



## APPLICATION REMINDERS FOR WARRANT® ULTRA HERBICIDE

### What You'll Learn...

- The efficacy of a post-emergence herbicide application can be influenced by the growth stage of the weed, the proper herbicide use rate, the additives included, and the proper application volume for good spray coverage of the weed canopy.
- Optimum timing for Warrant® Ultra Herbicide tank mixtures with Roundup® brand glyphosate-only agricultural herbicides and other products is the V2 to V3 stage of soybean growth.
- Determining the proper weed height or leaf stage for herbicides in a tank mixture can influence herbicide performance.

### Post-emergence Application Directions

Warrant Ultra Herbicide contains acetochlor (Group 15) and fomesafen (Group 14) herbicides and may be applied once per growing season in soybean preplant, at-planting, pre-emergence, or post-emergence.

- Use a minimum 15 GPA of water for ground application.
- Apply Warrant Ultra Herbicide at 48 to 70 fl oz/acre depending on maximum area use rates and soil characteristics (Table 1).
- Optimum timing of application is the V2 to V3 soybean growth stages. Applications can be made up to R2 soybean growth stage.
- In general, spray emerged weeds before they exceed 4 inches in height. Consult the Warrant Ultra Herbicide label for specific weed recommendations. Weeds can compete with soybeans as early as the V1 to V2 stage of growth, depending on weed species, weed density, time of weed emergence in relation to soybean, environmental conditions, and production practices.<sup>1</sup> Herbicide label guidelines for timing post-emergence application to weeds can be different. Check individual product labels to determine the weed height or number of true leaves that determine the proper application timing (Figure 1).
- Nozzles producing extremely coarse to ultra-

coarse spray droplets may not provide sufficient coverage of emerged weeds.

- For adequate weed coverage do not exceed 10 mph ground speed during application.
- Rainfall within 1 hour of application may reduce emerged weed control.
- Some bronzing, crinkling, or spotting of soybean leaves may occur following post-emergence application, but soybeans generally recover and develop normally.

### Post-emergence Tank Mixtures

- Products that can be tank mixed with Warrant Ultra Herbicide are outlined on the product label. Follow the most restrictive label instructions.
- Always predetermine the compatibility of labeled tank mixtures with Warrant Ultra Herbicide.

When tank mixing Warrant Ultra Herbicide with Roundup brand glyphosate-only agricultural herbicides (and no other herbicides) for application on Roundup Ready® and Genuity® Roundup Ready 2 Yield® soybeans.

- Apply after soybeans are fully emerged up to the R2 stage of growth. Optimum application timing is the V2 to V3 soybean growth stages.
- In general, the use rate for Roundup brand glyphosate-only agricultural herbicides is 32 fl oz/acre applied when weeds are 4 inches or less. Use higher rates for tough to control weeds and heavy

**Table 1. Warrant® Ultra Herbicide Application Rates for Soybeans Grown in Various Soil Types.**

| Soil Textural Group | Broadcast rate per acre in fl oz* |                             |
|---------------------|-----------------------------------|-----------------------------|
|                     | Less than 1.5% Organic Matter     | 1.5% or more Organic Matter |
| Coarse              | 48                                | 48 to 60                    |
| Medium              | 48 to 55                          | 48 to 65                    |
| Fine                | 48 to 60                          | 48 to 70                    |

\* Use the higher rate for areas with heavy weed infestation. Consult Area Use Maps in the product label for maximum application rates.

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weed infestations. Consult the glyphosate product label for specific recommendations.

- The addition of 8.5 to 17 lb of spray grade ammonium sulfate (1 to 2% by weight) per 100 gallons of water can increase performance of this tank mixture.
- For emerged, glyphosate-resistant or PPO inhibitor resistant weeds, or weeds not listed on the Warrant Ultra Herbicide label, it may be necessary to add another labeled post-emergence herbicide to the tank mixture with a different site of action. If another herbicide is added, the recommendation may change. Read and follow the most restrictive label for all herbicides in the tank mix.

### Post-emergence Spray Additives

Use one of the following additives for post-emergence tank mixture applications, except with products prohibiting spray additives:

- Nonionic surfactant (NIS) - Use NIS containing at least 75% surface active agent at 0.25 to 0.5% v/v (1 to 2 qt/100 gallons) of finished spray volume.
- Crop Oil Concentrate (COC) - Use a non-phytotoxic COC containing 15 to 20% approved emulsifier at 0.5 to 1% v/v (0.5 to 1 gallon/100 gallons) of finished spray volume. COC can help improve weed control but may increase injury.
- Methylated Seed Oil (MSO) - Use a non-phytotoxic

**Table 2. Some Emerged Weeds Controlled by Warrant® Ultra Herbicide.\***

|                           | 50 fl oz/acre         | 60 fl oz/acre |
|---------------------------|-----------------------|---------------|
| Weed                      | Number of true leaves |               |
| Palmer Amaranth           | 4                     | 4             |
| Common Lambsquarters      | 2                     | 2             |
| Redroot Pigweed           | 4                     | 6             |
| Common Ragweed            | 4                     | 4             |
| Giant Ragweed             | N/A                   | 4             |
| Common and Tall Waterhemp | 2                     | 2             |

\*Consult the Warrant Ultra label for additional weeds controlled and tank mix recommendations.

MSO containing 60% methylated seed oil or poor performance may result from MSO products with less than 60%. Refer to specific product labels for use rate recommendations. MSO can help improve weed control but may increase injury.

- Oil-based adjuvants may reduce post-emergence weed control with glyphosate in tank mixtures with Warrant Ultra Herbicide.

Successful postemergence application of herbicides relies on early identification of weed species, determining weed density and competitiveness, and weed growth stages. Once this information is in hand, the proper rate, tank mix components, and application volume can be determined for effective weed control.

This document is intended to provide information about this weed and guidelines for control. As a tough-to-control weed, knowledge about the biology and weed control programs will help in their management. For additional information, contact your local seed representative. Developed in partnership with technology, Development & Agronomy by Monsanto.

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**Individual results may vary,** and performance may vary from location to location and from year to year. This result may not be an indicator of results you may obtain as local growing, soil and weather conditions may vary. Growers should evaluate data from multiple locations and years whenever possible.

**Always read and follow grain marketing and all other stewardship practices and pesticide label directions.** Roundup Ready technology contains genes that confer tolerance to glyphosate, an active ingredient in Roundup® brand agricultural herbicides. Agricultural herbicides containing glyphosate will kill crops that are not tolerant to glyphosate. Warrant® Ultra Herbicide is not registered in all states and may be subject to use restrictions. The distribution, sale, or use of an unregistered pesticide is a violation of federal and/or state law and is strictly prohibited. Check with your local Monsanto dealer or representative for the product registration status in your state. **Tank mixtures:** The applicable labeling for each product must be in the possession of the user at the time of application. Follow applicable use instructions, including application rates, precautions and restrictions of each product used in the tank mixture. Monsanto has not tested all tank mix product formulations for compatibility or performance other than specifically listed by brand name. Always predetermine the compatibility of tank mixtures by mixing small proportional quantities in advance. Genuity®, Roundup Ready 2 Yield®, Roundup Ready PLUS®, Roundup Ready®, Roundup® and Warrant® Ultra Herbicide are registered trademarks of Monsanto Technology LLC. All other trademarks are the property of their respective owners. ©2017 Monsanto Company. 160708084414 07182017CRB