

13 Tips To Improve Glyphosate Performance

Jeff Stachler, NDSU and U of M weed specialist, says you can get better weed control by following these steps.

Compiled by staff

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1. Apply glyphosate to small (1 to 3") annual weeds, especially broadleaf weeds.
2. Apply glyphosate to perennial species in the bud to early-flowering stage of development. This is most easily achieved by applying a preemergence herbicide.
3. Apply the most effective rate for the most difficult to control species in the field. For many annual weed species the minimum rate of glyphosate should be 0.75 pound acid equivalent/acre (lb ae/A). Species such as lambsquarters, velvetleaf, wild buckwheat, common ragweed, common mallow, smartweeds, horseweed (marestalk), biennial wormwood, dandelion, and waterhemp are more difficult to control with glyphosate. For these weed species, consider applying the maximum single-use rate of glyphosate in each Roundup Ready crop (0.75 lb ae/A for canola and Roundup Ready corn I, 1.125 lb ae/A for sugarbeet and Roundup Ready corn II, and 1.5 lb ae/A for soybean), especially if a reduction in control has been observed in previous years. Glyphosate should be applied at greater than 0.75 lb ae/A to improve control of perennial species. Multiple glyphosate applications usually improves control of most weed species, especially perennial species.
4. Always add ammonium sulfate (AMS) to glyphosate mixtures. Ammonium sulfate should be added at a minimum of 4 pounds per 100 gallons of spray mixture (lbs/100 gal) for most of North Dakota, although 8.5 lbs/100 gallons is probably best. Higher rates of AMS will be needed if water hardness is greater than 1600 ppm.
5. Allow at least a 6 hour rainfree period for **all** glyphosate formulations to maximize activity. A shorter rainfree period can be acceptable for the most susceptible species. Lambsquarters control is usually reduced if the rainfree period is less than 6 hours.
6. Apply glyphosate during the warmest and most humid weather conditions to maximize activity but be aware of weather conditions that could cause spray drift.
7. Most glyphosate formulations include a nonionic surfactant (NIS) in the formulation. Some glyphosate formulations do not include NIS (non-loaded). For these formulations add a quality NIS product at 0.5 to 1.0 % v/v. Some weed species, especially lambsquarters, are more effectively controlled with the addition of NIS at 0.25 %v/v to "loaded or full adjuvant load" glyphosate formulations and 0.25 to 0.5 %v/v to "partial adjuvant load" glyphosate formulations. Some glyphosate formulations prohibit the addition of NIS.
8. Glyphosate activity is influenced by the time of day of the application. Maximum activity occurs between 8:00 AM and 8:00 PM. Velvetleaf and common and giant ragweed control may be the most negatively affected by the time of the glyphosate application.

9. Application of glyphosate in low water volumes improves glyphosate activity. However, when spraying large weeds and/or dense weed canopies and when mixing with contact type herbicides, higher spray volumes usually improves glyphosate activity.

10. Glyphosate is strongly and irreversibly absorbed to clay particles and organic matter. Therefore dust of any amount, especially initiated by the wheels of the sprayer, will cause a reduction in glyphosate activity. The best methods for decreasing this problem are to drive slower and make sequential applications perpendicular to the previous application or off-set sequential applications by a few feet compared to the previous application.

11. When mixing other herbicides with glyphosate, add the most effective adjuvant for the herbicide being added. This strategy will maximize the activity of the herbicide(s) being added to the glyphosate mixture. If the herbicide being added to the glyphosate mixture recommends the addition of an oil adjuvant for maximum activity, then add a High Surfactant Oil Concentrate (HSOC). This is important because most oil adjuvants antagonize glyphosate activity. Current NDSU research indicates that not all HSOC's perform equally. Purchase a good quality HSOC and apply at 1.0 to 1.5 pt/A.

12. Sequential glyphosate applications should be postponed for at least 10 days after the initial glyphosate application, unless a complete failure has occurred.

13. Do not mix foliar fertilizers with glyphosate unless absolutely necessary. If necessary always add AMS at 8.5 to 17 lbs/100 gallons of spray mixture.

-- Source: NDSU Crop and Pest Report