

## “The Grass Roots” Wins Harry C. Eckhoff Award

By Bill Roberts

The official publication of the Wisconsin Golf Course Superintendents Association, *The Grass Roots*, has been recognized for outstanding achievement on the national level. Announcement of the National Golf Foundation's Harry C. Eckhoff Award winners found *The Grass Roots* gathering honors in the “Professional Association Magazine” category. In addition to winning in NGF competition last year, the WGCSA publication has received national recognition from the Golf Course Superintendents Association of America in 1985, 1986 and 1987. This most recent award, named for long-time Director of Golf Development Harry C. Eckhoff, “recognizes excellence in golf journalism”.

Once again, *The Grass Roots* Editor, Monroe S. Miller, assisted by Rod

Johnson and Mike Semler, deserve our thanks for an effort that has resulted in a publication that is timely, informative and imaginative. Further, a large share of our thanks must go to the suppliers from across the state of Wisconsin who make such an effort possible by their support. It is nearly impossible to thank our authors, feature writers, reporters and individual contributors, whose thoughtful insights and writing make our journal worth reading. Superintendents in Wisconsin have come to expect a “first-class” approach and it is gratifying for those efforts to be singled out as truly noteworthy in our profession. The Harry C. Eckhoff Award is substantial recognition for our Editor, our publication, our suppliers and our Association.



Harry C. Eckhoff

### ***New from ProTurf...***

## **Scotts® offers disease control you can spray!**

## **Call your Tech Rep for details.**



ProTurf Division  
O.M. Scott & Sons

**Dick Evenson**  
Senior Technical Representative

443 Woodview Drive — Sun Prairie, WI 53590  
Telephone: 608/837-6563



were growing a little leaner, and watered less. But this all takes time and patience to cultivate a strong healthy plant that will take the added stress. Pressures were great each year to push the plants and do more. Finally in the last two years the speeds have been in the area that a new legion of members seems to enjoy.

However, several things bothered me over the years regarding all these changes that we made. How did I ever get so far behind in recognizing the memberships changing requirements for playing the game of golf? How had this demand for greater greens speed crept up on me and why were we fertilizing like we were? A good superintendent knows you don't make drastic changes to growing plants too quickly. Changes take years to implement. The improvements in irrigation and fairway mowing were needed at Maple Bluff for many years. We had, indeed, been requesting them for many seasons. When authorization finally came to expend funds for fairway maintenance improvements, it was 10 years from the date of our first request. After much soul searching and trying to determine whose recommendations on turf maintenance I might have overlooked or what errors I made leading up to our flurry of member dissatisfaction, I decided to go back through all my old records on course maintenance and tabulate each year's pertinent maintenance practices. I figured if I compared all our past mowing heights, water usage and pounds of nitrogen used with published USGA and other journal recommendations, I might be able to determine where I made my mistakes.

I was fortunate to have *USGA Green Section Records* from March 1964 to the present, *Golf Course Management* magazines from the same era, *Turf Advisory Reports* going back many years and daily record books from the late fifties to the present. After about 10 hours of reading, it became apparent that there was a wealth of information recorded. Properly documented and presented to a greens committee, it could make a very interesting report. Tables 1-5 represent the most interesting aspects of our daily record books from 1962 to present. Although we have records going back into the 1950's, the data from 1962 on was the most complete. After the data was assembled it gave me a very interesting overview of course maintenance operations at Maple Bluff.

I wanted to look at the greens information and see if there were any patterns of maintenance that, when coupled with USGA and other recommendations, would show why we did what we did in early years and link all this with today's level of maintenance. In 1978 we were fertilizing greens at about 7.65 # N/year. The trend in greens was for greater speed. The stimpmeter has been produced in quantity since 1976 and unintentionally helped implement this push toward more speed. The records showed we were headed in the right direction toward using less fertilizer, but they also showed we had come from a period of extreme excess in the early sixties. By going through the old periodicals it was easy to see why we had overindulged in that period. We were told, in the sixties, that that was good greenkeeping. "Green" and "Lush" all were common terms used to describe our successes. The USGA Green Section Record from March of 1964 had an article by Dr. Ralph Engel which said, "the perfect green needs a high density of leaf blade per unit area. . . a bentgrass that can grow densely and a good steady supply of nitrogen are especially important. . . ." Also in that issue in a panel discussion on fertilizing bentgrass it is recommended to use 5-20 pounds of N per year. In the January

**Table 1**  
**FERTILIZER USAGE — GREENS**  
**Maple Bluff Country Club**

Lbs. of Nitrogen/1000 ft <sup>2</sup>			Types of Grass
1962	7.8	#N/M	Poa Annua 40% Bentgrass 60%
1963	12.9	"	Poa Annua 40% Bentgrass 60%
1964	17.85	"	Poa Annua 50% Bentgrass 50%
1965	14.65	"	Poa Annua 65% Bentgrass 35%
1966	11.64	"	Poa Annua 75% Bentgrass 25%
1967	11.82	"	Poa Annua 85% Bentgrass 15%
1968	14.76	"	Poa Annua 90% Bentgrass 10%
1969	12.7	"	Poa Annua 90% Bentgrass 10%
1970	6.66	"	Poa Annua 90% Bentgrass 10%
1971	8.26	"	Poa Annua 90% Bentgrass 10%
1972	9.7	"	Poa Annua 95% Bentgrass 5%
1973	10.49	"	Poa Annua 95% Bentgrass 5%
1974	8.0	"	Poa Annua 95% Bentgrass 5%
1975	9.0	"	Poa Annua 90% Bentgrass 10%
1976	7.65	"	Poa Annua 90% Bentgrass 10%
1977	6.80	"	Poa Annua 85% Bentgrass 15%
1978	7.65	"	Poa Annua 85% Bentgrass 15%
1979	4.50	"	Poa Annua 80% Bentgrass 20%
1980	5.32	"	Poa Annua 75% Bentgrass 25%
1981	3.74	"	Poa Annua 75% Bentgrass 25%
1982	3.20	"	Poa Annua 70% Bentgrass 30%
1983	1.77	"	Poa Annua 65% Bentgrass 35%
1984	1.34	"	Poa Annua 60% Bentgrass 40%
1985* (1)	1.15	"	Poa Annua 60% Bentgrass 40%
1986* (2)	1.02	"	Poa Annua 60% Bentgrass 40%

\* (1) 10, 9, 11 2.35#N/M  
 (2) 10, 9, 11 1.25#N/M

**Table 2**  
**FERTILIZER USAGE — FAIRWAYS**  
**Maple Bluff Country Club**

Lbs. of Nitrogen/1000 ft <sup>2</sup>			Types of Grass on Fairways
1962	1.98	#N/M	Bluegrass 40% Poa Annua 20%
1963	3.0	"	Bluegrass 75% Poa Annua 25%
1964	3.15	"	Bluegrass 50% Poa Annua 50%
1965	4.60	"	Bluegrass 35% Poa Annua 65%
1966	4.48	"	Bluegrass 20% Poa Annua 80%
1967	4.07	"	Bluegrass 10% Poa Annua 90%
1968	4.90	"	Bluegrass 5% Poa Annua 95%
1969	4.87	"	Bluegrass 5% Poa Annua 95%
1970	4.99	"	Bluegrass 1% Poa Annua 99%
1971	5.05	"	Poa Annua 99.9% Bentgrass .1%
1972	5.25	"	Poa Annua 99.9% Bentgrass .1%
1973	4.50	"	Poa Annua 99.9% Bentgrass .1%
1974	4.0	"	Poa Annua 99.9% Bentgrass .1%
1975	4.25	"	Poa Annua 99.9% Bentgrass .1%
1976	4.56	"	Poa Annua 99.9% Bentgrass .1%
1977	5.15	"	Poa Annua 99.9% Bentgrass .1%
1978	4.65	"	Poa Annua 99.9% Bentgrass .1%
1979	5.41	"	Poa Annua 98% Bentgrass 2.0%
1980	4.39	"	Poa Annua 95% Bentgrass 5.0%
1981	4.22	"	Poa Annua 95% Bentgrass 5.0%
1982	3.33	"	Poa Annua 95% Bentgrass 5.0%
1983	2.87	"	Poa Annua 90% Bentgrass 10%
1984	2.76	"	Poa Annua 85% Bentgrass 15%
1985	2.74	"	Poa Annua 80% Bentgrass 20%
1986	3.21*	"	Poa Annua 80% Bentgrass 20%

\* Effect of several years of clipping removal, fairways seem to be hungry.

**Table 3**

**GOLF COURSE MOWING HEIGHTS**

(Based on Mid-Season Number)  
**Maple Bluff Country Club**

	Fairways	Greens	No. of Golf Course Employees - Including Supt. (Mid-Season)
1962	1"	3/16	21
1963	1"	3/16	20
1964	1"	3/16	21
1965	1"	3/16	20
1966	1"	3/16	19
1967	1"	3/16	21 course const.
1968	1"	3/16	14 course const.
1969	1"	3/16	17
1970	1"	7/32	12
1971	1"	3/16	12
1972	1"	3/16	6
1973	1"	3/16	10
1974	1"	3/16	11
1975	7/8"	11/64	12 (began tennis)
1976	13/16"	11/64	12
1977	13/16"	11/64	12
1978	13/16"	5/32*	12
1979	3/4"	5/32	12
1980	11/16-3/4"	5/32-9/64	12
1981	11/16-3/4"	5/32-9/64	13 (began pool responsibility)
1982	5/8-3/4"	5/32-9/64	14
1983	1/2-3/4"	5/32-9/64	14 light weight fairway mowing
1984	1/2-5/8"	5/32-9/64	14 (began removal of clippings on fairway)
1985	7/16-5/8"	5/32-9/64	14
1986	7/16-5/8"	5/32-9/64	14

\* Started use of Wylie roller - effectively lowering height of cut 1/64 to 1/32 more.

**Table 4**

**IRRIGATION**  
**GALLONS OF WATER USED ON COURSE PER GROWING SEASON**  
**Maple Bluff Country Club**

1962	26,400,300
1963	27,700,600
1964	24,600,500
1965	28,900,300
1966	27,801,600
1967	25,640,700
1968	31,070,100
1969	30,940,800
1970	32,071,100
1971	34,476,100
1972	27,071,600
1973	28,671,900
1974	31,675,400
1975	30,774,600
1976	28,707,000
1977	26,773,400
1978	24,772,400
1979	29,702,200
1980	25,115,800
1981	26,286,900
1982	24,950,000
1983	22,400,800
1984	20,076,000
1985	
1986	

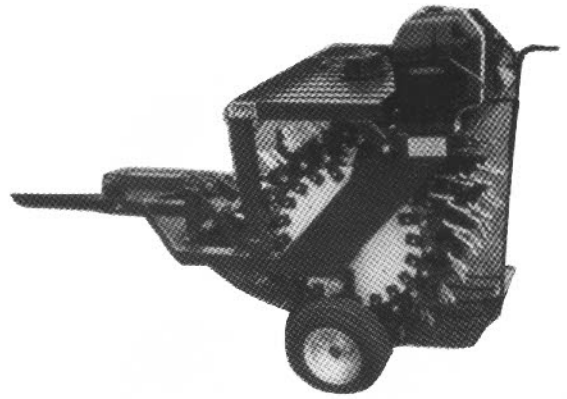
1966 issue of the Record it states "judge nitrogen levels (amount needed) by the color and quantity of clippings." From all this it is easy to see why we kept things "lush", because that is what everybody wanted. But in January of 1968 an article by James Fulwider recommends "keep the turf hungry. . . 5 pounds per year." The trend toward less nitrogen was started, but the articles were few and far between, and sometimes vague. A March 1973 Article by USGA Eastern Agronomist, William Buchanan, recommended "0-2 pounds of Nitrogen per year". Unfortunately this is a very vague recommendation to make. Through the rest of the seventies the recommendations were for more speed, use of the stimpmeter and "how to" articles on better management.

The trend toward more speed and less nitrogen continued until the March/April 1985 issue where an article by Al Radko is titled "Have we gone too far with low nitrogen?" When I analyzed where our program at Maple Bluff had been and where it was going it paralleled the USGA's recommendations. The push for lushness was accomplished as well as the decline to hungrier, hardier turf today. It was apparent that I had done nothing wrong, just reacted to membership and USGA recommendations as best I could. The changes required were made as timely as growing plants will allow. However, I learned a valuable lesson from all this in establishing creditability with a committee. If you can document where you have been and where you are headed, it helps to establish credibility in your management practices. Good complete records are essential in dealing with a changing set of standards of performance.

I noticed several other interesting points as I assembled all these years' worth of data. One was the indecisive and ever-changing articles published by trade journals and researchers. One article will clearly say one thing and the next will say something else. One superintendent will be trying one program and another will be going off in a different direction. The USGA and other trade journals publish things as timely and accurately as they can, but when you line up articles making recommendations one year to the next, these recommendations can be most indecisive. It is a wonder how we, as superintendents, can make any clear cut decisions about our maintenance programs given articles, reports and turf advisory visits that are vague and sometimes talk in circles. Articles in trade journals are usually one person's opinion. Nothing more, nothing less.

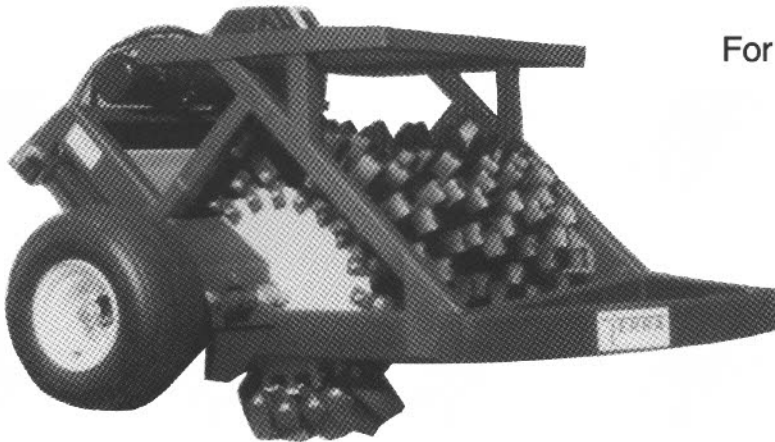
The second point of interest is the current item of discussion at every club-fast greens and how to achieve them. I for one am guilty of tremendously underfeeding my greens. I am asking for trouble, no doubt about it. But all the "expert" recommendations in the last 8 or 9 years have been to cut back nitrogen. In 1983, however, when I was still struggling to achieve more consistent greens speed, a shred of discontent towards low nitrogen, no color, fast greens, appeared in the March/April issue of the *USGA Greens Section Record*. An article by Stephen Cadenelli, superintendent at Country Club of New Canaan, attacked the low nitrogen, droughty golf course mania and the lack of standards to judge what is necessary to sustain long term healthy plants. In the same issue Dr. J.R. Watson, Agronomist with the Toro Company, quotes Alistair Mackenzie's thoughts from his book on Golf Architecture. Mr. Mackenzie states, "Another common erroneous idea is that beauty does not matter on a golf course. One often hears players say that they don't care a tinker's cuss about

# TERRACARE AERATORS



## TERRA 140

For Home Lawns and Smaller Turf Areas.



## TERRA 320

Golf Course Fairways & Large Turf Areas. Recommended by Turf Experts.

## TERRA 200

Net Weight - 1060 pounds  
Overall Length - 7 feet 8 inches  
Overall Width - 4 feet 8 inches  
Overall Height - 40 inches  
Tire Size - 16 x 650 x 8  
10 Discs - 20 Tines per Disc  
Aerating Width - 3 Ft.  
Aerating Pattern - 3½" x 4¼"  
Discs run on Needle Bearings  
Disc Shaft - 1¾ dia.  
Actuation - Electric hydraulic pump



## WISCONSIN TURF EQUIPMENT CORP.

\* \* TWO LOCATIONS \* \*

1917 W. Court  
JANESVILLE, WI 53545  
608-752-8766

21520 W. Greenfield Ave.  
NEW BERLIN, WI 53151  
414-544-6421

their surroundings: what they want is good golf.

I haven't the smallest hesitation in saying that beauty means a great deal on a golf course; even the man who emphatically states he does not care a hang for beauty is subconsciously influenced by his surroundings."

An article by Stan Zontek, when he was the USGA North Central Director, attempted to clarify the stimpmeter and its uses. The article suggests that tables on the stimpmeter speeds for the average club's everyday play are indeed that, good sound recommendations for everyday play. Speeds for tournament conditions as listed in the stimp-meter guide, are for the PGA tour!

These notes of changes in thinking on greens conditions did not suffice to slow down our efforts to further starve and weaken our putting greens. Finally in the March/April 1985 issue of the *USGA Greens Section Record*, former National Director Al Radko, wrote an article "Have we gone too far with low Nitrogen?" Mr. Radko's article strongly suggests that we all re-evaluate the "greens speed race". He recommends stimpmeter readings of 7'6" to 8'6". It is interesting to note that we have seen the swing from "Keep 'em green and lush" to "Starve 'em" and now "have we gone too far". The question then becomes where will it all stop or what will the next change be. The low fertility/high speed craze will probably stop when enough damaged turf starts appearing. Maybe the "black layer" is the first sign. The next topic of conversation is undoubtedly already on some researchers' and writers' minds. The subject is "How to rebuild greens damaged by too low nitrogen". The articles will no doubt be vague and affix the blame to no one.

Our program at Maple Bluff, of too low fertility, will continue, no doubt, until we severely damage something. I have a reputation amongst my membership of being conservative and tending to worry excessively about such things. Even though I am concerned about losing some greens, there is not much I can do about it. I have stated my concerns and I will document my recommendations to the greens committee and further document every move we make on the golf course. This drive for fast greens, and any allied problems, is something that I will not be able to alter or stop. But hopefully by covering myself with good record keeping I will survive this ripple in golf course maintenance history if problems do develop. Since changes in golf course maintenance will always be occurring, good record keeping will prove to be a strong asset for every superintendent.

I've always felt that it makes no difference to me what my membership wants me to do. But whatever they want me to do, someone in authority must give approval and I must document all actions taken and warnings of problems to come. If they want me to plow it up and plant soybeans, no problem. But when the ball starts bounding off the bean shoots, I've got my records and Board approval to fall back upon.

## SUPPORT OUR ADVERTISERS!

**Table 5  
GOLF COURSE OPENING DATES  
Maple Bluff Country Club**

April 9, 1962	16 Temporary
April 3, 1963	"
April 11, 1964	"
April 9, 1965	"
April 7, 1966	"
April 13, 1967	"
April 7, 1968	" (No carts until 4/14/68)
April 15, 1969	"
April 9, 1970	"
April 8, 1971	"
April 20, 1972	"
March 29, 1973	(Reclosed April 9 - 14" snow)
April 7, 1974	"
April 16, 1975	"
April 3, 1976	"
March 31, 1977	"
April 5, 1978	"
April 14, 1979	"
April 17, 1980	"
March 26, 1981	"
April 15, 1982	"
April 13, 1983	(10, 17 greens temporary)
April 4, 1984	"
April 4, 1985	"
April 1, 1986	"

## Wisconsin GCSA Seeks 1988 Monthly Meeting Sites

The Wisconsin Golf Course Superintendents Association, through its Golf and Arrangements Committee, is in the process of establishing a tentative monthly meeting schedule for the next year, 1988. It is, once again, our goal to arrange a geographically balanced schedule with a variety of golf courses for all WGCSA members to enjoy. If you are interested in offering your time and your club or facility for such an event; complete, clip and return the form below to:

Michael Semler  
Cherokee Country Club  
5000 N. Sherman Avenue  
Madison, WI 53704

I am interested in hosting a 1988 WGCSA monthly meeting:

NAME \_\_\_\_\_

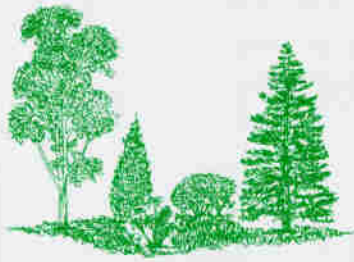
CLUB \_\_\_\_\_

ADDRESS \_\_\_\_\_

CITY \_\_\_\_\_

STATE \_\_\_\_\_ ZIP \_\_\_\_\_

Specific month for meeting date (if preferred) \_\_\_\_\_



# Buying Last-Minute Annuals

By Dr. Lois Berg Stack  
University of Maine

It's that time of year again — spring is around the corner, and summer isn't far behind. In spite of all the planning that you do during the winter, there are always a few details that escape attention until you are in the midst of the spring season, and a few surprises that can't be planned for anyway. Sure, you've contracted for the flowers you'll install on the course this year, but there are always the "unknowns" — the new flower border by the clubhouse, the area near the parking lot that needs a little extra color, the flower bed that will have to be replanted after being invaded by a golf cart.

How do you go about selecting and buying annuals at the last minute? What is a "quality plant"? How do you get the best buy?

The answers to those questions may lie in the greenhouse grower you've contracted to grow annuals for the season. Most growers who contract with golf courses, parks and landscape firms have enough volume and diversity to provide plants for those last-minute needs. Also, because you represent a continuing contract, they will go out of their way to help you. If they can't supply the plants, they can usually suggest another grower who can.

If you do find yourself in a situation where you must choose annuals at the last minute. Look for a grower who can supply (1) selection, (2) quality, (3) service and (4) reasonable prices.

### Selection

Most bedding plant growers produce a fairly wide selection, but there's more to look at than just numbers. Take a walk around the greenhouse, and ask some questions.

Is the selection of annuals quite standard, or are there some new introductions? If the grower is progressive, you should see some recent All-America Selections like *Cosmos* 'Sunny Red' and *Celosia* 'Century,' and some of the "newer crops" like the ornamental basil and New Guinea impatiens. You should also see some old stand-

bys that have proven themselves year after year, like disease-resistant multi-flora petunias and compact ageratums.

Can the grower recommend some annuals that will perform well on the golf course without requiring too much maintenance? Certainly, the geranium can't be topped for constant color, but you can't deny that it has some severe disease problems, and that it requires season-long pruning of old flowers to produce that continuous spectacular color. A good grower should be able to suggest some plants that will produce color all season with less labor. *Sanvitalia*, the "Creeping Zinnia," has gained some much-deserved attention since a cultivar named 'Mandarin Orange' was recently chosen as an All-America Selections winner. This 6-8" plant produces a constant display of small orange-yellow "daisies," and requires no extra maintenance after planting. It tolerates heat and drought, and demands only a well-drained soil in full sun. The new triploid marigolds are compact plants with large flowers, and because the plants do not set seed, they require less removal of spent flowers to promote rebloom. *Dusty Miller*, the bushy 10-14" plant with velvety silver leaves, performs with little maintenance. It combines well with all colors, and requires only full sun and good drainage.

Does the grower select cultivars of annuals with garden performance in mind? Many cultivars of annuals look great in the greenhouse, but don't perform well outdoors. Most pansy cultivars stop flowering during midsummer, but some, like the 'Viking' and 'Universal' series, continue to flower all season if grown in partial shade and pinched back occasionally. Many cultivars of blue salvia produce too much foliage and not enough flowers, but 'Victoria' produces an excellent display of blue flowers.

### Quality

When evaluating quality, look first at the greenhouse itself. It should be free

of insect and disease problems. The production and work areas should be clean and organized.

The plants themselves should display several characteristics. First, they should be compact and well-branched. Growth regulators are standard in the industry, and if used properly will yield a crop that is vigorous and well-branched, uniform and not too leggy. The effects of growth regulators wear off after a number of weeks, and the plants are ready to take off once set outdoors.

Second, the plants within a flat should be uniform — in height, vigor, color, general size and stage of development. A flat of variable-sized plants is hard to interpret — are some of the plants simply not as vigorous as others? Or was a growth regulator not evenly applied? Or did some plants get more fertilizer than others? Whatever the reason, if the plants are not uniform in the flat, they will probably not be uniform in the garden, either.

Third, look at plant health. Good foliage color is a sign of a good fertilizer regime. Pale green leaves, particularly on petunias, are often a sign of low nitrogen. Yellowish, weak foliage is sometimes a sign of overwatering. Sticky honeydew on leaves is a sign of an insect infestation (on bedding plants, honeydew would most often indicate aphids or whiteflies). While the insects may have been controlled by the time you see the plants, their feeding may have stunted the growth of the plants, or they may have transmitted a disease that will not be evident until after the plants are set outdoors. Check the plants' roots to make sure they are vigorous and white. Look for new growth and vigor.

### Service

Service varies from one grower to another. Some are strictly cash and carry, but most wholesalers who provide plants for businesses will set up accounts and deliver upon request, and some will do simple garden designs at no extra charge. If given advance notice, many growers will custom-grow a crop for your needs, even working around your crew's schedule so that you can plan ahead for spring planting. Some growers are willing to act as a "buyer" for their ongoing accounts, buying in a crop from another grower if they themselves cannot supply it.

A recent trend in the bedding plant

business has been the production of annuals in larger containers, usually 4" or 5" pots. While this is substantially more expensive per plant, there are some advantages. Larger plants are already in flower, and will produce an "instant effect" on the golf course. They generally transplant well, requiring less care in the first days after planting. Just as important, they can be a life-saver later in the summer, if a flower bed succumbs to a disease and must be replanted.

One characteristic of good service that is often overlooked is information. A greenhouse grower should be able to recommend colorful, high performance, low maintenance annuals, and even draw up a schedule of maintenance tasks for the summer. In buying plants, you should learn how often to fertilize, how often to remove old flowers, when to prune back, what insects and diseases to watch for, and other cultural requirements.

#### Price

The cheapest plants are not always the best, but good buys do exist. Weigh price against quality. Paying a few cents more for a higher quality plant may be a good investment. Do some comparison shopping. Talk to some growers and explain what you are looking for. In anticipation of future orders, some growers may offer you a very good price, or extra service.

Don't forget to check with a landscaper. It may be a good idea to hire a landscaper to design the flower beds, provide the plants and install the garden. Remember that your crew is busy during planting season!

#### Last minute tips for success with annuals. . .

Buying quality bedding plants is important, but it is only the first step. Here are some tips to help ensure high quality flower beds this summer.

- Pinch back leggy plants when setting them outdoors. Petunias in particular may become a bit leggy in the greenhouse. If pinched back at transplant time, they may take slightly longer to flower, but they will branch much better, and provide more color in the long run.

- If you are using a pre-emergent herbicide in a flower bed, rototill and rake out the bed, then apply the herbicide and rake it in lightly. Plant the transplants through the layer of soil containing herbicide granules, making sure the root ball penetrates slightly

below the herbicide layer. Many transplants suffer root damage when new roots grow into the soil layer containing herbicide granules.

- When planting annual seedlings, be sure to cover the entire root ball with soil. This is particularly important if the annuals are in peat or fiber pots, because the pots will dry out more quickly than the surrounding soil and act as a wick, carrying water out of the soil. It is also very important to cover the entire root ball of plants grown in a peat-lite mix. Because these mixes dry out quickly, leaving the root balls exposed at soil surface will stress young plants.

- Some annuals can be sown directly in the flower bed with excellent results. Sweet alyssum, a low-growing white or purple edging plant, can be seeded into the garden in early spring, and will provide good color all season. Moss rose, another edging plant with pastel flowers, develops very quickly from seed. Sow the seed after all danger of frost. Because this plant tends to die back by late summer, you might want to seed a second time in early summer, scattering the seed among the established first crop. Dwarf French marigolds can be seeded directly into the garden, producing

flowers in six to eight weeks. Zinnias often become quite leggy in the spring greenhouse, but when they develop quickly in the heat of summer they are much stockier. A strong, healthy crop of zinnias can be grown by seeding it directly into the garden after all danger of frost is past.

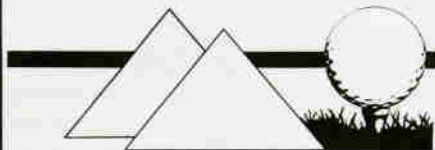
- Allow young annuals to become established for a few weeks before mulching. This practice promotes better root system development. Also, because many mulches cool the soil, they should not be applied in the spring when you want as much warmth as possible for rapid plant development. Plant the seedlings and allow them to develop for a few weeks, then weed, water and mulch.

- If you purchase hanging baskets for use around the club house, chances are you will be using shade-tolerant plant materials, and locating them on the east side of the building, or under an overhang. Remember that plants under an overhang receive little precipitation, and may require watering more frequently than those plants in an open area. Be sure to turn the baskets weekly or biweekly, to promote a more rounded, symmetrical shape.

### WAUPACA INDUSTRIAL SAND COMPANY

715-258-8566

Wisconsin's Quality  
Silica Sand Company



#### Shipping To All Golf Courses In the Midwest

Topdressing • Bunker  
Construction Mixes  
Sand • Peat • Topsoil

*Call us and find out why  
quality conscious golf courses  
prefer doing business with us.*

## AMETEK TURF BOXES

*Manufactured In*  
**Sheboygan, Wisconsin**

Ametek irrigation boxes  
are  
warehoused regionally  
throughout  
the U.S. and Canada

# AMETEK

# BELLA LAGRASSEED



With over 165 different varieties of grass seeds to choose from, selecting the "right" grass seed can be a nightmare. A bad choice can turn into a big monster.

At Kellogg, seeding is a science, not an experiment. Every blend of turfgrass seeds we sell is tested. And retested.

Our recommendations to you are based on proven results and years of experience. Before a monster gets loose in your lawns, call Kellogg at:

**1-800-792-3504 ext. 492**



Kellogg Inc.  
Seeds & Supplies  
322 East Florida Street  
Milwaukee, Wisconsin 53204  
(414) 276-0373  
In Illinois (312) 876-1172

Midwest's Largest Distributor of Turfgrass Seeds. Custom Blending & Free Delivery (150 mile radius with \$100 minimum purchase). Plus a Complete line of USS Agri-Chemicals, Fertilizers, Herbicides, Insecticides, and Monsanto's Turf Regulator, Limit.





# THIRAM:

## Public Safety and Re-Entry Questions

By Dr. Gayle L. Worf

Those of us involved with turf management have not been much involved with questions about re-entry — that is, how soon after application of a pesticide before individuals are allowed back into the treated area. That situation is changing rapidly as both public concern, EPA requirements and industry responses are combining to alter the picture. Thiram is perhaps the most recent of such chemicals about which questions of this sort are being asked.

Re-entry limitations for certain chemicals being applied to crops for food use have been in place since 1974, the first year that the EPA was charged with the responsibility of adding this as one of the registration requirements for pesticides. Concerns by migrant and other workers who were allegedly working in fields right after their treatment with toxic chemicals helped initiate this process. Dermal exposure is the primary concern in setting the standard for re-entry requirements, which are usually on the basis of 0, 24 or 48 hours after application.

Most fungicides that we are using carry only a "caution" label (as opposed to "warning" or "danger" labels) and their oral and dermal LD<sub>50</sub>'s are comparatively high, usually well above 1,000. Except for the mercurials (and chromium- and cadmium-containing products, which we cannot use in Wisconsin), there has not been a traditionally major concern about their use, and subsequent public exposure. But a number of events have conspired to change this concept, and we notice a number of changes occurring on labels that illustrate that fact. "The area being treated must be vacated by unprotected persons" or "do not enter treated areas without protective clothing until sprays have dried" — even instructions directing that treated areas be properly posted until chemicals have dried — are appearing on several commonly used turf fungicide labels now. Many of these are new (1986 and 1987) statements appearing on old products, e.g.,

chemicals we have used and been familiar with for a long time. Read the newer labels — you'll see what I mean! Whether these are required by EPA or are actions being taken by the chemical industry to safeguard themselves I do not know. But if it appears on the label, it is a legal requirement, and we in turn will have to follow those instructions in order to safeguard both ourselves (against possible litigation) and the public we serve.

But the matter of not being able to enter the treated area — even after the chemical has dried — for a 24 hour period is a new wrinkle for turf people to contend with. That's what it says on some — but not all — turf thiram labels! The fact that it appears on some, but not all labels adds yet another confusing aspect to the story. Is it required by the EPA? And if so, then why not on all labels? To get the answer, I recently called a contact with the Environmental Protection Agency, who didn't have the answer immediately at hand. But he promised to get back to me with some information, and he kindly did so a few days later. The telephone response went like this:

Thiram for use on "crops" now requires a one day re-entry period. Sod production of turf is categorized as a crop, and as such, turf also requires such a statement. However, "other turf uses", such as golf course and home lawns, are not presently designated as "crops", and products labeled specifically for their use would not necessarily carry such a requirement.

I've checked three thiram products labeled for turf use. Two of them contain the re-entry statement, one does not. Yet I cannot interpret "turf as a crop" designation any differently from one label to the next! As the EPA official pointed out, "it is admittedly confusing" right now, and he also indicated some additional rules on turf use in general are likely to be forthcoming (!) Incidentally, you may be interested to know that, while thiram has registration on several fruit and

vegetable crops, its use has virtually disappeared over the past several years, at least partly because of superior products, as well as the loss of patent rights, making profits questionable. I wanted to verify the re-entry limitation on fruit crops, but no major companies offer the product any longer, and so we don't have any current thiram-fruit labels on hand! In other words, turf, along with rabbit-repellent and some seed treatments are about all of the actual uses remaining for this product.

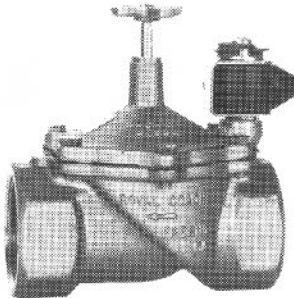
Thiram is an old product. It was introduced in 1931 — one of the earliest organic fungicides ever produced. It came about as a by-product of the rubber vulcanizing industry, where it was thought that it might be useful in enhancing the activity of sulfur, which was one of the few fungicides available at that time. While that didn't work out, it became useful in its own right, and really deserves a proper niche in the evolution of fungicide development. It belongs to the chemical group called "dimethyldithiocarbamates", to which also belong ferbam and ziram. The latter two have likewise virtually disappeared, after having served long and useful chemical lives before being replaced by products that weathered better and provided a broader spectrum of fungus control.

Thiram is widely recognized as a skin irritant. Anyone who has worked with it knows of its irritability to both the skin and nose. Consumption of alcohol increases the toxic characteristics, according to one label. Another label points out that the user should not take alcohol beverages before or after use of this product (but it doesn't say how long afterward!!)

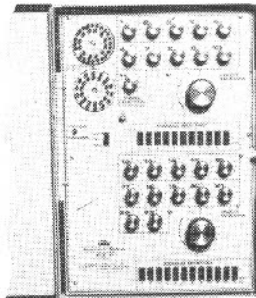
Limited use of chemicals because of skin irritation is not a new concern to the industry. One golf course in the state has not used thiram for years because of the unusual sensitivity of one or more of its members. And one of the best fungicides I ever worked with is captafol (Difolatan), an analog

# IRRIGATION EQUIPMENT

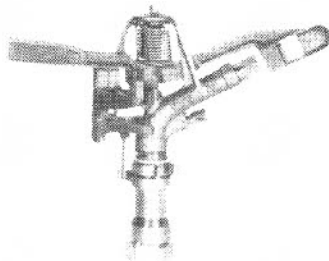
and IRRIGATION DESIGN CONSULTATION



Electric Valves



Controllers



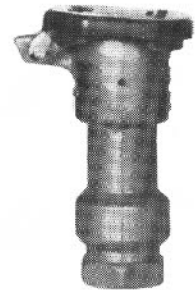
Impact Sprinklers  
FULL/PART CIRCLE

The logo for Buckner Royal Coach, featuring a stylized horse head profile in the background. The word "Buckner" is written in a large, bold, serif font, with "Royal Coach" in a smaller, italicized serif font below it.

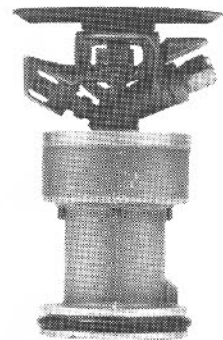
• **Design**  
• **Free Budget Figures**  
• **Pump Renovations**  
• **New Pump Packages**  
• **Green & Tee Systems**  
• **Anything to Move Water**  
• **Parts/Repair for Most Makes**

**TOLL FREE**  
Wisconsin Number  
**1-800-323-2352**

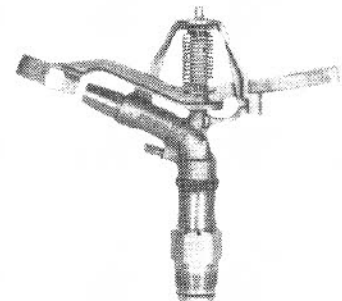
"LEADER IN THE IRRIGATION  
DISTRIBUTION FIELD"

The logo for Century Rain Aid, featuring the words "centuryrain aid" in a stylized, lowercase font inside a rectangular border.

Quick Connect Valves



10094 for TORO  
650, 670



Impact Sprinklers  
FULL CIRCLE

*Call us first for all Makes of Irrigation Equipment*

Buckner Golf Group  
Bob Manley  
**1(800) 323-2352**  
or  
**1(414) 786-2727**

**centuryrain aid**

Century **RAIN-AID**  
341 Lively Blvd.  
Elk Grove Village, Ill 60007

(Buckner Golf Group)  
Scott MacIntyre  
**1(800) 323-2352**