

A photograph of a Toro low-profile herbicide applicator, a white and blue machine with a large orange hose reel, spraying a green on a golf course. The machine is positioned on the left, and its long boom extends across the frame, with multiple nozzles spraying a fine mist of herbicide onto the grass. The background shows a line of trees under a hazy sky.

Preventing herbicide mix-ups

Put a system in place to ensure misapplication doesn't happen

Every year, we hear of at least one serious incident of herbicide misapplication on turf. Glyphosate accidentally applied to greens is one example, as are preemergent herbicides that are unknowingly applied (usually via herbicide-impregnated fertilizer granules) on fairways that are about to be overseeded. These accidents usually happen when people don't realize they're applying an herbicide because:

- The commercial name resembles a nonherbicide product. For example, there are many pesticides, surfactants and water-treatment products that begin with the word aqua. Unfortunately, there are several glyphosate-based products that also have the word aqua in their names, making it easy to mix up products.

Accidental applications of glyphosate is an all-too-common occurrence that can be avoided.

Table 1. Commercial names of commonly encountered glyphosate-based (pure glyphosate, as well as mixtures and salts) herbicides. Because glyphosate will kill almost any plant it comes in contact with, and it's ubiquitous and sold under a large variety of commercial names, take special care with proper identification, storage and use. This list is not all-inclusive, and there might be glyphosate-based products available for use in turf that don't appear at the right.

Accord	Eagre	Ranger	Shootout
Aqua Neat	Gly-4	Rattler	Showdown
Aquamaster	Gly Star	Razor	Silhouette
Aquapro	Glyfos	Rodeo	Strikeout
Aquastar	Glyphosate	Roughneck	Touchdown
Avocet	Honcho	Roundup	Trailblazer
Buccaneer	Kleen Up	Sequence	Traxion
Campaign	Mirage	Shoreklear	
Credit Duo	Prosecutor		

- The commercial name isn't recognized. While most people recognize RoundUp is a broad-spectrum herbicide, many other products based on glyphosate aren't so easily recognized. (See Table 1 above.)

- Label art is similar. Many herbicide product labels have similar colors and designs compared to other turf management products.

- Fertilizers that are impregnated with herbicides are applied as if they were just fertilizers. If labels aren't carefully reviewed at the time of each application, workers might mistake herbicide products for plain fertilizer products.

- Herbicide products are stored next to other turf management products. Workers might mean to pick up one product but take the one next to it instead.

- Dealers or distributors mistakenly deliver the wrong product.

PATENTS AND THEIR ROLE IN THE PROBLEM

Recently, there were only a few glyphosate-based products on the market, and it was easy to train

crew members about the proper and improper uses of RoundUp. But since Monsanto's patent for glyphosate expired, workers must now deal with close to 100 different glyphosate-based products with names ranging from Accord all the way through the alphabet to Traxion.

AVOIDING THE NIGHTMARE: THE LABEL

The brand name of the product alone is a poor indicator of the nature of the material that workers are about to spray. The product label contains all the information one needs to know to avoid the heartache of herbicide errors. The following elements of the front panel of the label are your guides to what is contained within (See Figure 1 below.):

1. Commercial name. This is the name the manufacturer selected for marketing the product. As Table 1 indicates, there can be several commercial names for each active ingredient.

2. Product type. Most labels indicate whether the product is an herbicide, insecticide, fungicide or other pest control product.

3. Active ingredient common and chemical names. This section of the label identifies each pesticide chemical and its percentage by weight in the product. The active ingredient can be listed in two different ways. The common name is the shorthand term chemists use to refer to this molecule. The chemical name is usually much longer and more descriptive. The federal EPA requires, at a minimum, the common name be used. For example, glyphosate is the common name for the active ingredient in RoundUp and other related products, while N (phosphonomethyl) glycine, in the form of its isopropylamine salt, is the chemical name. Note: The words other ingredients or inert ingredients refer to nonpesticide formulation components, such as water, spreaders, stabilizers, etc.

EDUCATING THE STAFF

Key staff members should understand these label components. The product type always should be double-checked before application, and if the word herbicide appears on the label, staff should be encouraged to ask questions if they have any doubts about the suitability of applying a product. If possible, they should be familiar with the commercial and common names, as well as use patterns of all pesticide products that are used on the golf course.

Workers need to be familiar with the herbicide-impregnated fertilizer products used on the golf course and understand these products have plant-killing capabilities.

Finally, workers need to avoid using design and/or colors on the label as a means of identifying products.

STORAGE

If possible, herbicides should be stored in a separate cabinet or room from all other products. At a minimum, specific shelves should be set aside and labeled for herbicides only.

CHECK AND DOUBLE-CHECK

Many superintendents have systems that require the approval of a second person – usually the superintendent or a designated manager – before daily product selections are applied. This type of arrangement is a good safety net for catching product mix-ups and probably is most successful when the manager assumes final responsibility for the product selections. **GC**

Wendy Gelernter and Larry Stowell are the owners of PACE Turf. For more information about avoiding mishaps and other production practices, visit www.PaceTurf.org.

Figure 1. A glyphosate product label, highlighting the information that's most useful when determining the nature and damage potential for pesticide products.



ACTIVE INGREDIENT:
Glyphosate, N-(phosphonomethyl)glycine,
in the form of its isopropylamine salt53.8%
OTHER INGREDIENTS:46.2%
100.0%

*Contains 648 grams per liter or 5.4 pounds per U.S. gallon of the active ingredient glyphosate, in the form of its isopropylamine salt. Equivalent to 480 grams per liter or 4 pounds per U.S. gallon of the acid, glyphosate.