

Flowable Co-Herbicide Compatibility with Roundup® Brand Agricultural Herbicides

Roundup® brand agricultural herbicides can be tank-mixed with herbicides to provide residual weed control, a broader weed control spectrum, or an alternate mode of action. Refer to various product labels for directions and lists or identification of potential tank-mix partners. Screens and nozzles can become blocked by the formation of gel or sludge when products are incompatible¹. Tank-mix incompatibility may also cause a product to settle out in the solution, reducing the herbicide's effectiveness and ease of application.

Certain flowable co-herbicides such as atrazine and diuron may be tank-mixed with Roundup agricultural herbicides. However, to assure the products remain dispersed in the mixture, agitation should be maintained and certain compatibility agents may help. For flowable herbicides, the active ingredient is in the form of a finely ground powder mixed with a small amount of emulsifier and suspended into a liquid. If left without agitation these products will settle out over time even in the absence of Roundup agricultural herbicides. Always predetermine the compatibility of all tank-mix products together in the carrier by mixing small proportional quantities in advance, also known as the compatibility jar test.

Recommendations for Successful Tank-mix Applications

- Spray volumes less than 10 GPA may lead to inconsistent weed control.
- Avoid very cold well water. Allow the water time to warm up prior to adding products.
- To aid in the compatibility include Ammonium Sulfate (AMS), 28% or 32% Urea Ammonium Nitrate (UAN), or a compatibility agent that contains phosphate ester when glyphosate is tank-mixed with atrazine, products containing atrazine, Direx®, Cotton-Pro®, Caparol® and Cotoran®. Rates for UAN range from 1 to 4 qts per acre, with many recommendations at 2 qts per acre.
- Inclusion of a compatibility agent may also assist in minimizing the amount and size of flocculants and reduce the potential of clogging nozzles.
- Maintain agitation. If the mixture is allowed to settle, initiate agitation to re-suspend the mixture before spraying.
- Spray materials soon after mixing.
- Most water conditioners do not improve atrazine compatibility as water hardness and pH do not affect atrazine compatibility.

Recommended Tank Mixing Order²

Do not mix concentrates

1. Start and maintain agitation
2. Add AMS, UAN or a compatibility agent directly to the water, or even after a compatibility problems occur if agitation is available.
3. Add co-herbicides to water. For flowable formulations it is suggested to mix one part herbicide with 1 part water prior to introducing to the tank mixture.
4. Add Roundup® agricultural herbicide to the co-herbicide/water mixture.
5. Maintain constant agitation at all times until the contents of the tank are sprayed out.

Sources: ¹ *Agronomy Guide: Pest Management—Section 2 Compatibility of Pesticides. 2011-2012. Penn State Cooperative Extension. <http://extension.psu.edu>*

² *Roundup PowerMAX® Herbicide Product Label. 2010. Monsanto Company. 6302714-10.*

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