

# Unmowed Roughs Save Money and Time

By Tom Voigt

**W**hether it's because of golf course design trends, wildlife habitat creation, or perceived labor and chemical input reductions, unmowed roughs in Midwestern golf courses have become popular.

In existing courses, creating and managing these areas successfully often entails more than allowing previously mowed areas to go without mowing. In new construction, selecting the most appropriate mix of plants will ensure that not only is the ground covered and erosion controlled, but that the golfing experience is also enhanced.

Since 1988, native grasses and forbs have been evaluated at the University of Illinois for their suitability to planting in unmowed rough areas. In addition, through working with superintendents and through on-course observations, it has been easy to arrive at several conclusions about plant selection, management and golfer acceptance.

Finally, new questions about planting and managing unmowed roughs continue to be asked, giving rise to additional research opportunities.

## What have we done?

Working with plants for unmowed roughs began in 1988, when a large group of native Midwestern grasses were planted at the University of Illinois Landscape Horticulture Research Center in Urbana (Voigt, 1993). These grasses were selected for their variable aesthetic appeal and also for their tolerance to a variety of environmental settings.

Following more than three years of evaluation, results were used to develop a planting plan for an unmowed rough area on the south course at Olympia Fields CC in south-suburban Chicago. While mostly successful, this experience exposed several problems with an all-grass design, weed invasion, planting methods and golfer acceptance (Voigt, 1996).

In 1999, a study was designed to improve superintendents' knowledge and under-

standing of more than 50 species of native grasses and forbs.

Planted at three Chicago-area golf courses in either full-sun or partial-shade settings, these plants were evaluated for aesthetic value in unmowed roughs and to evaluate their long-term performance following three different planting-bed preparation options (Voigt, 2001; Voigt, 2000; Voigt, 1999a; Voigt, 1998b).

During August and September 2000, another study was planted in an unmowed rough at a central Illinois golf course. The objectives of this research are to evaluate several species of exotic turf and native grasses suitable for use in rough naturalizing and prairie revegetation, and also to evaluate vegetation removal practices and chemical weed control in this planting.

Moreover, superintendents have been formally surveyed and informally questioned about their work with unmowed roughs since the beginning of these studies and demonstrations. Normally, most interactions with superintendents occurred during frequent golf course visits when on-course observations took place (Voigt, 1998a).

## What we've learned

There are many grasses and forbs suited to planting in unmowed roughs (Table 1). Some of these plants solve landscape problems (e.g., wet or dry sites, shaded settings), some have great aesthetic appeal and some even look good while solving landscape problems.

Among the native grasses, big bluestem, side-oats grama, blue grama, northern sea oats, tufted hairgrass, bottlebrush grass, purple lovegrass, switchgrass, little bluestem, Indiangrass, cordgrass and prairie dropseed can perform well in unmowed roughs (Voigt, 1993). Nodding wild onion, false sunflower, ironweed, Culver's root, rattlesnake master, yellow coneflower, foxglove digitalis, mountain mint and stiff goldenrod can make valuable additions to roughs because of their attractive flowers (Voigt, 2001; Voigt, 2000;

TABLE 3

## Twenty-five valuable plant species for unmowed rough planting

Plant (height)	Comments
<b>Native grasses</b>	
<b>big bluestem</b> <i>Andropogon gerardii</i> (3'-8')	Upright, spreading warm-season grass; blue-green foliage becomes dull red in autumn; best in mesic and hydric sites; use in far roughs as in masses, as a temporary screen, or a background plant.
<b>side-oats grama</b> <i>Bouteloua curtipendula</i> (1'-3.5')	Mounding, warm-season grass; gray-green foliage; xeric to mesic sites; flowers in mid-to-late summer; mass for best effect.
<b>blue grama</b> <i>Bouteloua gracilis</i> (1'-3.5')	Bunch-type, mounding, warm-season grass; fine textured, light green foliage; xeric to mesic sites; purplish flowers in late summer; mass for best effect.
<b>northern sea oats</b> <i>Chasmanthium latifolium</i> (2'-5')	Narrow, upright, weakly rhizomatous, cool-season grass; light green, coarse-textured foliage; mesic sites in light shade; flat, dark green inflorescences June to October becoming bronze at maturity; Very attractive in flower; Can spread by seed.
<b>tufted hairgrass</b> <i>Deschampsia cespitosa</i> (2'-3')	Mounded, bunch-type, cool-season grass; dark green, fine-textured foliage; xeric to hydric sites in full sun or light shade; light green to golden panicles in early season; propagate by seed and division; mass for best effect.
<b>purple lovegrass</b> <i>Eragrostis spectabilis</i> (1'-2')	Fine-textured foliage; xeric to mesic sites; very attractive red-purple panicles in late summer; mass for best effect.
<b>bottlebrush grass</b> <i>Hystrix patula</i> (2'-4')	Upright, bunch-type to weakly rhizomatous, cool-season grass; medium green foliage; xeric to mesic sites in light shade; bottlebrush-shaped flower spikes in May and June
<b>switchgrass</b> <i>Panicum virgatum</i> (3'-6')	Upright, aggressive, spreading warm-season grass; medium green foliage becoming bronze at maturity; xeric to hydric sites, will tolerate light shade; pale yellow flowers July through September.
<b>little bluestem</b> <i>Schizachyrium scoparium</i> (1'-3.5')	Upright, slowly spreading to bunch-type warm-season grass; blue green foliage becoming rust-colored in autumn and winter; xeric to mesic sites, can tolerate light shade; reddish flowers in late summer and early fall; mass for best effect.
<b>Indiangrass</b> <i>Sorghastrum nutans</i> (4'-8')	Upright, spreading, warm-season grass; bluish green, coarse textured foliage; short-lived, beautiful gold-bronze flowers in August and September; xeric to mesic sites; use in far roughs as in masses, as a temporary screen, or a background plant.
<b>Cordgrass</b> <i>Spartina pectinata</i> (5'-6')	Upright, vigorous, spreading, warm-season grass; arching, medium- to coarse-textured foliage with saw-toothed margins; can be invasive spreading by vigorous rhizomes; hydric to mesic sites, will tolerate light shade; golden-yellow flowers in August and September; especially useful in low, wet areas.
<b>prairie dropseed</b> <i>Sporobolus heterolepis</i> (1'-3')	Upright, mounding, warm-season grass; fine-textured, delicate, medium-green foliage begins growth in mid spring and becomes yellow in fall; xeric to mesic sites; pale pink fragrant panicles in August and September. Masses of this grass are especially interesting in August and September when foliage is changing color and it is in flower.
<b>Native forbs</b>	
<b>nodding wild onion</b> <i>Allium cernuum</i> (2'-3')	Upright growth with spreading habit; long, narrow leaves with drooping white pink flowers on upright stems July through early September; tolerates full sun and light shade in mesic settings
<b>false sunflower</b> <i>Heliopsis helianthoides</i> (3'-4')	Upright, slowly spreading growth; sharply toothed dark-green leaves and showy butter yellow disk and ray flowers July through early September; mesic to hydric sites in full sun; a reliable performer.
<b>rattlesnake master</b> <i>Eryngium yuccifolium</i> (4'-6')	Upright growth; stiff, gray-green, sharply pointed yucca-like leaves and interesting silvery greenish white ball-shaped inflorescences July and August; xeric to mesic sites in full sun.
<b>foxglove beard tongue</b> autumn, <i>Penstemon digitalis</i> (3')	Spreading, upright plant; glossy green-toothed foliage sometimes becomes reddish in attractive white flowers occur June through early July; xeric sites in full sun.
<b>common mountain mint</b> <i>Pycnanthemum virginianum</i> (3')	Upright, bushy spreading plant; fine-textured medium-green, narrow foliage and masses of dense white inflorescences in mid-July through August; hydric to mesic sites in full sun.
<b>yellow coneflower</b> <i>Ratibida pinnata</i> (3'-5')	Upright growth; medium-green foliage and yellow ray flowers with green gold cones in July and August; mesic to xeric sites in full sun.
<b>stiff goldenrod</b> <i>Solidago rigida</i> (3'-6')	Upright, spreading growth habit; leathery, hairy foliage and bright yellow inflorescences in late August through September; mesic to xeric sites in full sun.
<b>common ironweed</b> <i>Vernonia fasciculata</i> (3'-4')	Upright, spreading shrub-like growth; smooth, toothed leaves and dark purple inflorescences August through September; hydric to mesic sites in full sun.
<b>Culver's root</b> <i>Veronicastrum virginicum</i> (3')	Upright growth habit; leaves have saw-toothed margins and spire-like white inflorescences July through August; hydric to mesic sites in full sun.
<b>Exotic cool-season turfgrasses</b>	
<b>orchardgrass</b> <i>Dactylis glomerata</i> (2.5'+)	Coarse-texture foliage; plant in far roughs in light shade.
<b>fine-leaf fescues (creeping red, chewings, hard, and sheep types)</b> <i>Festuca</i> spp. (1'-1.5')	Fine-textured foliage of variable grays, greens and blue-greens; can lodge; avoid compacted or heavy, wet sites; full sun or light shade; mow prior to flower formation in spring and again in early autumn; usually forms dense stand.
<b>tall fescue</b> <i>Festuca arundinacea</i> (1'-2')	Medium-to-coarse textured foliage of medium green; tolerates full sun or light shade; usually forms dense stand.
<b>Timothy</b> <i>Phleum pratense</i> (2.5'+)	Coarse-textured foliage; plant in far roughs in light shade.



## QUICK TIP

Scotts and Monsanto have withdrawn their petition to commercialize Roundup Ready Creeping Bentgrass while researchers compile additional performance data. The companies still expect to launch the product in 2004-05.

Voigt, 1999a; Voigt, 1998b). Among the exotic turfgrasses, the fine-leaf fescues, tall fescue, redtop, Timothy and orchardgrass have been grown successfully.

Unmowed areas serve a variety of purposes on the course. These areas are used to enhance wildlife habitat, define out-of-play areas, add variety and aesthetics to the golf course landscape, reduce maintenance and serve as wetland or water-retention areas.

It's important to develop a plan for the site, plant selection, planting method and post-establishment maintenance (particularly weed control and the use of burns). Use local experts, references and the Internet to assist with the planning process. Time spent planning may postpone planting, but produce better-quality long-term results (Voigt, 2000).

Planting methods and expenses vary. For most exotic turfgrasses and many native grasses, seeding is an economical establishment method. Rotary tilling immediately before seeding often brings weed seeds to the surface, producing heavy competition for the new seeding. Thus, weed control prior to planting often starts the year before planting and employs a combination of fallow growth, rotary tilling and herbicide applications.

If seeds are used to establish mixed plantings, forbs may not flower until the second or third year following seeding. Plugs of native plants can produce outstanding results. Up-front costs are high, however, and irrigation is usually necessary during establishment. Consider seeding large areas of grasses and using beds or island plantings of forbs to add color to the site.

Unmowed areas require inputs. A Chicago-area superintendent (noted for impeccable record-keeping) mentioned several years ago that at that time, he spent about \$1,100 per acre per year to maintain a mowed rough, while it cost about \$700 per acre per year to maintain an unmowed rough (mostly for labor-intensive hand-weeding).

In native plantings, fire can be used to control weeds, recycle nutrients, speed spring green-up and influence plant composition (spring fires can enhance warm-season grass development; autumn fires can enhance forb development). Before planting, check with local authorities on what is required prior to burning.

In Illinois, an industry has developed that will professionally design, plant and manage golf course natural areas. These firms often take care of all aspects of conducting a burn, including acquiring the required permits and local permission.

Weed invasions and mowing can be costly. In the Midwest, Canada thistle, chicory, white and yellow sweet clover, and wild carrot often develop in all types of unmowed roughs and can aggressively take over areas if left unchecked. One of the worst offenders, Canada thistle, can totally eliminate other plants from large areas as it spreads by underground stems.

Beyond weed control, roughs comprised of unmowed cool-season turfgrasses normally require mowing one, two or more times per season, and removing the clippings is usually recommended.

Weed control in mixed plantings containing grasses and forbs is often difficult. Broadcast applications of herbicides used for broadleaf weed control may damage forbs, while grass controls may damage desirable grass species. Fire, spot herbicide applications and hand-weeding are often used together in mixed plantings to control weeds.

Unmowed areas need to be sited or allowed to develop in areas where they will not interfere with play. A round of golf can be spoiled if play is slowed while time is spent searching for errant shots hit into tall plants.

At some clubs, golfers previously accustomed to wall-to-wall mowing complained about the unkempt nature of the course after areas went unmowed for a season.

Golfers often like to see some colorful wildflowers in unmowed areas. Be cautious, however, when planting seed mixes containing large amounts of annual and biennial exotic flowers. In some cases, even though perennial species are part of a mix, the plantings seem to become less attractive following one or two years of color because the perennials don't develop as hoped.

### **Future research in unmowed roughs**

As these areas have become more commonplace in the golf course landscape, new ques-

tions about plant species, site management and playability are asked.

For example, in the past couple of years, superintendents have continuously requested playable, unmowed roughs where grasses and other plants are relatively low growing and without great density. In these areas, golf balls can be easily located and, because of the low plant density, a golfer has the opportunity to hit out of a hazard. Settings like this can occur when soils are relatively infertile or dry.

In much of Illinois, however, soils are fertile enough and retain enough moisture to support dense plantings. If desirable plants are planted at low densities, the unplanted spaces usually fill with undesirable vegetation, which creates maintenance problems.

The combined use of plant growth regulators and prairie-restoration herbicides on large native grasses has been suggested as a way of providing a setting that satisfies the superintendents desiring open, unmowed roughs.

A new research and demonstration site is now being developed at Cog Hill GC in the southwestern suburbs of Chicago at the Chicago District Golf Association's Midwest Golf House.

At this site, new, low-growing varieties of exotic turfgrasses will be tested to determine suitability for unmowed rough planting. Other studies will examine seeding rates of exotic turfs to identify differences in mature plant densities. Still other evaluations will test chemical-control applications to newly identified herbicide-tolerant plants.

Additional work will be conducted evaluating mixes of exotic ornamental grasses interplanted with exotic turfgrasses (A northern Illinois superintendent produced an interesting unmowed area in light shade when he planted clumps of Karl Foerster Feather Reed grass into a mix of tall fescue, Timothy and orchardgrass.)

Finally, low-growing Midwestern native prairie mixes have been selected and will be seeded following the 2002 growing season to evaluate over the next three to five years their suitability for unmowed roughs.

Midwestern golf turf managers have great interest and enthusiasm about the work to improve the quality of unmowed roughs. They seek more information about the palette of plants suited to these areas and improved techniques for their management. These superintendents, and the golfing public, stand to benefit as these areas provide a more interesting golfing experience coupled with improved wildlife habitat.

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