide in a preharvest application. The guide is designed to help you assess weed and crop staging, and maximize your herbicide investment.

In addition to delivering the best products and technologies, we also endeavor to deliver the best information and service of any company in the field.

It is with that philosophy that we produce this guide – to help you get the most out of our herbicides.

## MANAGING PREHARVEST APPLICATIONS OF ROUNDUP HERBICIDES

Where allowed, Roundup<sup>®</sup> herbicides are registered for preharvest weed control and are not to be used as a desiccant.

Preharvest Roundup herbicide applications should only be applied for weed control once grain moisture is less than 30% in the least mature part of the field. Applying preharvest applications of Roundup herbicide too early may reduce crop yield and/or quality and can result in unacceptable glyphosate residues in the harvested grain, which can create market risk.

Growers are advised to consult with their grain buyer before using this product on their crop. Some crops may not be accepted if treated with a preharvest Roundup application.

The Preharvest Staging Guide will help you to determine when grain moisture is less than 30%.

If you have any questions about our products call Bayer Crop Science at 1 888-283-6847.

# **DID YOU KNOW?**

# **CROP STAGING IS IMPORTANT.**

Use the thumbnail test and the visual colour test to properly assess when your crop is ready to be sprayed with Roundup herbicide.



# **CROP STAGING**

# **CROP STAGING**

## WHEAT

#### CROP STAGING

Apply when the crop has 30% or less moisture content – the hard dough stage. At this stage, a thumbnail impression will remain on the kernel. This stage is typically 3 to 5 days before you would normally swath. This stage is typically 7-14 days before harvest.

Recommended Harvest: The crop may be harvested (straight cutting or swath pick-up) 7-14 days after application.

Growers are advised to consult with their grain buyer before using this product on their crop. Wheat may not be accepted if treated with a preharvest Roundup herbicide application.





6 **CROP STAGING**  Image Source: Photo used from Keep it Clean Staging Guide

# **FEED BARLEY**

**REGISTERED PRODUCTS** • Roundup WeatherMAX

• Roundup Transorb HC

#### CROP STAGING

Apply when the crop has 30% or less moisture content – the hard dough stage. At this stage, a thumbnail impression will remain on the kernel. This stage is typically 3 to 5 days before you would normally swath. This stage is typically 7-14 days before harvest.

Recommended harvest: The crop may be harvested (straight cutting or swath pick-up) 7-14 days after application.

Growers are advised to consult with their grain buyer before using this product on their crop. Barley may not be accepted if treated with a preharvest Roundup herbicide application.

Malt Barley-Do not Use: Buyers WILL NOT accept malt barley if treated with a preharvest Roundup herbicide.

Feed barley at proper stage for preharvest application.

## TAME OATS

**REGISTERED PRODUCTS** • Roundup WeatherMAX

• Roundup Transorb HC

#### CROP STAGING

Apply when the crop has 30% or less moisture content – the hard dough stage. At this stage, a thumbnail impression will remain on the kernel. This stage would be 3 to 5 days before you would normally swath. This stage is typically 7-14 days before harvest.

Recommended harvest: The crop may be harvested (straight cutting or swath pick-up) 7-14 days after application.

Growers are advised to consult with their grain buyer before using this product on their crop. Oats may not be accepted if treated with a preharvest Roundup herbicide application.

#### MILLING OAT RECOMMENDATION

Preharvest application of Roundup WeatherMAX and Roundup Transorb HC are registered for application on all oat varieties – including milling oats destined for human consumption. Please check with your oat grain purchaser prior to a preharvest application.

# CANOLA

**REGISTERED PRODUCTS** • Roundup WeatherMAX

• Roundup Transorb HC

## CROP STAGING

Apply when the crop has 30% or less moisture. At this stage, the pods are green to yellow and most seeds have turned from green to yellow or brown.

Wait 3 full days (72 hours) after application before swathing to allow thorough translocation for long-term weed control.

Recommended Harvest: The crop may be harvested (straight cutting or swath pick-up) 7-14 days after application.



Canola crop at preharvest application stage. Apply when canola has 30% or less moisture content – typically 7 to 14 days before harvest.

## CROP STAGING CONTINUED

By applying at 50-60% seed colour change in the least mature areas of the field, growers can be confident grain moisture will be <30%.

 At this stage, seeds in the main stem will be: Top = green, firm to roll Middle = mostly brown, with some speckling Bottom = completely brown-black



Image Source: Photo used from Keep it Clean Staging Guide

# FLAX

**REGISTERED PRODUCTS** 

• Roundup WeatherMAX

• Roundup Transorb HC

## CROP STAGING

Apply when the crop has 30% or less moisture. At this stage, the majority of the bolls are brown. This is the stage you would normally swath. Wait 3 full days (72 hours) after application before swathing to allow thorough translocation for long-term weed control.

Recommended Harvest: The crop may be harvested (straight cutting or swath pick-up) 7-14 days after application.

Growers are advised to consult with their grain buyer before using this product on their crop. Flax may not be accepted if treated with a preharvest Roundup herbicide application.



Apply Roundup brand agricultural herbicides when 75% to 80% of the bolls are brown.

## PEAS

**REGISTERED PRODUCTS** • Roundup WeatherMAX

• Roundup Transorb HC

#### CROP STAGING

Apply when the crop has 30% or less moisture content. At this stage, the majority of the pods are brown. Typically, the lower and middle pods will be brown and the seeds dry; the upper pods will be yellow and wrinkled, seed rubbery. This is the stage you would normally swath. Wait 3 full days (72 hours) after application before swathing to allow thorough translocation for long-term weed control.

Recommended Harvest: The crop may be harvested (straight cutting or swath pick-up) 7-14 days after application.

Growers are advised to consult with their grain buyer before using this product on their crop. Pulse crops may not be accepted if treated with a preharvest Roundup herbicide application.



Image Source: Photo used from Keep it Clean Staging Guide



# LENTILS

REGISTERED PRODUCTS

- Roundup WeatherMAX
- Roundup Transorb HC

#### CROP STAGING

Apply when the crop has less than 30% seed moisture content and proper pre-harvest intervals can be followed. This is the stage you would normally swath. 80% of the plant is yellow to brown. Seeds from the top third of the plant are fully-formed and firm; seeds from the bottom third are hard and tan-brown; pods rattle when shaken.

Recommended Harvest: The crop may be harvested (straight cutting or swath pick-up) 7-14 days after application.

Growers are advised to consult with their grain buyer before using this product on their crop. Pulse crops may not be accepted if treated with a preharvest Roundup herbicide application.



Lentils at proper stage for preharvest application.



Image Source: Photo used from Keep it Clean Staging Guide

## SOYBEANS

**REGISTERED PRODUCTS** 

• Roundup WeatherMAX

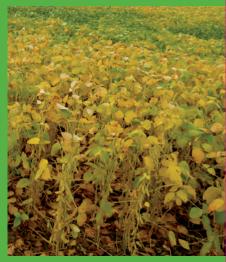
• Roundup Transorb HC

#### CROP STAGING

Apply when the crop has 30% or less moisture content. At this stage, stems are green to brown; pod tissue is dry and brown in appearance; 80% to 90% leaf drop.



Apply Roundup herbicides when stems are green to brown and there is 80% to 90% leaf drop.



Late applications can be made and still achieve good perennial weed control.

Recommended Harvest: The crop may be harvested 7-14 days after application.

Growers are advised to consult with their grain buyer before using this product on their crop. Soybeans may not be accepted if treated with a preharvest Roundup application.

Consult with your grain buyer before applying a preharvest Roundup herbicide application to Canadian Identity Preserved Soybeans.

# **DRY BEANS**

REGISTERED PRODUCTS

• Roundup WeatherMAX

• Roundup Transorb HC

## CROP STAGING

Apply when the crop has 30% or less moisture content. At this stage, a majority of the pods (80% or more) are yellow to light brown in colour. The plants will also be at 80% to 90% leaf drop of original leaves. Seeds have lost their green colour when split. Pod colour is a better indicator than percent leaf drop because dry bean plants may begin to grow new leaves late in the fall.

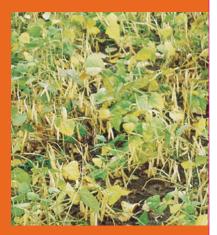
Recommended Harvest: The crop may be harvested (straight cutting or swath pick-up) 7-14 days after application.

Growers are advised to consult with their grain buyer before using this product on their crop. Pulse crops may not be accepted if treated with a preharvest Roundup herbicide application.





Image Source: Photo used from Keep it Clean Staging Guide



# **DID YOU KNOW?**

## WEED STAGING IS IMPORTANT.

In order to properly control weeds they must be actively growing. Stresses like cold weather, previous in-crop herbicide applications, pests, or drought can put stress on weeds for a short period of time. If a Roundup herbicide is sprayed during this time, it will not properly translocate down to the roots and therefore not control the weeds.





## WEED CONTROL TIMING

#### ► CANADA THISTLE

Spray Canada thistle at or beyond the bud stage. At this stage, thistles are generally large and actively growing with ample leaf surface, so the active ingredient is easily absorbed and thoroughly translocated to the roots and shoots for effective control. When the crop is ready to spray, thistles are usually at the ideal stage.

If you have used a Canada thistle herbicide in the spring, ensure that adequate regrowth is present and that the thistle plants are actively growing. If in doubt, talk to your local retailer, Bayer Crop Science representative, or call Bayer Crop Science at 1 888-283-6847.



The best time to control Canada thistle – at or beyond the bud stage.

## PERENNIAL SOW-THISTLE

Spray perennial sow-thistle at or beyond the bud stage. At this stage, thistles are generally large and actively growing with ample leaf surface, so the active ingredient is easily absorbed and thoroughly translocated to the roots and shoots for effective control. When the crop is ready to spray, thistles are usually at the ideal stage.

If you have used a perennial sow-thistle herbicide in the spring, ensure that adequate regrowth is present and that the thistle plants are actively growing. If in doubt, talk to your local retailer, Bayer Crop Science representative, or call Bayer Crop Science at 1 888-283-6847.



Perennial sow-thistle

## WEED CONTROL TIMING

## ▶ QUACKGRASS

When the crop is ready to spray, quackgrass is usually at the ideal stage as well. At this time of year, quackgrass is usually actively growing and has 4 to 5 or more green leaves to absorb the herbicide. This helps translocate the active ingredient throughout the plant for highly effective shoot and root control. What's more, preharvest is the earliest opportunity to control <u>quackgrass before</u> it competes with next year's crop.



Quackgrass should be actively growing with adequate leaf surface.

## DANDELION, MILKWEED AND TOADFLAX

To control dandelion, milkweed and toadflax, weeds should be actively growing and at the bud to bloom stage of growth. This stage of growth typically occurs around the same time the crop is ready to spray. In crops with heavy crop canopies such as canola, use higher water volume (7 to 10 g.p.a.) to ensure maximum coverage.



Dandelion – a growing problem

Milkweed

Toadflax

#### WINTER ANNUALS

Winter annual rosettes will be controlled with a preharvest application and annual weeds in their summer vegetative growth stage will be thoroughly dried down. Use water volumes that will ensure complete coverage of rosettes that are near the soil surface and under the crop canopy.

# **DID YOU KNOW?**

# WATER QUALITY IS IMPORTANT.

Ensure the water source is suitable for spraying. When spraying a Roundup herbicide, hard or dirty water can affect your weed control performance. If you're unsure of hardness, have the water tested.



# BEST MANAGEMENT PRACTICES FOR APPLICATION

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#### WATER VOLUME

#### **Roundup WeatherMAX and Roundup Transorb HC**

A minimum of 5 gallons per acre is required to penetrate the crop canopy and to ensure good coverage of weeds and the crop. Use up to 10 gallons of water per acre when the crop canopy is heavy and weeds are sheltered by the crop – especially important if dandelions are present.

## STRAIGHT CUT RECOMMENDATIONS

If straight cutting is the preferred harvest method, the crop may be straight cut 7 days after application.

If swathing after a preharvest treatment, wait 3 full days (72 hours) after application to allow thorough translocation for long-term weed control.

## LIVESTOCK FEED

Crops that have been treated with a Roundup herbicide in a preharvest application can be fed to livestock and the straw can be baled for livestock bedding or feed. Vines, screenings and seed can also be fed to livestock – a use registered by the Pest Management Regulatory Agency.

- Do not apply preharvest application to crops being grown for seed production.
- There is one rate for preharvest: 0.67 L/acre. This provides convenience across all crops and weeds.

## POSTHARVEST OPTIONS

For low lying weeds, like dandelions, a postharvest treatment is often more effective. Applying a postharvest herbicide application, once the canopy is removed, means better coverage and better translocation, provided the weed is still actively growing.

# **REGISTERED CROPS AND RATES**

		Rumdup Transorb HCC INITIAL
	0.67 L/acre 1.67 L/ha	0.67 L/acre 1.67 L/ha
Wheat	0	0
Barley	Ο	ο
Oats	0	ο
Canola*	Ο	ο
Flax	0	ο
Peas	0	0
Lentils	Ο	Ο
Soybeans*	0	ο
Dry Beans	Ο	Ο

\* Including Roundup Ready® varieties

# **PREHARVEST GLYPHOSATE APPLICATION**

## ► IDEAL SPRAYING TIMES

Physiological maturity is the key for timing a preharvest glyphosate application. Physiological maturity is reached once seed moisture content is less than 30%.

## The table below provides visual indicators of physiological maturity:

CROP	VISUAL TEST FOR <30% MOISTURE CONTENT			
Wheat, Feed Barley, Oats	Hard dough stage; thumbnail impression remains on seed			
Canola	Pods are green to yellow; most seeds are yellow to brown			
Flax	Majority (75% - 80%) of pods are brown			
Peas	Majority (75% - 80%) of pods turned colour			
Lentils	Lower pods (15%) are brown; seeds rattle			
Dry Beans	Stems are green to brown; pods are mature (yellow to brown); 80% - 90% leaf drop (original leaves)			
Soybeans	Stems are green to brown; pod tissue is dry and brown; 80% - 90% leaf drop			
Forages	3 - 7 days before last cut in final year of stand			

# **PRACTICES FOR** APPLICATION

## ► IDEAL SPRAYING TEMPERATURES

## **Preharvest:**

During preharvest, only apply Roundup herbicides if forecasted temperatures are going to remain higher than 8-10°C for a minimum of two hours. For best results, start application in the late morning or afternoon.

Evening and early morning temperatures near freezing should not impact the performance of Roundup brand agricultural herbicides for preharvest as cool seasonal temperatures have conditioned perennial weeds.

# **DID YOU KNOW?**

## PERENNIAL WEED CONTROL IS IMPORTANT.

Roundup herbicides should not be used as a desiccant, but for perennial weed control. Preharvest Roundup herbicide applications should only be applied for weed control once grain moisture is less than 30% in the least mature part of the field. Applying preharvest Roundup too early may reduce crop yield and/or quality and can result in unacceptable glyphosate residues in the harvested grain, which can create market risk.



# RISKSHIELD® PROTECTION PACKAGE BENEFITS

RISKSHIELD® PROTECTION PACKAGE BENEFITS

# RISKSHIELD<sup>®</sup> PROTECTION PACKAGE BENEFITS

Every Roundup herbicide is backed by its own unique RiskShield<sup>®</sup> protection package. This package includes comprehensive warranties and guarantees that set Roundup herbicides apart from imitators and represent Bayer's promise of industry-leading product performance and after-sales support.

## ALL WEATHER WARRANTY

For the best control, the best rainfastness, and the best consistency, you have the power of an all weather warranty. And that's important because, more often than not, you're forced to spray under adverse weather conditions. If acceptable control<sup>\*</sup> is not achieved after using a Roundup product due to tough conditions, you're covered.

\*Acceptable control is defined by commercially acceptable limits based on product registration trials.



## 30-MINUTE RAINFAST GUARANTEE

If Roundup WeatherMAX does not provide acceptable weed control due to rainfall 30 minutes or more after application, you're covered. Roundup WeatherMAX must be used in compliance with label directions. Acceptable weed control is defined by commercially acceptable limits based on product registration trials. Bayer will refund or credit the purchase amount up to the initial use rate of Roundup WeatherMAX for re-treatment (640 acre maximum).

## ► 60-MINUTE RAINFAST GUARANTEE\*\*

If Roundup Transorb HC do not provide acceptable weed control due to rainfall 60 minutes or more after application, you're covered. Roundup Transorb HC must be used in compliance with label directions. Acceptable weed control is defined by commercially acceptable limits based on product registration trials. Bayer will refund or credit the purchase amount up to the initial use rate of Roundup Transorb HC for re-treatment (640 acre maximum).

## **SUPPORT LINE**

Our toll-free product inquiry line **1 888-283-6847** is available to answer your questions. Knowledgeable, professional technicians are waiting to help.

For full details visit www.roundup.ca.



# **AERIAL APPLICATION**

AIRIAL APPLICATION

# **DID YOU KNOW?**

# **AERIAL APPLICATION IS IMPORTANT.**

When label directions are followed, aerial applications can be made with no risk of drift to non-target areas. Minimize your risk for spray drift by taking into account spray droplet size, wind speed, other environmental factors, and application equipment design.



# **AERIAL APPLICATION**

Aerial spraying may be the only option when ground conditions are very wet as ground sprayers can leave deep tracks in your crops and may get stuck. Roundup WeatherMAX and Roundup Transorb HC herbicides are registered in Canada for preharvest aerial application. Always ensure you have substantial buffer zones.

Contact your local aerial applicator or the Roundup WeatherMAX and Roundup Transorb HC herbicide labels for more details.



# **DID YOU KNOW?**

# EVEN WHEN LOOKING AT WEED CONTROL

Make sure you use the most representative part of your field when assessing the proper time to spray a Roundup herbicide. Some parts of your field will be mature while other spots may be too green for a preharvest application of a Roundup herbicide. Be sure to look at the whole field and not just base your judgment on one small area. Preharvest applications for weed control should only be applied once grain moisture is less than 30% in the least mature part of the field.



Application rates for noundap brand agricultural neroleides							
540 g/L	10L JUG	115L SHUTTLE	450L SHUTTLE				
0.33 L/ac	30 acres	349 acres	1364 acres				
0.50 L/ac	20 acres	230 acres	900 acres				
0.67 L/ac	15 acres	172 acres	672 acres				
0.83 L/ac	12 acres	139 acres	542 acres				
1.00 L/ac	10 acres	115 acres	450 acres				
1.17 L/ac	9 acres	98 acres	385 acres				
1.33 L/ac	8 acres	86 acres	338 acres				

## Application rates for Roundup brand agricultural herbicides

Give us a call and we'll do the best we can to help you understand how to apply Roundup WeatherMAX and Roundup Transorb HC herbicides for maximum performance and preharvest weed control applications. Talk to your local retailer, Bayer Crop Science representative or call **1 888-283-6847**.

## www.roundup.ca



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<sup>6</sup> is a registered trademark of Excellence Through Stewardship.

ALWAYS READ AND FOLLOW PESTICIDE LABEL DIRECTIONS. Roundup Ready\* Technology contains genes that confer tolerance to glyphosate Roundup Ready\* 2 Technology contains genes that confer tolerance to glyphosate 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 Contact your local crop protection dealer or call the technical support line at 1 888-283-6847 for recommended Roundup Ready 2 Technology and Design\*\*, Roundup Ready 2 Xtend\*, Roundup Ready 2 Yteld\*, Roundup Ready 2 Technology and Design\*\*, Roundup Ready 2 Xtend\*, Roundup Ready 2 Yteld\*, Roundup Ready. Roundup Transorb\*, Roundup WeatherMAX\*, Roundup\*, Transorb\* and TruFlex\*\*\* are trademarks of Bayer Group. Used under license. Bayer CropScience Inc. is a member of CropLife Canada. ©2021 Bayer Group All rights reserved.



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