

## Postemergence Herbicide Applications in Soybeans

With postemergence herbicide applications slowing down in corn, applications in soybeans will begin in full force. There are a few things to consider before making these applications.

### Clean Application Equipment

When making the transition between corn and soybeans, spray application equipment should be thoroughly cleaned. Many corn herbicides can leave residues in equipment that could cause damage to soybeans. Sprayer tanks, lines, booms, nozzles, and screens should be thoroughly cleaned to remove these residues before making applications to soybeans.

### Apply at the Right Time

Weeds can affect soybean yields by competing for light, water, and nutrients. The time in the growing season when soybean yields begin to be affected by weeds is called the critical period. This can vary depending on weed species and density, time of weed emergence in relation to soybean emergence, environmental conditions, and production practices. It is important to control weeds before the critical period is reached to help protect soybean yield potential and maximize profitability. In total postemergence only herbicide programs, the critical period will occur earlier in the season with greater weed densities. Where preemergence herbicides were applied at planting, the critical period is generally delayed to later in the season when a postemergence herbicide may be necessary.

Roundup® brand agricultural herbicides should be applied in Roundup Ready® soybeans when weeds are 2 to 8 inches tall for control prior to the critical period. In total postemergence programs, this timing of application can generally vary anywhere from 2 to 5 weeks after planting, depending on the conditions. Postemergence applications can be made from soybean emergence (cracking) through flowering (Table 1).

**Table 1.** Maximum labeled rates for various application timings of Roundup® brand agricultural herbicides in Roundup Ready® soybeans.

Application Timing	Rate/ Acre
Total of all in-crop applications from cracking through flowering (R2 stage soybeans)	64 oz.
Maximum application rate for a single in-crop application	44 oz.
Maximum preharvest application rate	22 oz.

### Minimize the Risk of Weed Resistance:

- ⇒ Start clean and control weeds early.
- ⇒ Use Roundup Ready® Technology as your foundation.
- ⇒ Add other herbicides and cultural practices where appropriate as part of the Roundup Ready System.
- ⇒ Use the right rate at the right time.
- ⇒ Control weeds throughout the season and reduce the weed seed bank.

### Use the Right Rate

In general, apply Roundup brand agricultural herbicides at 22 ounces per acre in soybeans before weeds exceed 8 inches in height (targeting 4 to 8 inch weeds). If the application is delayed and weeds are larger in dense populations, apply a higher rate, up to 44 ounces per acre. A 22 to 44 ounce per acre rate in single or multiple applications will control or suppress perennial weeds. Perennial weeds should be allowed to grow to at least 6 inches before spraying for best results.

A sequential application may be required to control new flushes or growth of weeds. In general, apply 22 ounces per acre of Roundup brand agricultural herbicides before weeds exceed 6 inches in height. A total maximum of 64 ounces per acre of Roundup herbicide can be applied in-crop when making sequential applications (Table 1).

### Use Tank Mixtures when Needed

Tank mixtures of Roundup brand agricultural herbicides with other postemergence herbicides labeled for use in soybeans can help to manage tough-to-control and glyphosate-resistant weeds (Table 2). Roundup brand agricultural herbicide rates should not be reduced when tank mixing with other herbicides. Individual tank mix product labels should be referred to for restrictions and precautions, and followed according to the most restrictive precautionary statements for each product in the tank mixture. In some cases, tank mix products could cause visual soybean injury.

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**Table 2.** Recommendations for tank mixes with Roundup® brand agricultural herbicides in Roundup Ready® soybeans.

Tank Mix Partner	Rate per Acre	In-crop Application Restrictions	Tough-to-Control or Glyphosate-resistant Weed Situations
Select MAX®	6-12 oz.	Through full flowering stage	Glyphosate-tolerant Volunteer Corn, Johnsongrass, Italian ryegrass
Flexstar®	6-12 oz.	Apply prior to bloom	Morningglories, Common ragweed, Giant ragweed, Waterhemp, Kochia, Palmer amaranth
FirstRate®	0.3 oz.	1st trifoliolate leaf through 50% flowering	Marestail, Morningglories, Velvetleaf, Giant ragweed
Ultra Blazer®	1-1.5 pts.	1st trifoliolate leaf through flowering	Waterhemp, Morningglories
Raptor®	4-5 oz.	Apply prior to bloom	Common lambsquarters, Eastern black nightshade
Pursuit®	4 oz.	Apply prior to bloom	Eastern black nightshade
Cobra®	6-8 oz.	1st trifoliolate leaf through flowering	Common ragweed, Giant ragweed, Eastern black nightshade, Kochia, Waterhemp, Palmer amaranth
Harmony® GT XP	0.083 oz.	1st trifoliolate leaf through flowering	Wild buckwheat, Common lambsquarters

Use full labeled rates of Roundup brand agricultural herbicides and follow label directions. Add only ammonium sulfate to the spray solution. A non-ionic surfactant can be added if using Roundup PowerMAX® herbicide. Refer to individual product labels for specific details.

### Herbicide Mixing Order It does matter...

1. Fill tank 2/3 with water.
2. Add ammonium sulfate (AMS) at 8.5 to 17 pounds per 100 gallons of spray solution. Allow to fully dissolve to tie up any hard water ions.
3. Add any dry formulations, suspensions, wettable powders, or flowables. Agitate to fully dissolve any dry products.
4. Add drift reduction agents.
5. Add water soluble formulations (liquids).
6. Finally, add Roundup® brand agricultural herbicides. If using Roundup PowerMAX®, non-ionic surfactant can be added last.



### Use the Right Additives and Mixing Procedures

Ammonium sulfate (AMS) is the only additive recommended with Roundup brand agricultural herbicides and tank mixtures used postemergence in Roundup Ready soybeans. A non-ionic surfactant can also be added when using Roundup PowerMAX® herbicide. AMS conditions hard water and makes it easier for herbicides to penetrate into the plant for better weed control. Use 8.5 to 17 pounds (1-2% by weight) of dry spray grade AMS or 2.5 to 5 gallons of liquid AMS per 100 gallons of spray solution. The lower rate of AMS should be used for in-crop postemergence applications when day time temperatures exceed 85° F to reduce potential for cosmetic leaf burn on soybeans. AMS should always be mixed first in the spray tank (Table 2).

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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 PESTICIDE LABEL DIRECTIONS.** Roundup Ready® crops contain genes that confer tolerance to glyphosate, the active ingredient in Roundup® brand agricultural herbicides. Roundup® brand agricultural herbicides will kill crops that are not tolerant to glyphosate. Degree Xtra® and Harness® are restricted use pesticides and are not registered in all states. 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. Technology Development by Monsanto and Design(SM) is a servicemark of Monsanto Technology LLC. Roundup®, Roundup PowerMAX®, Roundup Ready®, Roundup WeatherMAX® and Design®, and Transorb and Design® are registered trademarks of Monsanto Technology LLC. Select Max® is a registered trademark of Valent U.S.A. Corporation. All other trademarks are the property of their respective owners. ©2010 Monsanto Company. 06102010TED