

**Weed control choices for turf and landscapes**

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Weeds are probably the most prevalent problems in managing turf and landscapes. Herbicides used to manage weeds, therefore, account for the majority of actual pesticide use in these environments.

**Herbicides** are excellent, indispensable tools for weed management. However, they are often used inappropriately and incorrectly, leading to ineffective weed control or damage to desirable plants. A very popular herbicide is “**RoundUp**”, that was first developed as a sprayable product based on the chemical **glyphosate**.

It is effective against a broad spectrum of weeds (non-selectively kills both grasses and broadleaved plants). It acts by entering through the leaves and spreads throughout the plant to stop new growth and to the roots, resulting in death. There are many glyphosate-based products available for professional, commercial, and residential/homeowner uses, in varying concentrations of active and inert ingredients added to make up the formulated product (Fig. 1). Recently, the name “RoundUp” became a marketing brand name for retail consumers.

“RoundUp” products now include non-glyphosate herbicides that can be used to provide an extended period of weed control or even be safely used on lawns. Some of these products have different names. For example, Groundclear®, contains glyphosate and imazapyr, a non-selective soil/root-active herbicide which can last about a year in soil, moves with water, and can easily be taken up by roots of nearby plants and trees. As a result, when Groundclear® is applied for mulch circle weed control, nearby plants can be killed.

Pure glyphosate is low in toxicity to humans and other animals. It targets only plants and poses very little risk while providing economic benefits of ridding weeds. Read more about glyphosate at <http://npic.orst.edu/factsheets/glyphogen.html>. However, combinations with other active/inert ingredients may have different effects.

Preventing and eliminating weeds should include many of the possible cultural (promote health and vigor of turf), physical (hand pull weeds), mechanical (hoeing and mowing), and chemical control tactics in an integrated strategy for the site. There should not be a total dependence on spraying herbicides nor excluding their uses.

**How to choose the right herbicide?**

- Identify the problematic weeds you want to control, and select the herbicide best suited for those weeds in those locations.
- There are herbicides with different modes of action, and those that act before (pre-emergence) or after (post-emergence) weeds have emerged from the soil.
- **Always read the label** carefully before using any herbicide or pesticide. **The label is the law!** (Fig. 3).
- Use recommended **label rates**, do not cut or double rates.
- Apply at the **correct time**. Herbicides applied at the wrong time can be ineffective and this wastes time and money.
- **Rotate chemistries** among the different mechanisms of action. Don't use the same herbicide all the time.
- **Integrate PRE and POST** emergence herbicides into your weed management strategy.
- Use **herbicide alternatives** (see overleaf).

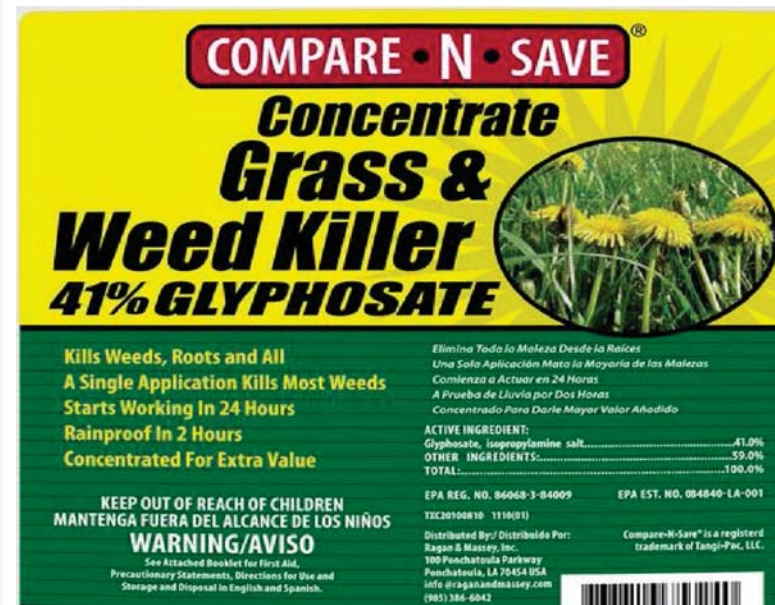
**Figure 1. Glyphosate-based products.**



**Figure 2. “RoundUp” products that include non-glyphosate herbicides.**



**Figure 3. Read the fine print on the label of any pesticide product you purchase. It contains important information.**



**COMPARE-N-SAVE®**  
**Concentrate Grass & Weed Killer**  
**41% GLYPHOSATE**

**Kills Weeds, Roots and All**  
**A Single Application Kills Most Weeds**  
**Starts Working In 24 Hours**  
**Rainproof In 2 Hours**  
**Concentrated For Extra Value**

**Elimina Todo la Maleza Desde las Raíces**  
**Una Solo Aplicación Mata la Mayoría de las Malezas**  
**Comienza a Actuar en 24 Horas**  
**A Prueba de Lluvia por Dos Horas**  
**Concentrado Para Darle Mayor Valor Añadido**

ACTIVE INGREDIENT:	Glyphosate, isopropylamine salt	41.0%
OTHER INGREDIENTS:		59.0%
TOTAL:		100.0%

**KEEP OUT OF REACH OF CHILDREN**  
**MANTENGA FUERA DEL ALCANCE DE LOS NIÑOS**  
**WARNING/AVISO**

See Attached Booklet for First Aid, Precautionary Statements, Directions for Use and Storage and Disposal in English and Spanish.

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**Herbicide alternatives**

Hand weeding. Weeding by hand, or hand-held tools works well to manage weeds in small areas. Remove weeds when they are young, have not set seed or produced deep roots or rhizomes underground.

Dragging. Drag harrows work by stirring the soil and displacing weed seedlings as the harrow is dragged along the ground. Dragging can be used in large areas which do not need uniform turf, such as grounds, retention basins, baseball diamonds, etc. (Fig. 4).

Flaming. Propane weed burners are an option for sidewalk, asphalt cracks, fence lines, and areas with low risk of fire spreading (Fig. 5).

**Important: Check local ordinances before using open fires.**

Steam weeders are another option to avoid herbicide use.

Maintaining paved areas. Sealing cracks in paved areas and walkways on a regular basis will prevent weeds from germinating/growing and can help avoid herbicide applications in these spots (Fig. 6).

Low impact herbicides. Acetic acid (vinegar), pelargonic acid, plant-oil-based products, and bioherbicides are available alternatives to conventional herbicides. Some examples of products are Axxe®, Suppress®, and Scythe®. Spot spraying versus broadcast spraying reduces exposures. **Important: Organic products are not necessarily harmless on contact with human skin and body parts.** For example, acetic acid (vinegar) can cause blindness on direct contact with eyes, stain concrete and corrode painted surfaces. Always wear the required PPE even when using organic products.

**Personal Protective Equipment (PPE)**

The following PPE or more, are recommended during any pesticide application: rubber gloves to prevent dermal contact; goggles to prevent eye injury; and rubber boots to eliminate contact when walking through sprayed areas, and not saturating shoes with chemicals and extending exposure. Appropriate PPE can greatly reduce the potential for pesticide exposure and potential health impacts. However, **PPE does not completely eliminate risk.**

**Other landscape practices that help in weed control:**

Proper site preparation. Before planting a new area with turfgrass or landscape plants, remove existing vegetation, irrigate and wait for weeds to emerge. Then follow with manual weed removal or application of a non-selective herbicide.

Selecting the right landscape plants, suited to your location. Species that are not suited become weak, stressed, and allow weeds to take over.

Maintaining plant health and vigor through proper management.

Mulching. Use and maintain mulch, 3-5 inches thick, in any areas where water conservation and weed management is needed (around the base of trees, in garden beds, etc). Weed barriers made of plastic, fabric or other materials are also available.

Solarization. Covering soil with clear plastic tarp for 4-6 weeks during summer or periods with maximum sunlight can heat up the top 12-18 inches, and kill a range of pests including weeds.

**Sources, further information:**

Arizona Master Gardener Manual, Chapter 19: Weed management. <https://extension.arizona.edu/pubs/arizona-master-gardener-manual>  
Henderson, A. M.; Gervais, J. A.; Luukinen, B.; Buhl, K.; Stone, D. 2010. *Glyphosate General Fact Sheet*; National Pesticide Information Center, Oregon State University Extension Services. <http://npic.orst.edu/factsheets/glyphogen.html>.  
Kao-Kniffin, J. 2014. Allowable herbicides for schools and day-care centers. [www.hort.cornell.edu/turf/pdfs/allowable\\_herbicides\\_schools.pdf](http://www.hort.cornell.edu/turf/pdfs/allowable_herbicides_schools.pdf)  
Wilens, C. 2012. Natural herbicides: Are they effective? <http://www.ucanr.org/blogs/blogcore/postdetail.cfm?postnum=6498>

Figure 4. A drag harrow being used to drag a field to remove weeds.



www.farmachinery.co.uk/

Figure 5. A propane torch being used to burn weeds coming up in asphalt cracks.



https://www.amleo.com/

Figure 6. Maintain paved areas to prevent weeds germinating in cracks and gaps.



Anneli Salo

**Integrated Weed Management is the best way to manage weeds.**

A PDF of this publication is available online at - <https://cals.arizona.edu/apmc/docs/Glyphosate-IPMShort.pdf>

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