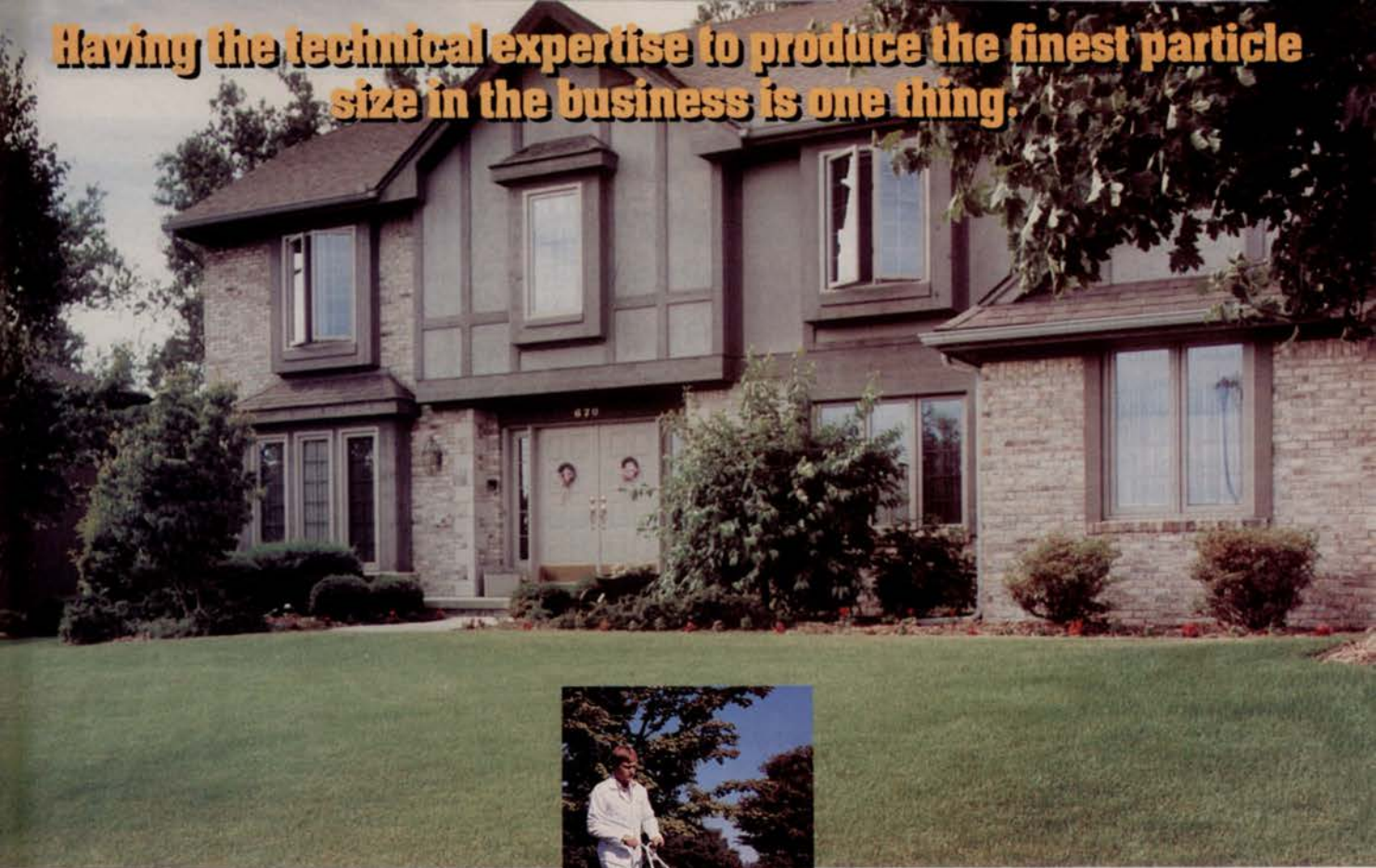


Having the technical expertise to produce the finest particle size in the business is one thing.



Applying that expertise

particle after particle,

after particle ♣ after particle ♣ after particle ♣ after particle ♣ after particle ♣
after particle ♣ after particle ♣ after particle ♣ after particle ♣ after particle ♣
after particle ♣ after particle ♣ after particle ♣ after particle ♣ after particle ♣
after particle ♣ after particle ♣ after particle ♣ after particle ♣ after particle ♣
after particle ♣ after particle ♣ after particle ♣ after particle ♣ after particle ♣

is an entirely unique achievement in advanced formula product production
for performance consistency ♣

The Andersons. Uniformly the best in the business.

the professional's
partner®



1-800-225-ANDY

changes into a deadly gas that kills the fire ants within a matter of seconds. "This method is good on athletic fields and places where you're concerned with pesticide residues," notes Sparks.

Baits for the long haul—Baits can also be used as a two-pronged solution to fire ant infestations: (1) broadcast at 1 to 1.5 lbs./acre, and then, two to three days later, (2) follow with an individual mound treatment. Some products labeled as fire ant baits are hydromethy-lon (Amdro), fenoxycarb (Award, formerly Logic) and Bushwacker.

"In situations where immediate control is needed, I do not recommend baits," Dr. Sparks admits. "However, baits work well as broadcast treatments for control over a long period of time."

According to a University of Georgia extension booklet authored by Sparks, to achieve satisfactory results with baits, you should:

a) use fresh bait, preferably from an unopened container or one that has been tightly resealed and not stored for more than two years;

b) apply when the ground and grass are dry and no rain is expected for 24

hours;

c) apply in late afternoon or early evening when worker ants are actively foraging for food; and

d) treat individual mounds by sprinkling the recommended amount of product up to three feet away, but not on top of an undisturbed mound.

Treatment options

■ For small areas of turf, or where preservation of native ants is desired:

- 1) Treat unwanted fire ant mounds using the individual mound treatment of choice.
- 2) Selectively treat new or undesirable mounds as needed.

■ For long-term suppression of ants in turf and non-agricultural lands:

- 1) Make an annual or semi-annual broadcast application of bait formulated insecticide in the spring and/or fall.
- 2) At least two days after broadcasting the bait, begin treating individual mounds in sensitive or high traffic areas using the individual mound treatment of choice.

■ To eliminate all mound building and foraging activity in turf:

- 1) Make an annual or a semi-annual broadcast application of a bait formulated insecticide in areas where there are fire ant mounds; or treat individually.
- 2) Routinely broadcast or spray a contact insecticide every eight weeks or when new ants are detected.

"Baits take several weeks to six months to be effective," says Dr. Sparks. With a second bait application in the fall and annual treatments, you get 90 percent control for \$15 to \$20 per acre per year. "If you do get on this regime," she adds, "you need to stay on it."

—Jerry Roche

EIGHT CUTTING EDGES FOR CLEANER, SHARPER TRIMMING.

Introducing new Cross-Fire™ Premium Trimmer Line from Echo. The shape of things to come.

Not your ordinary line, Cross-Fire's™ eight cutting edges shear rather than tear grass. That helps reduce the browning of grass tips for a more professional look. Cutting is easier and faster, too, even in long, thick grass.

Made from a specially designed premium copolymer, Cross-Fire™ has excellent flexibility and suppleness, plus exceptional split and tip wear resistance for longer life. Also, the bright color is easy for the operator to see.

Choose the size you need from .065" to .130" in diameter, and lengths from 40' loops to 5 lb. spools.

This year, don't settle for the same old line.

For the Echo dealer near you, call toll-free 1-800-432-ECHO. Or write: Echo Incorporated, 400 Oakwood Road, Lake Zurich, IL 60047.

Circle No. 110 on Reader Inquiry Card

Cross section of line shows the eight cutting surfaces that shear rather than tear grass.

CROSS FIRE

ECHO
THE RIGHT TOOL

Once you order our parts,
we're on your schedule.

That's because we know you can't afford to wait forever. So, in those rare cases when you can't get parts immediately from your Toro distributor, our Parts Delivery System offers three ways to meet your schedule.

Besides *Normal Direct Ship*, our new



24 Hour Fast Track

guarantees delivery in a day,* or your parts

are free. And *Direct Today 48 Hour* means reliable arrival in two days.*

Toro Parts Delivery. Another way we help turf care professionals create extraordinary beauty and playability.

Right on schedule.

TORO

Helping You Put Quality Into Play.™

*For full program details, contact your local Toro distributor. 24 Hour Fast Track and Direct Today 48 Hour delivery are available in the 48 contiguous states and cover only parts supported by The Toro Company, Minneapolis, and do not include irrigation or certain engine parts. Program subject to carrier delivery restrictions. ©1993 The Toro Company. The Toro Company, 8111 Lyndale Avenue South, Minneapolis, Minnesota 55420. "Toro" is a registered trademark of The Toro Company.

Circle No.138 on Reader Inquiry Card

Choose Bayleton this year for the same

C O N

reason everyone chose it last year.

S I S

And the year before that. And the year

T E N

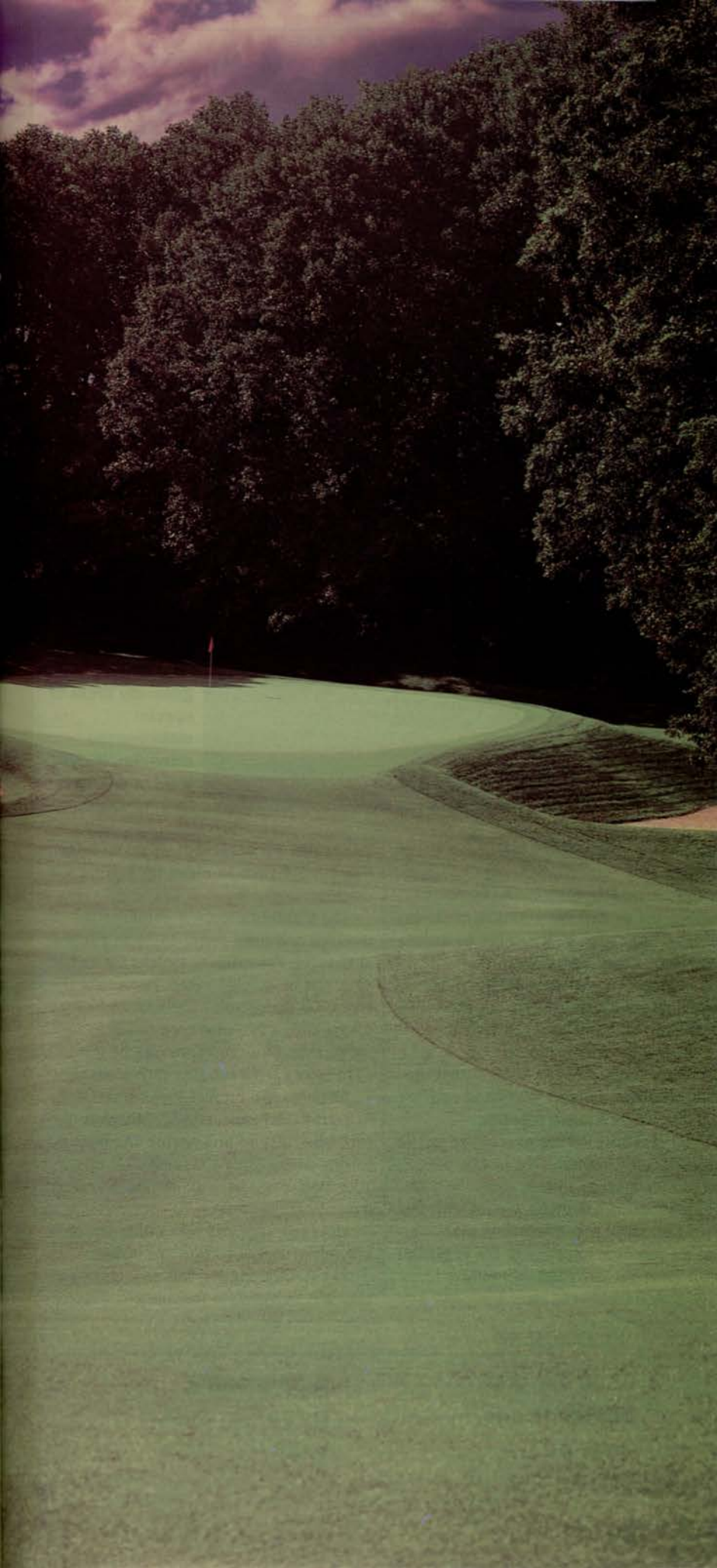
before that. And the year before that.

C Y



Circle No. 121 on Reader Inquiry Card





Year after year, BAYLETON fungicide has controlled the tough diseases. Like summer patch and dollar spot. Not to mention a broad spectrum of other turf diseases.

Plus, BAYLETON has provided excellent control of powdery mildew and rust on ornamentals.

That's why it's been a leading fungicide on the finest courses in the country for more than ten years.

As if that weren't enough, consider the fact that BAYLETON is systemic. Which translates into longer control.



Our new water soluble packets give you consistency in formulation and control.

Which is all good reason to treat your entire course with BAYLETON. Especially your fairways, since it keeps your customers from tracking disease up to your tees and greens.

For more information, contact Miles Inc., Specialty Products, Box 4913, Kansas City, MO 64120. (800) 842-8020.

It may be the most consistently rewarding choice you make.



STRICTLY GOLF

The art of bunker maintenance



Sand bunkers come in all shapes and sizes: large and small, regular and irregular. But they are generally areas of special maintenance attention, if you want your course looking sharp.

Nothing shows your course off better than clean, sharp lines in a well-raked bunker.

■ A "hazard" is any bunker, water hazard or lateral water hazard, say the Rules of Golf.

By definition, a bunker is an area of bare ground, often a depression, which is usually covered with sand. Grass-covered ground bordering or within a bunker is not part of the hazard. So that settles the issue of "TV grass bunkers." TV announcers and architects take note: no such animal exists.

Since bunkers have no stakes or lines, the margin must be defined by the separation of turf and sand. That's why bunkers require so much edging and raking. Sand and turf must be kept separate. Sand raked onto the turf makes it impossible for the

player to determine if the ball lies in or out of the hazard.

Those maintaining bunkers must (1) provide the golfer with a consistent playing surface, and (2) allow the golfer to make a fair ruling in playing the shot.

Raking—Various methods and intervals are employed for raking bunkers, depending on budget, time and labor constraints.

(1) Hand—This is the best way to get a consistent surface and lie but it's labor- and time-intensive. Courses that hand rake are usually on a continuous schedule.

(2) Machine—This procedure is the quickest and cheapest. One or two persons can do the average 18-hole course in a day. The trade-off is a bumpier surface with tool marks that may trap a ball. Also, maneuvering the machine too close to the edges can break down the banks and spill sand onto the turf. Budgets may only allow this procedure

three times per week—but always on Friday. Use a hand rake to clean up behind the machine.

(3) Combination—A combination of machine and hand seems to be an effective alternative. The machine loosens the surface so it can be quickly raked. Hand-rake the edges. Let the operator continue around the course with a two-man crew following with hand rakes. This procedure may be restricted to twice a week and after each heavy rain.

Edging—No bunker looks maintained without some regular edging. Otherwise, the turf will close in and shrink the bunker, leaving an unsightly and unplayable margin. Your budget will tell you how much you can do.

How you edge and how much you edge will, again, depend on time and budget:

(1) Rotary edger—This is a quick and easy way to maintain the margins followed

ELSEWHERE

**Bio-tech
for golf,
page 38**

**\$100 for your
observations,
page 40**

**A 'menacing
threat' to golf,
page 42**

CREWCUT.

OR A LITTLE OFF THE SIDES.



Or maybe a flattop on that boxwood. With Stihl power equipment, almost anything's possible for the grounds maintenance professional—even the thorniest jobs.

From hedge trimmers to string trimmers to power washers to backpack blowers, Stihl offers a full line of rugged and reliable products. Stihl's famous dependability ensures that you can tackle just about any project quickly and efficiently.

On big jobs you'll be impressed at how Stihl string trimmers combine power with lightweight handling ease. You'll also appreciate the low noise level at which many of our blowers operate.

If you'd like to test any of our grounds maintenance equipment, see the Yellow Pages under "Saws" for your nearest Stihl dealer. The long and short of it is that you won't find any better.

STIHL[®]
As good as you thought.
Priced less than you think.



continued from page 36

by hand-raking the trash left in the bunker. However, this method leaves the raw edge exposed unless the sand is brought to turf level, eliminating the desired lip. Require the operator to wear goggles.

(2) **String trimmer**—It does a fair job in the hands of a good operator, but it's difficult to maintain a clean and straight edge. It also leaves the turf with ragged edges. Hand rakes are needed to remove the trash in the bunker after this operation. Require your string trimmer operator to wear goggles.

(3) **Hand edging**—The preferred method, by far, because pulling the runners that protrude leaves the turf with a groomed look and lets it drape over the edge. Also, it's easier to draw the sand under this drape and leave a good margin. This procedure is also labor-intensive and adapted to higher-budgeted courses. Normally, this is done at each raking to maintain the groomed look.

Regardless of the method, rhizomes

growing into the sand must be removed periodically. This takes the time-honored method of reaching into the sand four to six inches and pulling out the rhizomes. Left unattended, the bunker will close in and be unsightly. How often this needs attention depends on the species and season.

Drainage—The most vexing problem facing the superintendent in bunker maintenance is drainage. The three types of drainage designed into a bunker are: (1) internal; (2) surface; and (3) no drainage. The first, installed properly, gives the most lasting results. The second method starts out as a problem and gets progressively worse. The third requires your attention, today.

Drains must be kept open at all times; you never know when the next rain will hit. Following a heavy rain, water will percolate through the sand slowly, leaving a film of silt on the surface. The most important part of restoring your bunker is removing this layer. Skim it into piles and get it out before

any raking, as you will contaminate the entire bunker.

Surface-drained bunkers will wash the sand onto the turf at the lower end (usually in front of the green) following a rain. This means shoveling the material off the surface and brushing the residual into the turf. The only permanent solution is to install drains in the bunker and carry the water away from the playing ground.

Not having any drainage may or may not present an immediate problem, particularly if you have no sand in the bunker. That is not uncommon on many restricted budget courses. However, if you wish to provide a better playing surface in your bunkers, they will need some form of drainage. We shall discuss this next month.

—The author of this article, Al Frenette, CGCS, passed away in September, 1992. It originally appeared in "Through the Green," the publication of the Georgia Golf Course Superintendents Association, and is used with their permission.

On the cutting edge of bio-tech

New biological concepts and technologies will help golf course superintendents meet the future demand for quality trees, shrubs and herbaceous plants.

by Douglas J. Chapman,
Dow Gardens

■ Trees, shrubs and bedding plants provide interest and color, often the difference between an average and an exciting golf course. To better develop the course while not increasing maintenance, a superintendent should be aware of biological concepts that affect the type of tree, shrub and herbaceous perennial to be planted.

Some of these concepts are:

- native plant adaption to high and/or low temperature,
- photo-period's impact on vegetative and reproductive growth,
- disease-resistant cultivars, and
- unique pheno types (growth habits).

Provenance is adaptation of plants to regional environmental conditions. As many golf course superintendents know, *Acer rubrum* is native from northern Michigan to



Spirea blumalda

northern Florida. But northern Michigan red maples will not survive high temperatures south of Kentucky. Conversely, southern ecotypes will not survive low northern temperatures.

Further, as one moves north, native trees within the same species (plants in general) exhibit provenance by being more photo-periodic responsive (responsive to day length). Two results of this photo-periodic response are the beginning of abscission (dormancy) and hardening off (low temperature tolerance).

Photo-periodism was first discovered by Garnard and Allard in the late 1920s. Their basic research showed that some plants initiate a reproduction cycle by virtue of day length—like chrysanthemum, short days. As photo period was more extensively researched, it was shown that juvenile



Acer rubrum 'Northwoods.'

plants native to northern latitudes are more day-length responsive. When grown under continuous light, the plants remain vegetative. Some plants, like Japanese maple, Blumalda spirea, and paper birch can grow to at least three times their normal annual height in 12 months. The plant remains continually vegetative until it is allowed to go dormant by shutting off the supplemental light.

Using this technique, one can accelerate growth of many northern plants propagated by tissue culture, cuttage and/or seedage which dramatically reduces the time needed to produce landscape-effective conifers, birch and northern woody ornamentals.

Northern genotypes can be selected for unique habits of growth, fall color, etc. while being extremely low temperature hardy. Ecologists have shown that native

With All The Abuse Your Turf Takes, Who Needs Root Pruning?



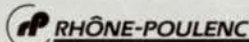
You know the story. The guys who swing an iron the way a lumberjack wields an ax are the same guys who yell the loudest when weeds give them a bad lie. So, with all the abuse your turf takes, the last thing you need is root-pruning from your herbicide. That's why you need CHIPCO® RONSTAR® brand G herbicide. University root pull studies show that CHIPCO® RONSTAR® G works without pruning turf roots. That means healthier roots and stronger, more durable turf. Best of all, just one pre-emergence application provides season-long control of 25 tough broadleaf and grassy

weeds—including goosegrass, crabgrass and Poa Annua. You'll also appreciate the fact that CHIPCO® RONSTAR® G is labeled for use on a wide variety of ornamentals, and is now available in a new low-dust formulation that makes application even more convenient. CHIPCO® RONSTAR® brand G herbicide. It can't improve the quality of play on your course, just the quality of weed control.



New Low-Dust Formulation
Chipco® Ronstar® G

Brand Herbicide



Rhone-Poulenc Ag Company, 2 T.W. Alexander Drive, Research Triangle Park, NC 27709. For additional product information, please call: 1-800-334-9745. As with any crop protection chemical, always read and follow instructions on the label. CHIPCO and RONSTAR are registered trademarks of Rhone-Poulenc. ©1991 Rhone-Poulenc Ag Company.

Circle No. 130 on Reader Inquiry Card



Forsythia tetragold

maples in continental climates like Minnesota, North Dakota and South Dakota are taxonomically the same species as found in the Great Lakes region, but more xerophytic (can survive in droughty conditions).

These regional cultivars will be selected for local environmental tolerances, disease resistance, or adaption to extreme temperature variation found in the Dakotas and downtown sites. These regional cultivars should result in better plants with decreased maintenance requirements.

The University of Minnesota has embarked on a selection and hybridization program to introduce northern continental hardy trees, shrubs and herbaceous perennials.



Malus sugartyme

Some products of this program are 'Northern Lights' azaleas, 'Northwoods' red maple, and early-flowering hardy chrysanthemums.

Golf course superintendents will have the opportunity to landscape their courses with plants that are resistant to disease (such as apple scab), cold temperature hardy trees like *Acer rubrum* 'Northwoods,' salt tolerant sugar maples like 'Green Mountain,' and adapted shrubs like 'Dakota Sunrise' potentilla. Further, these tailored plants will assist management of the course and improve the overall ambience.

—Douglas J. Chapman is horticulturist-director of Dow Gardens, Midland, Mich.

\$100 for your opinions, observations

■ Do you have an observation on the art/science/profession of being a golf course superintendent?

We are soliciting the opinions/observations of golf course superintendents. Topics can range from employee relations to greensmower selection to treating turf diseases. If you have such an idea you wish to express, type it, double-spaced, on plain white paper, 750 words or less. Send it, along with your Social Security number and a recent photo, to:

"Strictly Golf"
LANDSCAPE MANAGEMENT
7500 Old Oak Blvd.
Cleveland, OH 44130

Upon publication, the superintendent will be paid \$100 for contributions. (We reserve the right to edit material for length and grammar. Manuscripts are non-returnable unless accompanied by a self-addressed, stamped envelope.)

Mid
Winter
Sale!

DAKOTA HAND

THE LIGHTWEIGHT SPADE THAT WILL DIG A VARIABLE SIZE ROOTBALL TO A MAXIMUM OF 28 INCHES. AVAILABLE IN 3 PT., TOWABLE, SKID STEER AND BUCKET MOUNT.



TREE FARMER/LANDSCAPER

After using the **DAKOTA HAND** spade for a season it has proven very trouble free, simple to operate and a good buy.

Donald A. Stewart



CONSULTING FORESTER

The **DAKOTA HAND** spade is just what we needed and is very reliable, we have dug over 200 trees for the Christmas season and are very satisfied.

William J. Bozett



MID DAKOTA CORP.

Box 728 • Garrison, ND 58540
 Phone (701) 337-5619 or 1-800-327-7154
 GSA Contract No. GS-OOF-5442A