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**President's Message**

Congratulations are in order for Pete Leuzinger and Pete Merkes for organizing and carrying out another very successful regional G.C.S.A.A. seminar. This year we were fortunate to get two seminars that ran concurrently. One dealt with golf course design and the other dealt with insects. Over ninety men were in attendance. The word "regional" might be a bit misleading. There were men there from as far West as Phoenix, Arizona, as far South as Palm Beach, Florida, as far North as Canada, and as far East as North Carolina. As you can see, the Chicago area is able to draw interested people from all over the country to attend well organized, well run seminars.

While I am passing out accolades, Mr. Tony Meyer was recognized at our January meeting at Arrowhead Golf Club as having completed twenty-five years as a member of the G.C.S.A.A. I am sure our entire membership joins me in congratulating Tony and hopes that he will complete the next twenty-five years as a member of the M.A.G.C.S.

As you may or may not know, Dr. William Daniel is retiring after thirty-five years of service to the turf industry. The Midwest Regional Turf Foundation is setting up a scholarship fund in Dr. Daniel's name. At our last board meeting, it was decided to contribute to the scholarship fund in the amount of \$1,000.00. Also, at the same meeting, we voted to donate \$850.00 to the 3PF Defense Fund. Please refer to the January 1985 edition of the Bull Sheet for an explanation of this fund.

At our last meeting a motion was made from the floor that all our members be required to wear a coat at our meetings. With a show of hands, the motion was passed by a count of 45-3. Those people who do not wear a coat, will be fined \$5.00 that will be put into our treasury to be used as the board of directors sees fit. The reason stated for this action was that we are a professional organization, therefore, we should act and dress appropriately. I hope this action does not keep anyone from attending a meeting, however, at C.D.G.A., P.G.A., and other affiliated association meetings, these people dress with a coat on and there is no reason why we can't join these organizations and be recognized as a **professional** organization.

Our schedule of meeting sites for this summer is shaping up very nicely. Mike Nass and his committee are doing an excellent job getting clubs from the far South side to the North side. Our annual joint meeting with Central Illinois, Northern Illinois, M.A.G.C.S., this year will be joined by the Michigan group at Silver Lake Golf Club in May. Dudley Smith, the host superintendent, has closed 36 holes for the event, so let's make an effort to attend that golf day.

**Joe P. Williamson, C.G.C.S.**



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## MAGCS DIRECTORS COLUMN Winter Wonderland

by Mike Nass, Bryn Mawr C.C.  
Lincolnwood, IL

"So, what do you do in the Winter?" If one does any socializing at all, outside of the golf course business, this is a question that invariably comes up. I've struggled with different answers to this question over the years. I usually tried to tailor my response to the person and situation. **Before** I was married (now blissfully for six years), if a young woman asked me this, I would usually tell her I spent most of Winter sipping margaritas in the Caribbean and; would she like to accompany me in this activity. Of course no one ever took me up on this offer. Thank goodness, for I would have had a hard time living up to the image I had created.

The same inquiry posed by a three-piece suited, pencil pusher would naturally call for a different response. This type of person would be useless in the Caribbean anyway. Normally an answer of "nothing — but I still get paid" was enough to remove the smug look that had initially appeared.

Of course neither of these flippant remarks is indicative of what truly is involved in managing a golf course operation. An incident that occurred to me a few years ago really brought home the message that there is still misunderstanding about our profession outside of our own circle.

The situation occurred while vacationing at Disney World with my wife and daughter. It was a dreary afternoon after a rainy morning and I sauntered over the nineteenth hole to catch the Dallas-Green Bay game on the tube, while my family napped. While I was there a foursome came off the course and sat in close proximity to myself. As the game deteriorated, my concentration waned and I couldn't help overhearing parts of the conversation from the aforementioned foursome. It was apparent that three gentlemen were traveling together. They had all shot well over one hundred and were pleased about it. The fourth gentleman had joined them as a single. His golfing prowess far exceeded that of his new found playing partners. He had shot in the seventies. As one would expect the one hundred plus shooters were awed by the skills of their playing companion. After several rounds of drinks they were looking upon their friend as a golf deity, an ultimate authority on all phases of golf and the business of golf! At one point the "Pro", who was in reality an insurance salesman, was describing the many duties of a club professional including: running the pro shop, running the driving range, making tee times, organizing tournaments, giving lessons, and of course "supervising the greenskeeper"!

It was at this point, (having had one or two cocktails myself) I felt obliged to butt in, to enlighten my four barmates with the intricacies and complexities of being a golf course superintendent. I left my "friends" somewhat stunned but I was confident I had struck a blow for the betterment of my chosen profession.

Now when asked about my Winter activities, I am quick to explain the scheduling of equipment maintenance, the preparing and implementation of a budget, the development of new programs to enhance turf quality and playing conditions, the continuing educational process of seminars and conferences and of course taking a little R and R. After that lengthy explanation, I now hear "Gee that's great, but what do you do all Winter?"

## Spin Grinding

by Scott Weiler  
Foley-Belsaw Co.

### REED GRINDING

Spin grinding has taken off in the past few years as an alternative to proper reel grinding, offering "time savings" and "increased accuracy". The trend toward spin grinding is a result of the efforts of a few self-serving manufacturers telling you what you want to hear. Unfortunately, the whole story is seldom told for fear of rejection of the spin grind concept.

Everyone understandably looks for ways around undesirable tasks. Reel grinding has been in the undesirable category since day one, and finding a better way of sharpening has been a constant consideration.

Flat or spin ground reels have a tendency to be more accurate if they are set up properly. With the design of most reel mowers in the U.S. today, it is imperative that the reel be brought back to as perfect a cylinder shape as possible. Short cuts in this area (i.e., Touch Method from end to end) take away any benefits offered by the Spin Grind Method. NOTE: Touch Method may be used on units which adjust reel to bed knife since cutting is always done at the same point due to stationary bed knife.

Relief Angle: A question that comes up frequently in grinding conversations is, "Why is relief necessary?", or "Why is no relief required?"

No matter what your beliefs - spin grinding offers only a "flat" grind with no relief, it simply cannot be any other way. The manufacturers of most reel cutting units design relief into their mowers for the following reasons.

1) Ease of manufacture and assemble. 2) Ease of sharpening between grindings (lapping or back lapping). 3) Minimal contact between reel blade and bed knife.

DISCUSSION: POINT #1 — During assembly of reels, a perfect cylinder shaped reel is desired for proper reel to bed knife contact. To achieve this, Spin Grinding is used to true the reel containing pre-relieved reel blades before assembly. This virtually eliminates lapping when done correctly.

POINT #2 — Since the relief, which is built into each reel blade offers a smaller "land" or "flat" to be lapped during between grindings sharpenings, every bed knife and reel combination wears or dulls to some degree during use. The Back Lapping procedure is the procedure of applying fine compound while the reel is being turned backward (Back Lapped), and the bed knife is adjusted for contact with the reel. The Lapping Compound, along with contact between the reel and bed knife, removes a certain amount of steel on both cutting surfaces to expose a sharp cutting edge once again. With a relief grind on the reel blade, the process of lapping a reel unit is easily achieved. Without relief, the lapping process takes much longer since more surface to lap translates into more time to lap.

The statement came up, "With a flat grind your cutting edge holds up better and doesn't need lapping." Now we know better than that. Anything that cuts anything gets dull. If you're expected to spin grind when you're supposed to lap, where is the savings.

POINT #3 — Minimal contact between bed knife and reel is desirable. "Zero clearance" when the bed knife and reel are sharp is the ultimate goal.

(cont'd. page 4)

(Spin Grinding cont'd.)

Naturally, it is impossible unless grinding or lapping has just been done. After the two cutting surfaces start to dull, slight contact between the bed knife and reel is required to cut. A new cutting unit has no more than a narrow "land" on the reel blade to make contact with the bed knife. A half worn reel (flat on half the thickness of the reel blade) has half the blade in contact with the bed knife which also has a flat on it.

If all the relief is worn off, the full contact of the reel blade is in contact with the flat of the bed knife which is exactly what you start out with on a spin ground reel.

Minimal contact between the mating parts is desirable because of reduced heat build up, lower power requirements to drive reels and to held maintain a sharp cutting edge in addition to minimizing the wear of gears, bearings and seals. Excessive wear may not show up at first, but in the long run noticeably higher repair costs will be evident when a flat grind is used.

How much relief is enough? Too much?

Since there is no way of measuring precisely the amount of relief on a reel blade, it is enough to say that any relief is better than none. Conversely, too much relief will have adverse results including: a) Weak cutting edge and blade. b) Fast reel wear. c) Frequent bed knife to reel adjustment.

Too much relief is usually a result of placing a double relief on the reel blade.

Examples of reel cross sections - correct and incorrect applications.

#### BED KNIFE GRINDING

How the bed knife is ground does make a difference in overall performance of your cutting unit. When grinding (sharpening) a worn bed knife, always make sure that the relief angle is taken from the existing worn surface, 5° is usually adequate.

Grinding a new bed knife is very simple. After mounting the knife to the bed bar, a few passes are necessary to make sure the cutting edge is true before installation into the cutting unit. Follow the existing angles since relief has already been ground in at the manufacturer. Changing the relief angle is unnecessary and results in shortening the bed knife's useful life.

In a nutshell, spin grinding does have its place when used with RELIEF. It has been proven as an excellent way of truing a reel (when proper set up is used). Relief is important for prolonging cutting unit life right down to the bearings and seals. Relief is and always has been a necessary part of PROPER mower maintenance. Shortcuts taken in this area will mean higher costs in the future. Don't settle for half the job. Insist on relief.

Credit - Hole Notes, 2/85

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## Winter Injury

With winter kill, soil temperature is the cause. This is a low temperature injury to the lower crown. Irrigation in the spring helps keep new roots coming. Cut a longitudinal section through the crown to see if the tissue is brown inside.

Adjustments for cold hardening off occur at from 55 to 65 degrees F. The following temperature ranges have been correlated with turfgrass growth:

60-75° F	—Optimum shoot growth;
45-60° F	—Shoot growth declines;
35-45° F	—Plants harden;
32-35° F	—Winter dormancy;
25-minus 15° F	—Low temperature kill.

Hardening off is accompanied by increases in carbohydrate reserves and a decrease in tissue hydration to 60-65 percent.

Plant hardiness zones and maps show the location of differences throughout the United States.

Differences in low temperature kill are often difficult to explain. A green may be OK, while the approach is dead. In this case, the green may be Penncross, which is hardy, and the approach, Poa annua, which is not.

The following differences in cultivar tolerance have been noted:

### OK at Soil Temperature

Penncross bentgrass	-10
Toronto bentgrass	-10
Poa trivialis	-10
Merion bluegrass	-5
Poa annua	-5
Pennlawn fine fescue	0
Common perennial ryegrass	5

In general, the bents and Poa trivialis have excellent cold tolerance.

The question still remains - at what soil temperature can winter kill be expected? There is no one answer. It depends on:

- plant hardiness level;
- degree of hydration;
- rate of freezing - more rapid, more kill;
- rate of thawing - more rapid, more kill;
- number of freeze and thaw cycles;
- length of time frozen.

Of all these, the hydration level is the most important. What can be done? Check the following:

- provide rapid surface drainage;
- provide adequate subsurface drainage;
- cultivation.

Soils thaw from underneath where warm soil is located.

An ice cover will trap water underneath.

Grass may die from increase in hydration. As crown hydration increases, hardiness declines in late winter and early spring (March). In low spots, where water stands, low temperatures kill occurs because of water standing.

Prevent low temperature kill by checking the following:

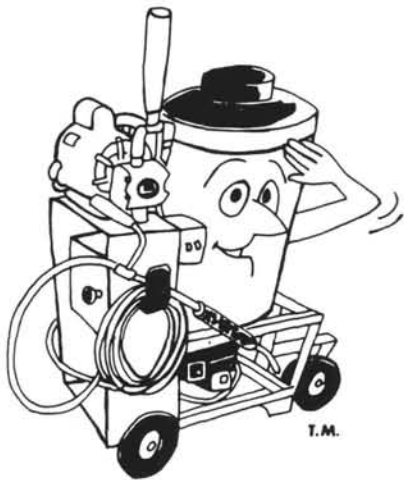
- use moderate nitrogen;
- use high potassium;
- cut higher;
- eliminate thatch;
- avoid excessive irrigation.

For bluegrasses, use more potassium to balance increased

(cont'd. page 9)

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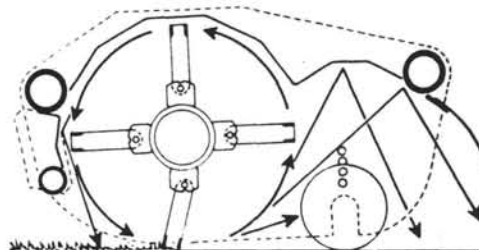
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(Winter Injury cont'd.)

nitrogen - 2 to 1 or 3 to 2. For bentgrasses, the nutrition is not as important because these grasses have more inherent tolerance to cold.

For bluegrasses, cutting heights of from one and one half to two inches is usually good. More carbohydrates accumulate and there is more biomass. Crowns are protected because of greater insulation.

The principles are the same for warm season grasses. More winter kill is observed at low mowing heights.

More winter kill is often observed where herbicides are used - particularly the pre-emergence type.

Thatch raises the crown above the soil. Thatch also holds water and increases the hydration level.

Leave aerification holes open to prevent low temperature kill.

Never let an ice sheet stay on the alfalfa more than twenty days for it dies of suffocation. Injury from ice on turf is not due to suffocation, but to the probability of increased hydration. May remove ice and get winter kill from desiccation, or leave it on and get winter kill from crown hydration. Bentgrasses, bluegrasses and *Poa annua* have been kept in ice for as long as seventy five days with no injury. At ninety days, *Poa annua* dies. Bentgrass and bluegrass have survived up to 150 days in ice.

Traffic on frozen slush injures turf. This pushes water into the crown area and increases hydration so that low temperature kill is realized. Snow mobiles cause no injury to the turf as long as there is one inch of snow cover. Snow mobiles on frozen slush cause increased low temperature injury.

Another type of winter injury is caused by winter desiccation. During dry, open winters on sandy soils, turf injury may be significant. This type of injury is of less importance than low temperature kill.

Grasses that are more salt tolerant are also more tolerant of desiccation. For example, Seaside bentgrass. Thus, cultivar variation does exist.

Higher rates of nitrogen in the fall favor winter desiccation injury.

The presence of thatch increases the likelihood of winter desiccation.

Open aerification holes favor the development of winter desiccation injury.

Covers protect turf from adverse winter conditions. Fungicides help prevent winter diseases.

Soil warming also prevents injury from low temperatures.

Desiccation affects the crown meristematic tissue. The crown must survive if the plant is to live. Cells in the lower crown are larger. When they are killed, roots are dead. Tops may be alive. If roots are not regenerated quickly, tops will also die.

**Credit: Newsletter, GCSA of New England 1/85**

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## Reel Versus Rotary Mowers<sup>1</sup>

by Roger J. Thomas<sup>2</sup>

<sup>1</sup>Presented at the 38th Northwest Turfgrass Conference, Sheraton Hotel, Spokane, WA, September 18-20, 1984.

<sup>2</sup>Jacobsen Division of Textron Inc., Racine, WI.

The age old controversy of reel mowers versus rotary mowers continues on and on. Areas to be maintained vary so much between cities, school districts, county highways and parks and

institutions, that the most one can do is present a few guidelines for thought.

### LEVEL OF MAINTENANCE

To determine the proper machines to use, a level of maintenance must be determined. Formal turf can be defined with the following concepts in mind:

A well groomed area mowed weekly or more often during the good growth period of the turf. Another view may be if the appearance of the area is important as a showplace, for example, schools, municipal buildings, parks, and athletic fields, the classification can be, formal turf. Another element to test whether there is a weed control program, or are clippings being collected. In any event, if the quality of cut is important, then the level of maintenance can be considered, formal turf.

Semi-formal turf generally is defined as a mowed area a distance from general viewing, weed control in itself does not seem to be the most important element, and even some skip/mow programs can be initiated. Higher cut of the grass is generally acceptable, yet suitable to walking traffic and the appearance is not quite as important as for formal turf.

Informal turf would be considered for areas of weeds and grasses that may well adapt to a skip/mow program. They are viewed by the public from some distance, and quality of cut is not the most important element. It could almost be defined as "It's green so it is satisfactory". Informal turf is mowed at cutting heights of 3, 4, or 5 inches, and generally not a walking traffic area.

### ENGINE HORSEPOWER REQUIREMENTS

#### 84" Triplex Reel Versus 72" Riding Rotary

For our determination, consider an 84" triplex reel mower versus a 72" riding rotary. On the market today, the 84" reel mowers are equipped with 12 or 14 H.P. engines. The 72" rotary machines are equipped with 20-23 H.P. engines. The reel type mower requires less power at slow speeds because the top speed of the reel blade is approximately 900 feet per second. Compare that with the top speed on rotary mowers that is between 18,000 and 19,000 feet per second. Generally, the rotary mower engines operate at higher speeds, even though in the last few years riding rotaries have variable traction speeds so that the engine can operate at a "fixed" speed.

### ECONOMICS

The 84" triplex mower requires less horsepower; hence, less fuel. Indicative of this is the 84" triplex at operating speed uses approximately 1.03 gallons of fuel per hour. Consider also that the 84" unit is cutting a 16% wider swath than the 72" rotary. The cost of the 84" machine runs about 15% to 25% less than a 72". Somewhat on the negative side, bedknife adjustments are necessary by people familiar with the unit. Repairs at the end of the season include grinding.

The 72" riding rotary, since it is equipped with a higher horsepower engine, uses more fuel. A 20 H.P. engine uses approximately 2.18 gallons per hour during operation. The 12" less swath results in just under 3 acres per day of less cutting. While reel grinding is not necessary on a rotary, rotary blades must be kept sharp, and require sharpening or replacement more often. Air and oil filters must be changed more often in rotary operations because of the dusty atmosphere in which it works. Engine fins, radiators, or filter screens must be cleaned often to avoid overheating, which is an enemy of the life-span of an engine. (cont'd. page 14)



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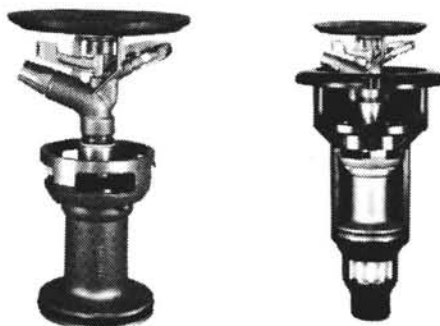
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