

Results of the 2005 MAGCS-GCSAA Un-mowed Rough Survey

In 2003, Randy Kane, Jon Jennings, and I were awarded a matching grant from the Midwest Association of Golf Course Superintendents and the Golf Course Superintendents Association of America to study turf and native grasses in naturalized and un-mowed roughs. As one objective of this research, we established and studied un-mowed exotic and native grass plots at the Midwest Golf House in Lemont, IL. (Look for results of that work in the GCSAA's September, 2006 Golf Course Management.) Another objective was to obtain input from superintendents to guide our future research on un-mowed rough.

In January 2005, we sent surveys to 90 randomly selected Class A and SM MAGCS Superintendents to find out about their un-mowed rough areas—we were particularly interested in establishment and management activities and the problems encountered in these areas. Of the 90 sent out, 53 completed surveys were returned by April 2005. This article shares some of the responses.



Canada thistle is one of the main weed problems in un-mowed roughs.

General Information and Respondent Demographics

Of the respondents, 87% indicated that some part of their facility is currently covered with un-mowed grassy areas, wildflower plantings, meadows, or prairies. Of those, 44% intended to expand these areas at their facility. Un-mowed areas were part of the original design of 33% of the facilities represented and/or were incorporated during a course remodel on 20%. An average of 22.8 acres at each facility was covered (or planned to be covered) by un-mowed grasslands, wildflower plantings, meadows, or prairies. There was a range in the size of un-mowed grassy areas at these courses; at one extreme, 8 courses had no un-mowed acreage, while, from the other extreme, 9 courses reported 50 or more un-mowed grassy acres. The oldest course represented opened in 1896, while the newest course opened in 2003. Eighteen of the courses have undergone a major remodel since opening.

The survey responses represented a good cross section of MAGCS members; 17 were from municipal courses, 13 from daily fee courses, 22 from private courses, and 1 from a semi-private course. Moreover, 5 respondents managed 9-hole facilities, 37 managed 18-hole facilities, 4 managed 27-hole facilities, 6 managed 36-hole facilities, and 1 managed a facility having more than 36

(continued on page 16)

holes. Additional respondent demographics appear in Table 1.

Establishing Un-Mowed Grassy Areas

On courses where the un-mowed grassy areas were NOT part of the facility's original design, 39% allowed the existing vegetation to establish the new area, 28% planted native grasses and flowering plants, 15% planted only native grasses, Of the remainder, 6% planted exotic grassy species such as fine fescue, 6% planted exotic grassy species and flowering plants, and 6% planted other types of plants. Respondents reported that challenges faced when converting to or installing un-mowed grassy areas were weeds (36%), unkempt appearance (26%), golfer resistance (18%), slow establishment (13%), lack of plant or establishment knowledge (5%), and unspecified other (1%).

Many plant species have been tried in the un-mowed grassy areas. Exotic grasses included fescue species, ryegrasses, bentgrass species, Timothy, and bluegrass species. Native



Here, redtop serves as both an un-mowed rough and also a buffer strip.

grasses included buffalograss, big bluestem, little bluestem, bottlebrush grass, bluejoint, cordgrass, Indian grass, prairie dropseed, switch grass, and side-oats grama. Many forbs (herbaceous flowering plants) were also listed as being grown by respondents. These included black-eyed

Susan, golden rod, blue wild indigo, prairie coreopsis, shooting star, cone-flowers, rattlesnake master, butterfly weed, prairie milkweed, lead plant, Joe pyeweed, boneset, prairie smoke, blueflag iris, blazing stars, and asters. Unfortunately, weeds were also listed by some respondents and included

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Table 1.
Respondent per course demographics
based on annual maintenance budget.

ANNUAL MAINTENANCE BUDGET	TYPE OF FACILITY	NUMBER OF GOLF HOLES	AVERAGE NUMBER OF ROUNDS PER YEAR	AVERAGE TOTAL ACRES	AVERAGE ACRES OF WOODLANDS, FORESTS, OR SAVANNAS	AVERAGE ACRES OF PONDS OR LAKES	AVERAGE ACRES OF CREEKS, STREAMS, OR RIVERS
< \$249,999.00	6 municipal	4 9-holes; 2 18-holes	36,667	57.5	7.7	1.4	0.5
\$250,000.00 to \$499,999.00	4 daily fee; 4 municipal; 2 private; 1 semi-private	1 9-holes; 9 18-holes; 1 27-holes	28,000	155.1	19.5	6.5	3.3
\$500,000.00 to \$749,999.00	4 daily fee; 4 municipal; 6 private	12 18-holes; 1 27-holes; 1 36-holes	29,214	185.8	30.8	12.8	1.9
\$750,000.00 to \$999,999.00	2 daily fee; 2 municipal; 10 private	12 18-holes; 1 27-holes; 1 36-holes	27,423	210.3	24.6	22.0	1.7
> \$1,000,000.00	3 daily fee; 1 municipal; 4 private	2 18-holes; 1 27-holes; 4 36-holes; 1 > 36-holes	42,125	300.0	20.1	26.8	3.7

wild carrot, chicory, foxtail, yellow nut-sedge, white and yellow sweet clovers, and lots of tree saplings.

Respondents reported they had the best success establishing the exotic and native grasses including the fescues, switchgrass, big and little bluestems, Indian grass, and side-oats grama. Several had success growing purple coneflower, black-eyed Susan, boneset, rattlesnake master, golden rod, asters, blazing star, pennstemon, coreopsis, butterfly weed, sedge, dotted mint, and spiderwort. Oddly, several respondents reported having the least success in establishing wild flowers (or native forbs). Black-eyed Susan, blazing star, shooting star, and coreopsis were listed specifically. One survey indicated the mix of wildflowers and grasses planted “looked good for 2-3 years, then faded out and were overtaken by prairie grasses.” Another stated, “It has been mixed results. More often these areas just take “forever” to look good.”

Managing Un-Mowed Ares

Of the respondents 13% fertilize the un-mowed grassy areas at their courses, and 67% mow these areas. When fertilized, one superintendent reported using 200 pounds K₂O per

acre, another applied 0.75 pounds N once in the spring, a third applied Milorganite once (rate not specified), a fourth applied “21-3-10 once every 3 or 4 years” (again, the rate was not specified), and a fifth fertilized 3 times per year with 1 pound N per application. Mowing heights and frequencies varied, but the majority indicated that they mowed these areas once per year in early-to-mid autumn at 3 to 6 inches. Several reported removing the clippings. Some alternated mowing and burning the un-mowed areas

every other year. Of the respondents 57% burn their un-mowed grassy areas. Of the respondents who burn, 80% of them conduct in-house burns in the spring, 17% conduct in-house burns in the autumn, and 3% contract burns in the autumn.

Weeds (41%) and an unkempt appearance (26%) were the two biggest challenges associated with the superintendents’ un-mowed grassy areas (Table 2). One indicated that their biggest challenge was “weeds -

(continued on page 18)



Blue grama and buffalo grass plots at the Midwest Golf House.

mainly thistle - golfers don't play out of [these] areas wisely - homeowners don't appreciate the prairie look - [they] like a manicured look." Another superintendent wrote of the unkempt appearance, "Carts are driven through these areas. The areas (fescue mounds) get that matted look. [There is] continuous foot traffic (looking for golf balls)." Other challenges associated with un-mowed grassy areas included golfer resistance, slow play, and nuisance insects/wildlife.

Superintendents control weeds using herbicides and/or mechanical removal. Forty-six percent of respondents spot apply herbicides, 41% hand pull or mechanically remove the weeds, and/or 13% broadcast herbicides. Herbicides used for broadleaf weed control included Speedzone, Lontrel, Confront, Gallery, Millennium, 2-4-D, Triplet, Trimec, dicamba, and MCP. Several respondents also used the non-selective herbicide, RoundUp. Only one survey reported using the herbicide, Dimension, for grass control.

Summary

There are several findings from this survey that agree with previous writings or observations.

- Grasses, either exotic or native, are often easier to establish than forbs.
- After flowering in late spring, fine fescues (creeping red, Chewings, hard, and sheep) frequently mat down.
- Weeds are the main problem in these areas, particularly in mixed stands where broadcasting herbicides



Fine fescues are commonly used as un-mowed roughs.

will damage either grasses or the forbs in the stand.

- Be patient when planting native grass and forb mixes, expect high-quality results (e.g., flowering, reduced weed invasions, etc.) to take at least two, and more likely three, years.
- Be wary of "wildflower" mixes that contain mostly exotic annuals and biennials. Areas planted to these mixes usually look great the first year, less good the second season, and pretty bad thereafter. Select mixes that contain true natives and mow to control weeds during the first few seasons to give the natives a chance to mature with as little weed competition as possible.
- Mow cool-season grasses (fescues, bentgrasses, ryegrasses, bluegrasses, Timothy, and orchardgrass) at 3" to 6" in autumn and remove the clip-

pings. Warm season native areas can be burned in spring or autumn.

Where Are We Going?

Because un-mowed roughs can reduce monetary and chemical inputs and enhance wildlife biodiversity and the golfing experience, these areas are a part of many Midwestern golf courses. In this survey, half of the respondents were interested in creating playable un-mowed roughs in which golfers can find and hit errant shots. A new project will continue these studies of playable un-mowed roughs and will be conducted at the Midwest Golf House and at the University of Illinois Landscape Horticulture Research Center. This recently funded work will evaluate the survival, aesthetics (flowering, height, and color), weed invasion, and playability of five cultivars of blue grama alone or mixed with buffalo-grass, will evaluate chemical weed controls in these plantings, and will evaluate burning and mowing practices in order to identify the best method of removing dead, above-ground plant material. We envision the outcome of this research assisting Midwestern golf course superintendents, designers, and architects in creating playable, un-mowed, naturalized roughs that are better than the fine fescue roughs that are often planted at present.

Table 2.
Weeds most commonly occurring
in respondent un-mowed grassy areas.

WEED	PERCENT RESPONDENT OCCURRENCE
Canada thistle41
white or yellow sweet clovers19
quackgrass8
reed canary grass6
tall fescue6
unsure6
other6
(examples include wild carrot, milkweeds, foxtails, other thistles, giant ragweed, burdock, crabgrass, barnyard grass, and woody plants such as willow, poison ivy, and mulberry)	
chicory5
giant reed4

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For out-of-play roughs, a combination of tall fescue, orchard grass, and Timothy creates an easy-to-maintain area that tolerates light shade.



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