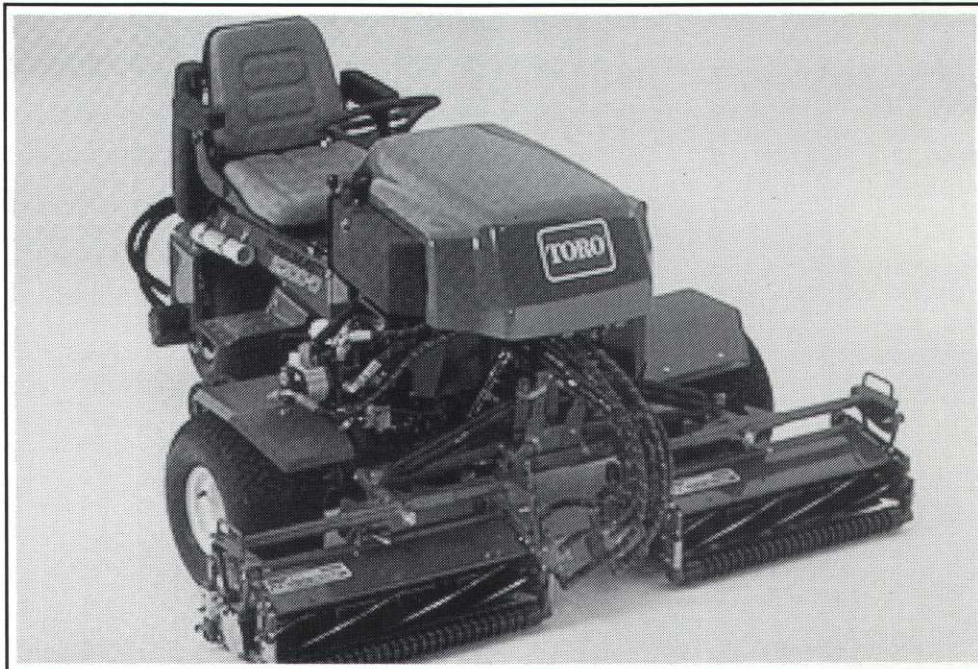


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Groundwater, Turf Management And Public Perception —

(Continued from Page 30)

roots of a turfgrass plant will be in the upper 8 to 12 inches of the soil profile. These roots are excellent extractors of soil water.

In summary, sandy turfgrass sites treated with soluble chemicals are more prone to leaching loss, whereas heavy clay turfgrass sites on sloped areas are more prone to runoff loss.

Management Practices That Protect Groundwater

The manager of a turfgrass site has ultimate control on protecting the groundwater. This is especially true for sandy turfgrass sites. Thus the nitrogen source, nitrogen application rates, timing of nitrogen application and irrigation practices can directly influence groundwater contamination on sandy sites.

As stated previously, slow-release nitrogen sources have a lower solubility than inorganic nitrogen sources. Slow-release nitrogen sources are recommended for use on sandy soils. Research has shown that nitrate leaching is less when applied as a natural organic form (Milorganite) or a synthetic organic form (ureaform).

If soluble nitrogen sources are preferred, rates should be adjusted to prevent movement through the soil profile into the groundwater. For example, nitrogen applications with urea on high sand content golf greens should be at a rate of .1 to .25 lb. N/1000 sq. ft. per application. Anything greater may leach below the root zone. Once this occurs, the nitrogen is no longer available for plant use. However, if slow-release nitrogen sources with a high water insoluble nitrogen ratio are used, N rates can be as high as 2 lb. N/1000 sq. ft. per application on Kentucky bluegrass.

Certain types of weather will favor nitrogen leaching. For instance, cool rainy weather favors the movement of nitrogen beyond the root zone into the groundwater. Increased leaching potential occurs because cool temperatures decrease denitrification, volatilization, microbial activity and plant nutrient uptake. Thus, appli-

cation of high rates of nitrogen on sandy sites during the late fall, winter or early spring can lead to nitrate movement into the groundwater.

Irrigation practices that result in water movement below the root system will increase potential nitrogen and pesticide leaching. Irrigation on a daily basis during cool months will increase leaching losses. On the other hand, infrequent deep irrigation to well below the root system will more than likely move nutrients with the water. Irrigation should only be provided to replace what water has been removed by plant uptake and evaporation.

—Source: NYSTA Spring 1990 Bulletin 138

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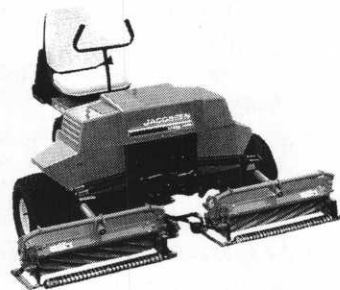
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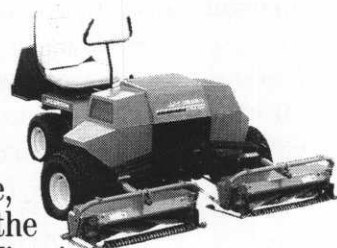
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University of Minnesota UPDATE

Russian Sage Provides Beauty From Mid-Summer Until Frost

By Deborah Brown
Extension Horticulturist
University of Minnesota

There's a definite role for flowering perennials in the golf course landscape. They can add distinctive color and beauty that changes over the growing season. And unlike flowering annuals, they'll come up every year — barring a weather catastrophe. Provided you choose your perennials knowledgeably, you can enjoy blooms most of the summer.

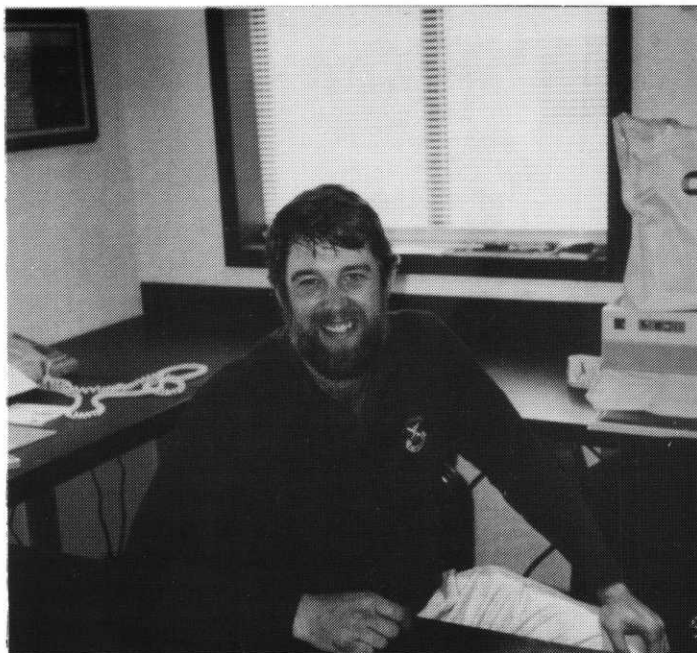
Consider planting Russian Sage, *Perovskia Atriplicifolia*. It was recently chosen "Perennial Plant of the Year" for 1995 by the Perennial Plant Association, a distinction it richly deserves. Not only is Russian Sage a strikingly handsome plant, it's virtually pest-free and very easy to grow.

Winter-hardy throughout the Upper Midwest (to USDA hardiness zone 3 with a little extra protection), this semi-woody plant grows three to four feet tall over the course of the summer. After a year or two in the landscape, it will resemble an airy shrub rather than a flowering perennial. A hedge-like row of plants would be particularly striking. So would a large mass planting.

Russian Sage has coarsely toothed silvery, grey-green foliage. Beginning in mid-summer, it develops large spikes of delicate lavender blue flowers that create the illusion of hazy purple clouds from a distance. These flower spikes continue to expand until weather turns cold and frosty in autumn.

Plant Russian Sage in full sunlight, where soil drains readily. It is drought-tolerant, and will thrive under hot, dry conditions that would cause most other flowers to wilt and decline without constant irrigation. In fall, after it's been damaged by cold, prune stems back to 4 to 6 inches. Mulch the plants with leaves or straw to reduce damage from freeze/thaw cycles in late winter and early spring.

Russian Sage will add a lot to the aesthetic appeal of a golf course (or any other large-scale landscape) without creating the need for lots of additional labor. You can plant containerized specimens of these and other flowering perennials throughout the growing season.



Tom Parent, Superintendent, River Oaks, smiles through the rain.

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3. Fertilizing and aerating greens as needed.
4. Maintaining and repairing benches and bridges located on employer's golf course.
5. Maintaining the equipment owned or leased by the employer in good operating condition.
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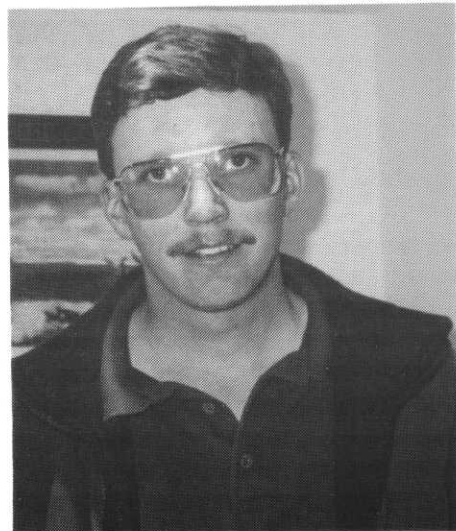
MTI Distributing Company of Plymouth and Sustane Corporation of Bloomington recently entered into an agreement whereby MTI is now the exclusive commercial distributor of Sustane Products to all turf markets in Minnesota, North Dakota, South Dakota and Western Wisconsin.

Sustane has produced natural organic, natural-based and bio-organic products to the commercial turf industry for nearly 10 years.

"MTI brings many outstanding years of service to the commercial turf industry in the Upper Midwest," said Tom Duffey, executive vice president for Sustane. "Their sales, service and technical support are unparalleled in the region, making MTI the ideal partner for Sustane."

MTI Distributing Co. said it is really excited about being chosen to represent this locally manufactured product line of bio-organic fertilizers/soil conditioners. MTI and Sustane expect to provide excellent service to the turf professionals in this area.

To receive more information on Sustane fertilizers, Bio Grounds Keeper thatch management products or Bolster plant growth supplements, contact MTI at (612) 475-2200, (800) 362-3665 or Sustane at (612) 943-1600, (800) 383-4081.



Jeff Backstrom, Superintendent, Cannon Golf Club. . . "Where did that snow come from?"

MGCSA Environmental Impact Statement

(Editor's Note: The Environmental Committee, chaired by Charlie Pooch, has developed an Environmental Impact Statement for the MGCSA.)

As stewards of the golf course and members of the MGCSA, we approach the practice and application of plant protectants with great judicial prudence.

Our investment is in the future environment on which all life is dependent. Our care of the future is managed in a multitude of ways: Personal commitment, ongoing training and the funding of and participation in research.

All of this work helps to spawn sound scientific information, helping us evaluate and understand the impact and benefits of the golf course industry on our environment.

Defending Hard Hats

By James Smith

Ollerton, Nottinghamshire

British & International Golf Greenskeepers Assoc.

Is there a golf course in Britain where the greenskeepers wear, as a protection against flying golf balls, hard hats as a matter of routine? This would seem a simple and obvious safety measure, given that the golfer's traditional shout of 'fore,' if called, is frequently made inaudible by the noise of machinery the greenskeepers are using.

I ask this question because, at the club where I play, the committee recently bought each greenskeeper a hard hat to wear when working on the course, but failed to make its wearing compulsory. The result of this is that 75% of the greenskeepers refuse to wear their hat. The reasons given to me by the non-wearers for not wearing the hats have been both varied and unconvincing. I can only think that the underlying reason is that they think it sissy clothing. They are quite happy to wear safety boots, also provided, which are of course indistinguishable from normal boots.

OMISSION

In Nancy Jo Ehlke's article on "New Varieties of Kentucky Bluegrass for Minnesota" in the April 1995 issue of Hole Notes, we inadvertently left out the fact that she is from the University of Minnesota.

— Editor

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EDITOR'S CORNER

By Tom Johnson
New Richmond Golf Club



Not surprisingly, the first golf outing of the season was snowed out. Under the white stuff, **Jeff Backstrom** and crew had the course ready for the 60+ MGCSA members who attended the April meeting. There was plenty of warm hospitality at the Cannon Golf Club and a great lunch followed by speaker Mark Stennes of the Rainbow Tree Service Company. Several superintendents visited Jeff's maintenance area and exchanged information on golf course matters. Thanks to Jeff and the Cannon Golf Club for hosting the snowy April MGCSA meeting!

* * * *

Soft spikes are generating a lot of interest around the area. After several positive articles in golf publications they have gotten the notice they deserve. Wouldn't it be great to have greens that weren't spiked up, blacktop that wasn't pitted, wood that wasn't chewed up and carpet that lasted more than a season? Savings in \$\$\$s as well. My experience with them has been very good. Although I have a swing that could make a golf coach scream, I never once slipped on wet or dormant dry turf. Some member courses are really promoting their use. Let us know about you and your club's experience with them. This information will be published in *Hole Notes*.

* * * *

How's your business ethics? Any Rotarian will recognize this four-way test but it's something we could all ask ourselves when dealing with employees, other superintendents and our employers. Ask yourself these four questions:
Is it the truth?
Is it fair to all concerned?
Will it be beneficial to all concerned?
Will it build goodwill and better friendships?

* * * *

This spring I had to renew my Wisconsin pesticide license which will be valid for another five years. It's a simple procedure that works well and is readily accepted by licensed pesticide applicators in Wisconsin. Each five years you are notified and have to purchase a \$30 training manual for each category in which you want to be licensed. You then have the option of attending a training session and taking a closed book exam or just taking the exam at a prearranged time and place. The State gives the exam at the cost of \$10. The training session is taught by the U of W Extension staff, Dr. Frank Rossi and Dr. Julie Meyer. I mention it because Minnesota is still in the process of changing its licensing procedure and even though Wisconsin may not be "the Brain Power State," this method has worked well.

Thomas Johanns and the Bemidji Town & Country Club will host the monthly meeting on June 12th. I always look twice when I see Tom's name in print. Check that spelling out, Tom. You're missing an "o" and the "n" is in the wrong place! Let's have a big turnout in this beautiful part of the state!

* * * *

Middle age is when anything new in the way you feel is most likely a symptom. — Laurence J. Peter

* * * *

Here is a list of some new courses in the metro area as reported by the *St. Paul Pioneer Press* in the April 23rd edition:

- The Wilds, Prior Lake
- Mississippi Downs, Cottage Grove
- Creek's Bend, New Prague
- The Bridges, Mounds View
- Hidden Creek, Owatonna
- Elmdale Hills, Cannon Falls
- Bristol Ridge, Somerset, WI
- Kilkarney Hills, River Falls, WI

The article also stated that Minnesota and Wisconsin continue to rank 1-2 nationally in the percentage of residents older than 12 who play golf. There are currently 372 public courses and 59 private courses in Minnesota. With the addition of new golf courses in outstate areas and those being constructed, that number will continue to grow. I will try and get the names of other new courses in the state that will open during the 1995 season.

— Tom Johnson
Editor

No state has played host to all 13 USGA national championships — yet. In September that'll no longer be the case as Minnesota becomes the first. Somerset Country Club will host the 34th Senior Women's Amateur.

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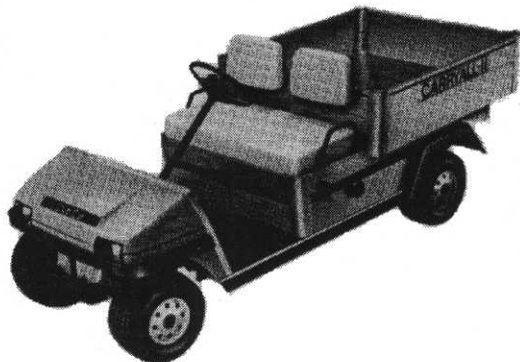
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