GLYPHOSATE

SYSTEMIC, NON-SELECTIVE HERBICIDE

Cooperative Extension

WHAT IS GLYPHOSATE?

Introduced in 1974, glyphosate is the world's most-used herbicide. It is a Group 9 (EPSPS inhibitor) herbicide that operates as a non-selective, systemic, post-emergent product to control actively growing green plants, including grasses, broadleaves, and sedges.

- **Active class:** Non-selective & systemic herbicide
- **Herbicide group:** Group 9 (EPSPS Inhibitor)
- **Common formulations:** Sold as Roundup® & generics (IPA, potassium, diammonium salts)
- **Target:** Enzymes found only in plants & microbes—not humans/animals

Why it matters on your farm
Controls emerged Palmer amaranth (if not resistant) & other tough weeds—but won't stop the next flush.

WHAT IS THE MODE OF ACTION?

- Glyphosate is absorbed only through green tissue, not roots or soil.
- It moves with sugars (phloem) to roots and growing points.
- It blocks EPSPS enzyme, halts 3 essential amino acids.
- Symptoms: Yellow and then brown and wilt of 1-3 weeks, but happens more slowly when cool.



WHAT ARE THE CHELATING CHARACTERISTICS?

Chelates (binds) metal ions like Ca^{2+}, Mg^{2+}, Fe^{3+}, Mn^{2+}.

- **Spray tank:** hard-water cations bind glyphosate first, cutting efficacy.
- **Soil:** same binding locks glyphosate onto clay & metal oxides

Field fix: Add AMS (4–17 lb/100 gal) before glyphosate – sulfate ties up cations, keeping glyphosate active.

Always read and follow the herbicide label.
This factsheet is for general educational use and does not replace label directions or product-specific guidance.

RESIDUAL EFFECTS AND SOIL BEHAVIOR

Soil activity	Minimal – not a pre-emergent; binds tightly to soil
Soil half-life	~3–130+ days (soil type, microbes, moisture)
Mobility	Low leaching – tightly soil-bound
Breakdown	Mainly soil microbes, not sunlight/water
Replant interval	No residual-based restriction – confirm on label

MAXIMIZING EFFICACY IN THE FIELD

- Treat weeds small & actively growing (rosette–early bolt)
- Use clean water; add AMS if hardness >300 ppm
- Match nozzle/pressure for full coverage, minimal drift
- Spray warm, sunny, low wind; avoid rain within 4–6 hrs
- Check tank-mix compatibility – avoid antagonism
- Rotate MOAs to manage resistance (e.g., Palmer amaranth)
- Avoid drought-stressed weeds – poor uptake



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