



*Squeeze bottle application of Roundup (Glyphosate).*

# Those Irrepressible, Incredible, Impossible Grassy Weeds!

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**A**LMOST EVERY golf course has them. Millions of dollars are spent annually and thousands of hours devoted to their control. And yet, after all the effort and expense, these irrepressible grassy weeds are incredibly difficult, if not impossible, to control in our golf course environment.

The most difficult are those that spread by stolons or rhizomes. The largest group are the turfgrass species that invade the golf course domain of more desirable cultivars or species for a particular area. An example is the encroachment of bermudagrass or bentgrass into areas where they are not wanted. Both cool-season and warm-season grasses are guilty of the habit.

Other turfgrasses that have a bunch-type of growth, like tall fescue, perennial ryegrass, or annual bluegrass, are equally guilty. They frequently cause problems around aprons of greens where the fine touch of a chip shot is required to save par. Their bunch-type growth can cause a golf ball to nestle down low or rest up next to an individual plant.

And then there are a large number of non-turfgrass species that can be classified as "Impossible Weeds." A few of the most common are torpedograss, smutgrass, and creeping sedges such as purple nutsedge. Goosegrass is also in this category, and there are regions of the United States where it has a perennial growth habit.

Nearly all of these weeds, with the exception of smutgrass, can be found on the closely mowed turf of fairways, tees, and greens. Smutgrass is primarily found in roughs. The old rule of thumb that a healthy, dense turf prevents weed encroachment doesn't apply to the Impossible Weeds. They thrive under good fertility conditions the same as desired turfgrasses. Have you wondered if there is any hope for fighting against these weedy pests? Well, there are methods of control, and they range from cultural practices to non-selective chemical control.

Cultural practices include scalping, deep-set vertical mowing, turning off irrigation, hand removal, excavation, and even starvation by eliminating

normal fertilization. While these may seem drastic, a change in routine cultural practices will often result in weed reduction by allowing the desired grasses to gain the upper hand. This type of control does not provide eradication, but merely suppression. After all, not every control must produce a complete weed kill.

Chemical control varies as much as the cultural practices. The most common non-selective herbicide used today is Roundup (glyphosate). Spot treatments can be made with hand-held sprayers, plastic squeeze bottles, hypodermic syringes, and even paint brushes. Spot applications may be expensive in terms of labor, but they can be effective in providing annual reduction of weeds in specific areas such as around greens and tees. Spot application requires the judgement of a person to determine what is a weed or where to place the herbicide. For this reason, this type of weed control is hard to automate or conduct with large tractors or maintenance vehicles.

However, there are methods to selectively place herbicides such as Roundup with large implements. One which is gaining in popularity is the use of a rope wick applicator. Rope wick applicators can paint the top half of tall fescue or smutgrass above the growing height of desired turfgrasses. Weed kill results by the translocation of the Roundup. Multiple applications at two- to three-week intervals will provide control.

Many golf course superintendents are building their own rope wick applicators with PVC plastic pipe and wicks with connectors purchased from sprayer parts distributors. These are custom-designed units that vary in width and size depending on the golf course terrain and the unit used to pull the applicator. They are very efficient in terms of the amount of Roundup applied per unit area. The strength of the Roundup solution will vary, but a 33 percent solution seems to be the most popular for small rope wick applicators.

Mixing correct labeled rates of herbicides or combinations of herbicides in small containers can be difficult. A stock solution can be mixed for each day's spraying activity, but this is dangerous because temporary storage has to be provided, and the containers may not be properly labeled. A syringe could be the answer to measuring small amounts of herbicides. Just remember that 1cc is equal to 1ml, which can then be converted to ounces.

If large areas, such as fairways, have to be spot treated for weeds, then a 100-gallon spray tank can be used for mixing the herbicide. The herbicide can then be applied with hand-held sprayer nozzles and a multiple-hose system. This would involve a group of three or more sprayer operators walking behind a single spray tank. A manifold with quick-disconnect hose attachments can be used to connect the hoses. The advantage to this multiple-hose and large-

tank system is that it is convenient to use with a wide range of herbicide combinations.

Whatever the herbicide combination or selection, the best method to control difficult weeds is through continual repeat applications. Persistence is the key to the reduction of the Impossible Weeds.

### **Bermudagrass Control**

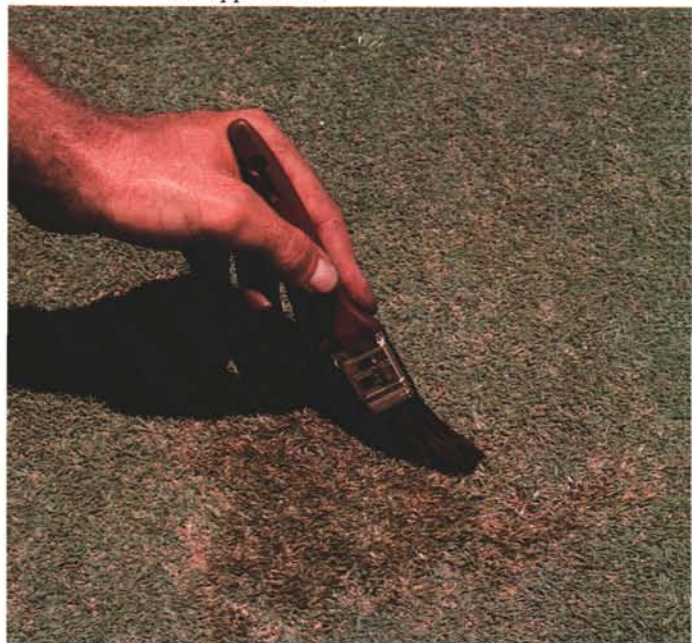
In warm-season turfgrasses, there are some excellent examples of the Impossible. In the southern United States, the most common weed discussed on any golf course is bermudagrass. Common bermudagrass will become a weed by strict definition when it encroaches onto greens, tees, and fairways where an improved hybrid bermudagrass, zoysiagrass, or other selections presently exist. Examples are fairway types of bermudagrasses that are often observed on fine-textured bermudagrass greens. The fairway selections have a much coarser texture and produce a rough surface that inhibits good golf ball roll characteristics. Thousands of dollars are spent annually across the southern United States to replant bermudagrass greens that have a large amount of contamination caused by different bermudagrass strains.

Spot application of Roundup for invading bermudagrass offers only temporary control. This, however, may be the only practical control available for replanting small areas in fairways,

*Torpedograss encroachment onto a bermudagrass green.*

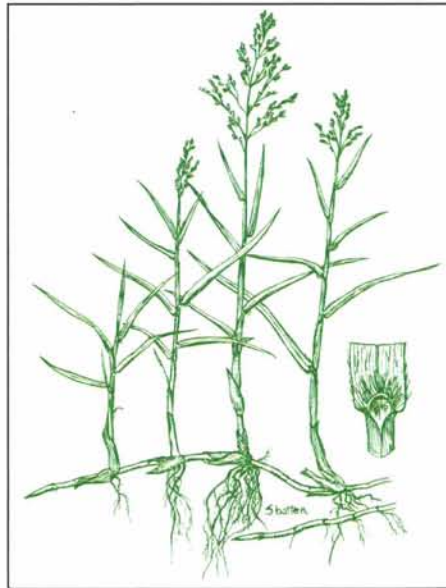


*Even paint brushes have been used for herbicide application.*

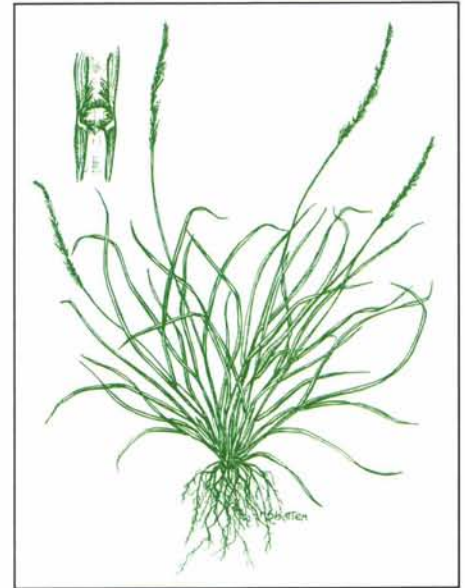




*Purple Nutsedge*



*Torpedograss*



*Smutgrass*

etc. During a putting green replanting program, fumigation with methyl bromide is the best insurance against the recurrence of unwanted bermudagrass selections. When planting a bermudagrass green, a border of eight to ten feet should always be planted around the desired putting surface to provide a physical barrier from encroachment of fairway grasses. Roughing newly sprigged greens by hand immediately after planting will help avoid contaminations that occur during putting green establishment. Common bermudagrass growing in improved hybrid bermudagrass greens is a perfect example of an undesirable turfgrass cultivar becoming an Impossible Weed.

Containing bermudagrass in other turfgrass species is another common problem. Bermudagrass encroachment onto bentgrass greens is cursed and discussed from California to North Carolina, all along the entire transitional zone of the United States. To date, the most effective chemical control has been multiple applications of Tupersan (siduron) on the collars of bentgrass greens. Mechanical edging has proven even more effective as long as it can be scheduled on at least a weekly basis during the bermudagrass growing season.

In zoysiagrass, bermudagrass has become a competitive weed because it has a faster growth habit. Spot treatment of bermudagrass with Roundup is the most common control employed. Repeat applications are often needed for good control. Even then, sod removal may be required after the bermudagrass is treated to prevent recurrence.



*Goosegrass*

### Controlling Grasses in Bermudagrass Bahiagrass

Of course, there are golf course turfgrasses that become common weeds in bermudagrass. Bahiagrass is one of them. It is a stoloniferous turfgrass that can be a persistent pest in bermudagrass fairways. It is the only golf course turfgrass species that can survive with little or no irrigation, so the tide can turn during drought conditions as bahiagrass becomes more competitive than the bermudagrass. Some weed scientists consider bahiagrass a controllable weed, but it can be found as a weed problem on a high percentage of golf courses from south Texas to south Florida. The reason is that it is often planted in roughs because it provides a low-maintenance turf. Continual five- to seven-day

applications of high rates of MSMA are needed to reduce bahiagrass in most bermudagrass fairways. Presently, bahiagrass control is being evaluated with Oust (sulfometuron), and experimental selective herbicide, at Auburn University. Hopefully, Oust and other experimental herbicides will soon improve the containment of bahiagrass to the rough areas of golf courses.

### Perennial Ryegrass

Every year during winter overseeding, perennial ryegrass seed escapes onto green and tee slopes and becomes a weed. This is an example of a weed problem created by the introduction of another turfgrass species. Overseeding is necessary on bermudagrass greens to provide winter color and playing surfaces. Pre-emergence herbicides can help reduce unwanted ryegrass, but they can be very expensive. Post-emergence control with Kerb (pronamide) can be effective on areas where the terrain slopes away from green sites so the herbicide will not wash onto a green. However, after perennial ryegrass matures and begins to tiller, it can be very difficult to control and becomes resistant to normally applied herbicides. The key is to time the Kerb application so that the perennial ryegrass is controlled just after germination. Non-selective herbicides such as Roundup can be applied for ryegrass control if the bermudagrass is dormant.

### Smutgrass

About the time that warm weather reduces perennial ryegrass in the roughs, smutgrass starts to become an annual

weed problem in the southern states. Smutgrass forms large clumps in roughs that are difficult to mow. The golf players find it especially objectionable when they get black streaks on their clothing from rubbing next to its seed heads. This is caused by the spores of a fungus (smut) which is common to smutgrass.

Similar to ryegrass control, timing of herbicide application is critical. Aatrex (atrazine), Princep (simazine), and Dowpon have all been used for late fall smutgrass control when the bermudagrass ceases its lateral growth. Because smutgrass rises above bermudagrass, it is an excellent candidate for use of a rope wick applicator with Roundup for control. Four or more applications of MSMA at high rates at monthly intervals has been reported effective in the late spring and early summer.

### **Kikuyugrass**

In some small regions of the United States, there are rhizome-forming competitive weeds in bermudagrass turf that are extremely difficult to control. Kikuyugrass is an example of one that has become a serious weed in Southern California. It has become so prevalent that, in some instances, the question is whether to control the kikuyugrass in the bermudagrass or the bermudagrass in the kikuyugrass. If the judgement is made in the best interest of golfing turf and playing conditions, however, bermudagrass should and will win! Kikuyugrass is a vigorous seed producer and has a very extensive, hardy, rhizome system. The grass becomes very puffy, produces excessive thatch, requires constant close mowing to keep it playable, and is of a wiry nature, making it difficult to mow. Many golfers complain that it makes normal shot making difficult, largely eliminates the "bump and run" type of game, and is tiring to walk on. Nevertheless, there are some who extol its virtues.

Control of kikuyugrass is best when timed during its most active growth period, mid to late summer. Control requires two to three applications of Roundup at three-week intervals, followed by an application of Tupersan. Replanting the controlled kikuyugrass site is then advisable with an improved bermudagrass or ryegrass selection.

### **Torpedograss**

Any turfgrass manager who spends his spare time bass fishing along the Gulf

Coast of the United States has seen torpedograss. It is a favorite hiding place for large-mouth bass. Its large rhizomes cause it to creep onto golf course fairways and even into bermudagrass greens. Torpedograss can be found in areas with wet soil conditions, and it is resistant to almost all herbicides except Roundup. Many golf course superintendents have spent time on their hands and knees painting torpedograss with Roundup on the collars of greens. Some control has been reported with Asulox (Asulam), but most rates effective for control will also control or suppress the bermudagrass. Torpedograss can form a turf under rough mowing heights, which is an alternative to its becoming an Impossible Weed.

### **Goosegrass**

There are annual weeds which become perennial in their growth characteristics. Goosegrass, one of the most common annuals on golf courses, becomes a perennial weed in sub-tropical regions of the United States. Reproduced by seeds, a single plant can produce 20,000 to 50,000 seeds per year on three to seven finger-like racemes per spike. Therefore, it is a constant threat wherever bermudagrass turf is thin and weak. Long seasonal growth in these sub-tropical regions means that the timing of herbicide control is critical. Goosegrass can germinate right up until the time of overseeding, so it becomes a winter weed on green bermudagrass fairways in Southern California, South Florida, and Hawaii. Normal post-emergence control herbicides will discolor the bermudagrass for long periods at a time during the winter months in these regions, so control is based on pre-emergence herbicides or spot application of non-selective herbicides. Hand removal has long been a form of control, especially on greens, but higher labor costs reduce its efficiency in areas of a large goosegrass population.

The best control is early and late summer post-emergence applications of MSMA, alone or in combination with Sencor (metribuzin) at labeled rates. Combined with spring pre-emergence herbicide application and a good fertility program for the bermudagrass, goosegrass can be reduced significantly. Goosegrass isn't just another weed, it is probably the most persistent annual weed in the southern tips of the United States, so perhaps it should be classified at the top of the list of Impossible Weeds.

### **Creeping Sedges**

Not all of the Impossible Weeds are grasses. Creeping sedges, such as purple nutsedge, are found on greens, around bunkers, and in fairways of all turfgrass species. Purple nutsedge has a vigorous rhizome system that is initiated through tubers (nuts) in the soil. These tubers are the key to control. They are affected by fumigation with methyl bromide, so it is imperative to fumigate all sands used for green construction prior to planting in areas where purple nutsedge is common.

Post-emergence control is based on the continual reduction of the leaves and plant with repeated MSMA or Basagran (bentazon) applications. As new shoots recur from rhizomes and tubers, another herbicide application will reduce them. Finally, after enough applications are made with post-emergence herbicides, the purple nutsedge is reduced, but not necessarily controlled. Stay with the continual post-emergence herbicide program for several growing seasons and the turfgrass manager will eventually win the battle against purple nutsedge.

Invading turfgrasses and weeds that are difficult to control are just as prevalent in cool-season turfgrasses as warm-season turfgrasses. One advantage to cool-season turfgrasses is that many of them can be reseeded after weed control. Herbicide application techniques are similar for both warm- and cool-season turfgrasses.

There has been considerable interest in many of the new, very selective, experimental herbicides with warm- and cool-season turfgrasses. New herbicides such as Oust (sulfomethron), Glean (chlorsulfuron), and Poast (sethoxydim) are being evaluated for selective weed control at universities in almost every region of the United States. Researchers are finding that there is a considerable difference in the tolerance to these new herbicides among the turfgrass species. This will help us develop techniques for the timing of herbicide applications. There are still better herbicide application methods yet to be discovered with the help and support of turfgrass managers. Improvements in turfgrass cultivars now underway in the breeding programs supported by the USGA and GCSAA will provide better, weed-resistant golf course turfgrasses. With all these continual improvements in controlling difficult turfgrasses and weeds, they soon may not be so impossible!