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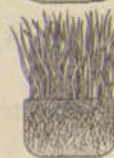
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NATIVE PLANTS FOR GOLF LANDSCAPES

Trees	Zone	Comments
American beech	3-8	Sensitive to compaction
Black gum	4	Tolerant of most conditions
Sassafras	4	Tolerant, long taproot
Sugar maple	4-7	Vigorous; many cultivars
Florida maple	7-10	Use in place of sugar maple
Dahoon holly	7	Heavy fruiting, tolerant
White oak	4	Long-lived, drought tolerant
Sourwood	5	Outstanding color, tolerant
Redbud	4	Many cultivars
Mountain laurel	4	Streams/banks, partial shady areas
May hawthorne	7	Understory, edible fruit
Parsley hawthorne	7	Tolerant; best in medium shade areas
Wash. hawthorne	5	Large thorn; very tolerant
Witchalder	6	Understory, does well in acid soil
Wax myrtle	7	Likes partial/full sun; salt tolerant
Paw paw	5	Pest free, shade tolerant
River birch	4	Adaptable, acid soils
Musclewood	2	Transplant when small
Greybeard	4	Fragrant; drought tolerant
Silverbell	7	Substitute for dogwood
Witchhazel	4	Autumn and winter flower
Myrtleleaf holly	7	Evergreen; heavy fruiting
Red bay	8	Evergreen and aromatic
Willow oak	6	High-branching; does well in wet soil
Shumard oak	5	Mammoth shade tree
Bald cypress	4	Good soil stabilizer
Winged elm	7	Shallow root system
Silver maple	4	Several cultivars available; vigorous

Shrubs	Zone	Comments
Bottlebrush buckeye	6	Showy white flowers
Serviceberry	4	Understory; adaptable
Red chokeberry	4	Moist conditions
American beautyberry	7	Best in poor soil
Sweetshrub	7	Spring, autumn flowers
Cliftonia	7	Fragrant flowers
Leatherwood	6	Grows well in low, wet soil
Huckleberry	7	Understory; edible fruit
Rose mallow	6	Perennial flower from May to October
Spiderwort	5	Perennial; prefers shade
Georgia holly	7	Late autumn performance
Iris spp.	6	Use for riverbanks, streams, lakeside
Leucothoe	7	Shade tolerant
Fetter bush	7	Understory; slope coverage
Native azalea	6	Many native species listed
Buddleia	5	Attracts butterflies
Oak hydrangea	5	Large shrub; understory
Anise	8	Fragrant, hedge-type plant

Source: Randy Cave

Native plants from page 18

On the whole, plants that are field grown (bagged or balled and burlapped) transplant well as long as most of the roots are intact.

If the plants are container grown in a potting type mixture, there are two possible approaches. One is to amend the entire eventual rootzone with a similar mixture; the other is to shake a majority of the potting soil away and assimilate it to a new soil. Either way, a hole large enough for a sizable amount of roots should be dug and loosened up for the plant. Use enough balanced fertilizer on each plant and water it in thoroughly. Common planting practices, such as planting shallow-rooted plants slightly raised and staking trees, still apply. However, native plants are usually sensitive to any drastic changes in environment, so planning, handling and first-year care are essential.

Once native plants take to an area, there is little care needed, other than corrective pruning.

Once native plants take to an area, there is little care needed, other than possible corrective pruning to strengthen a certain plant. It is advisable to fertilize occasionally. Most native plants prefer late winter fertilization.

Whatever your needs are for plant material in any given area, native plants can usually satisfy them. Each golf course has its sensitive spots that need attention, and native plants can usually tolerate these harsh environments with little care. Planning, designing, site choice and planting procedures are keys to better native plant survival.

Since winter is usually a slack period for crews it is a good time to work on this kind of project. I feel that native plants are the plants of the future. Mostly pest free and drought tolerant, there are a host of usable and adaptable native plants for almost any area.

—Randy Cave wrote this article as landscaping superintendent for the Atlanta Athletic Club. He is now a horticulture and landscape design student at the University of Georgia. This article is reprinted by permission of the Georgia Golf Course Superintendents' "Thru the Green."

No-fuss pansies for long winter color, minimum care



This easy-care plant makes a strong impact in landscapes across the country in fall, winter and early spring.

■ Pansies, *Viola x Wittrockiana*, are perennials that are treated as annuals. The plants have a small, rounded habit with rich green foliage. They can be massed in large or small beds; planted as borders or groundcovers; and potted in planters or tubs (Table 1).

Pansies offer a long bloom period, are disease- and insect-tolerant, and need little care. Breeders have been developing plants that are heat- and cold-tolerant and blossoms that come in a wide range of colors and sizes.

Depending on location, they will bloom for two to three months in the fall and again in the spring. They can take a light frost and continue blooming.

"They're coming on again (in spring) before landscape crews can get out and work the beds for other plants," says Doug Badgero, greenhouse and gardens manager

at Michigan State University.

In the South and West, pansies are planted for fall-through-spring blooming. Summers are too hot for the plants to survive.

In the North and Midwest, pansies are hardy in the fall and can be planted as soon as holes can be dug in the springtime.

In northern locations, pansies planted in spring may "rest" (not bloom) during

TABLE 1.

WAYS TO USE PANSIES

- * In fall plantings to provide: a cover crop on bulb beds through winter
- * spots of color to accent the established shrubs and trees
- * continuous color through the winter in mild climates
- * In mass plantings for large areas.
- * In borders with other winter crops.
- * In long, narrow planting strips along roadways, driveways and building entries.
- * In rock gardens or as a groundcover.
- * In containers, whether alone or as an accent with other plants.

◀ The universal series of hybrid multiflora pansies provide good fall, winter and spring color.

(Photo by Kurt Reynolds, Goldsmith Seeds)

the heat of summer and then re-bloom in the fall.

Trials at MSU have shown how fall-planted pansies can be overwintered in the landscape to be one of the first spring blooming plants, Badgero says.

Fall planting—Pansies planted at the right time will provide long-lasting plants and blossoms (Table 2). The general rule is to plant at least four to six weeks before the first frost, Badgero says.

Landscape professionals should be sure the pansies planted have been acclimated to the outside temperatures in their part of the country.

Daily temperature extremes are hard on pansies. Avoid planting them in locations that get warm temperatures and long sun exposure during the day and extreme cold temperatures and frost during the night.

Pansies bloom best when planted in full sun, but many do well in light shade, too.

They prefer rich, moist organic soils, as most annuals do; however, Joe Seals of Ball Seed Co. says he has seen pansies grow in heavy clay Texas soils. Clay or sandy soils should be amended with compost and/or peat. "They are not fussy plants, but remember that the lighter the soil, the more water and fertilizer they will need," he said.

The soil for pansies should offer good drainage. "They (pansies) don't like it (soil) real wet," Badgero said. Long periods of moisture can cause root rot.

TABLE 2.

FALL PLANTING TIMES

- * North - September 15
- * Midwest - October 1
- * South - not before October 1
- * Southwest - October 1 to October 15
- * Southeast - October 1 to October 15
- * Florida - December 1
- * California - anytime

The thing we're trying to help you avoid is overkill. Because if you can control weeds, isn't that enough?

So here's a less

aggressive approach to managing weeds. A few things you can do to use less postemergence herbicide to get the weed control you need.

Also, calibrate your equipment frequently, and use the correct

Gallon for gallon, Confront goes twice as far as standard three-way herbicides.



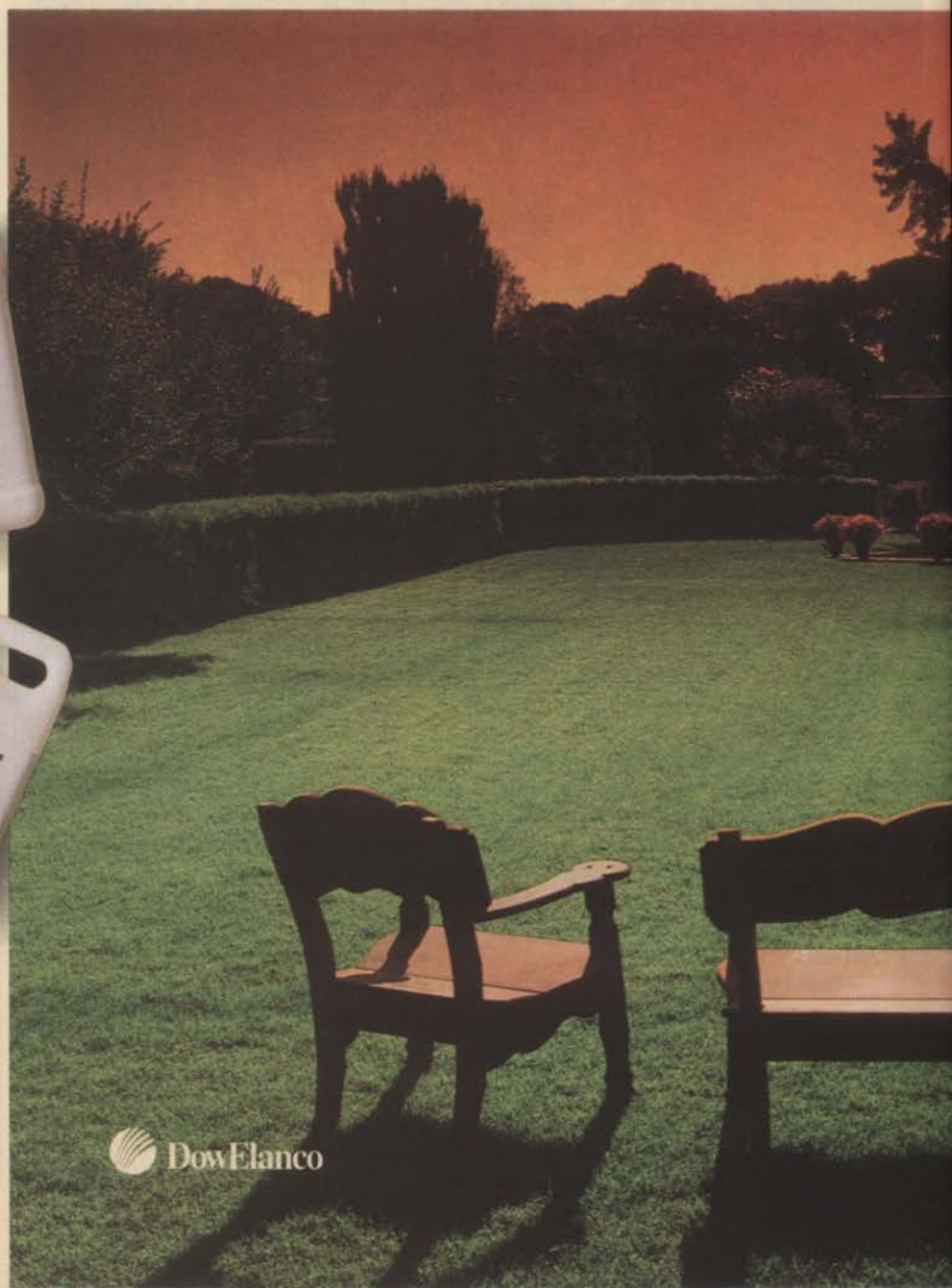
At last. A herbicide that can eradicate, eliminate

aggressive approach to managing weeds. A few things you can do to use less postemergence herbicide to get the weed control you need.

First, look for weedy areas

A Young Weed Is A Vulnerable Weed.

The best time to apply your postemergence herbicide is early—when you first see weeds emerge. This is when weeds are the most vulnerable to herbicides. You'll get better results from your application, and you'll reduce the need for treating hardened weeds later.



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rate of herbicide for the weed you want to control. You'll get better results from your application, and reduce the chances you'll have to re-apply.

And it's important to select a

postemergence herbicide that does the job the first time you apply it. For stubborn broadleaf weeds,

Careful scouting helps you get effective weed control using less herbicide.



herbicides often miss, giving you excellent results from your application. Confront® herbicide is also a good choice. Confront gets to the roots to keep weeds from coming back. It's very effective on

d that doesn't use words or destroy.

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clover. And perfect for turfgrass where you prefer a herbicide without dicamba, 2,4-D or MCPP.



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For instant color, use pansies grown in four-inch containers. For smaller jobs, cell packs may be used; however, remember that root systems typically are less developed and may take longer to become established in the landscape.

A guideline for spacing plants is 9 to 12 inches. For instant mass color, plant 6 inches apart. Spacing more than 15 inches apart is not recommended because plants generally do not grow large enough to fill the space.

In the North where the before-freeze growing period is short, Smith recommends planting "good and tight for best show." He grows in 3 1/2- and 4-inch containers, and plants them pot-to-pot for mass color.

Dig planting holes slightly larger than the rootball. Pansies should be planted at the same depth as they are growing when purchased. After planting, gently firm the soil around the base of the plant and water thoroughly.

Selection and care—Pansies are simple to care for. Natural moisture is usually enough, and they shouldn't need fertilization. Mulching, however, is recommended.

To encourage more blooming of pansies growing in small beds, maintenance crews could deadhead the flowers manually.

TABLE 3.

SIZES OF PANSIES

Miniatures: Pansies with the smallest size blossoms are called violas or johnny-jump-ups. The tiny-faced, fragrant blossoms are used mostly in residential landscapes and in container plantings.

Small-flowered: With a flower size of approximately 2 inches in diameter, these pansies produce a continuous flush of color with multiple blooms. Mass plant in beds, 6 to 8 inches apart, for best show of color.

Mid-size: These pansies provide a good flush of color with a slightly larger flower, approximately 3 inches in diameter. The flowers are held above the foliage for best color show. They are good for fall and spring color. Many also are bred to flower under the short days of winter in mind climates. Space plants 8 to 10 inches apart.

Large-flowered: While these pansies have flowers 4 inches and larger in diameter, they are not as floriferous as many smaller varieties. They require more dead-heading for maximum flush of color.

In some southern sites where overnight temperatures can drastically change, polypropylene covers can protect the plants. In the North, some landscapers cover plants with hay.

Landscapers have many choices as to size, color and with or without faces. The selection of colors in recent years has shifted toward solid colors as mass plantings.

Regardless of the variety selected, landscape professionals across the country can count on this easy-care annual to provide long-lasting color in fall and spring.

—This article was written by Sherry Harlass, a communications specialist with J&S Creative Group, Arlington, Texas. It was funded and reviewed by the Professional Plant Growers Association, P.O. Box 27517, Lansing, MI 48909; (517) 694-7700.

TABLE 4.

PLANTING TIPS

Soil:

well-draining, rich, organic mixture

Light:

mostly sunny to part shade sites

Fall planting:

4 to 6 weeks before first frost

Spacing:

6- to 12-inch centers

TABLE 5.

OPTIONAL MAINTENANCE

Water:

supplemental irrigation during dry spells or in dry climates

Fertilizer:

one-time application during growing season

Grooming:

manually remove (deadhead) spent blossoms

Overwintering:

cover with landscape fabric when temperatures plummet

Factors to consider when choosing wood

Outdoor structures, which landscape managers must by necessity deal with, have to be weather- and insect-resistant. So only certain woods are suitable for this environment.

Cedar, redwood and pressure-treated woods are the three types of durable woods most often recommended. Georgia-Pacific lists the attributes for these landscape woods:

Cedar

Used for decks, walks, fences.

- Noted for its beauty, durability and resistance to decay.
- Ranges in color from a light cream tone to a deep cinnamon red and in texture from knotty to clear.
- Resists shrinking, swelling, warping.
- Easy to work with.
- Weathers well without applying a protective finish, but exterior finishes such as water repellents, stains and bleaching oils will enhance its resistance to decay.

Redwood

Used for decks, fences, furniture.

- Can range in color from a tawny tone to a deep cinnamon red, and in texture from knotty to clear.
- Highly favored as decking material because of its classic color and grain, as well as its resistance to decay.
- Easy to work with.
- Weathers well without applying a protective finish. Exterior finishes such as water repellents, stains and bleaching oils will enhance its resistance to decay.

Pressure-treated Southern pine

Used for decks and fencing.

- Pressure treatment forces a preservative into lumber, making it resistant to insects and decay.
- The lumber has a distinctive pale green tint which, if left unstained, will weather to a rustic gray.
- Finishes well. While staining or painting is not necessary, it is often desired for cosmetic purposes. Applying a water-repellent sealer over the wood is recommended.
- Because it contains chemicals, pressure-treated wood requires special care in handling.
- Considerably less expensive than cedar and redwood.

'The best' golf course superintendents

by James G. Prusa,
Ridgemark Golf & C.C.

■ By the nature of the game, golf course superintendents artificially produce the playing field. Like a test pilot, the best superintendents push "the envelope" of tolerances. They take pride in their artistic nature and use scientific technology to fulfill it. And, like in any other human enterprise or sport, under similar conditions and restrictions, some are more talented and do it much better than others.

The best superintendents can consistently perform, while others simply crash and burn. In the end, after all, the human factor influences success or failure in managing golf courses—not the living plant, technology, governmental regulation or environment.

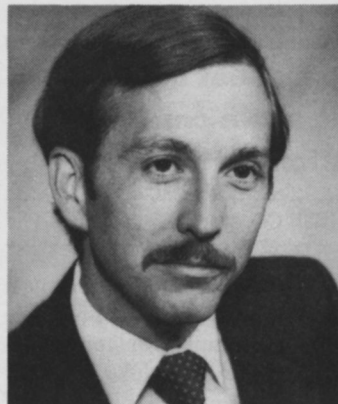
Competition is what separates mediocrity from those who attain near-perfect playing conditions on golf courses. We can concede that available capital, environmental conditions, volume of play, *ad infinitum*, are all factors that influence how well our course managers can produce the playing

fields of golf. But what makes the best "The Best?"

Ask Bill Spence or Steve Cadenelli (quoted in the original column), why some superintendents can consistently achieve near perfect playing conditions while—under the same types of conditions—others fail miserably. Bill and Steve will have to respond that the best superintendents overcome all factors because they are aggressively competitive.

The successful Best pursue perfection, undaunted by the standard complaints about occasional blemishes or failures they constantly hear from golfers. They doggedly have pursued their careers, preparing themselves with solid education, training and more training—just as any champion. (This is the foundation of the GCSAA.) They keep a positive attitude, are confident and persistent. They do not constantly look for excuses. They keep a "can-do" outlook.

The best superintendents set very high standards for themselves and demand the same from those around them. They know full well that they can't attain perfection, but they still set "the best" as their standard and they are satisfied by nothing less.



James Prusa: The "Best" supers want it perfect.

Let's stop searching for ways to lower our standards. Instead let's recommit ourselves to demanding standards. Let's avoid setting our standards low enough to assure our failure. Rather than complaining about the expectations of our customers, let's remember the saying:

"Be thankful if your job is a little harder than you like. A razor can't be sharpened on a piece of velvet."

—The author wrote this as a response to the editor's column in the May issue titled "Does the public expect too much from its golf courses?"

Landscaping with sneezeless plants

■ About one out of every five persons suffers from allergies, many of which are plant-related.

The American Lung Association of California has published a brochure "Sneezeless Landscaping," which lists the plants that are least likely to cause allergies.

Since the plants were chosen using data counts of airborne pollens, clinical observations and allergy skin testing, the plant list below can be an excellent reference for you to communicate with your allergy-prone clients:

Trees

Chinese tallow tree (*Sapium sebiferum*)
tulip tree (*Liriodendron tulipifera*)
silk tree (*Albezia julibrissin*)
strawberry tree (*Arbutus unedo*)
common catalpa (*Catalpa bignonioides*)
Western catalpa (*Catalpa speciosa*)
pine (*Pinus spp.*)
pear (*Pyrus spp.*)
podocarpus (*Podocarpus spp.*)

dogwood (*Cornus spp.*)
fir (*Abies spp.*)
palms (*Palmae spp.*)
Coast redwood (*Sequoia sempervirens*)
fig (*Ficus spp.*)
jacaranda (*Jacaranda mimosifolia*)
plum (*Prunus spp.*)
crepe myrtle (*Lagerstroemia indica*)
silk oak (*Grevillia robusta*)
coral tree (*Erythrina spp.*)
orchid tree (*Bauhinia spp.*)
red bud (*Cercis spp.*)
maidenhair tree (*Ginkgo biloba*)
magnolia (*Magnolia spp.*)
floss silk tree (*Chlorisia insignis, C. speciosa*)

Shrubs

azalea (*Rhododendron spp.*)
bougainvillea (*Bougainvillea spp.*)
camellia (*Camellia spp.*)
heavenly bamboo (*Nandina domestica*)
oleander (*Neurium oleander*)
yucca (*Yucca spp.*)
firethorn (*Pycantha spp.*)

viburnum (*Viburnum spp.*)
grevillea (*Grevillea spp.*)
pittosporum (*Pittosporum spp.*)
hibiscus (*Hibiscus spp.*)
boxwood (*Buxus spp.*)
verbena (*Verbena spp.*)
solanum (*Solanum spp.*)
Groundcovers
cinquefoil (*Potentilla spp.*)
tradescantia (*Tradescantia spp.*)
sedum (*Sedum spp.*)
dichondra (*Dichondra micrantha*)
bunchgrasses: rey, blue, fescue, etc. (*Sagina subulata*)
hippocrepis (*Hippocrepis comosa*)
mazu (*Mazu reptans*)
Ornamental flowers
poppy (*Papaver spp.*)
cymbidium (*Cymbidium spp.*)
begonia (*Begonia spp.*)
pansy orchid (*Miltonia*)
bulbs (*Tulip, Ranunculus, Iris*)
daffodil (*Narcissus spp.*)

Aerate for safe athletic fields

For the highest quality results, use a combination of aeration options.

by W. R. (Bill) Chestnut

■ Sports turf managers' number one goal is to provide athletes with safe, playable surfaces. While operating with limited budgets within tight time schedules. This not only requires constant monitoring of turf conditions and evaluation of plant needs, but also selecting the best combination of treatments and timing to produce and maintain vigorous turf.

Why aerate?—Compaction reduces the soil's ability to absorb oxygen and exhale carbon dioxide. Water penetration and drainage are slowed, affecting the turf's moisture supply. Root growth becomes stunted, resulting in weaker plants which are more susceptible to insects, diseases, temperature extremes and other stresses. Dying plants add to the thatch layer, further impeding the movement of oxygen, water and nutrients.

Soils may also exhibit sub-surface or deep compaction, similar to the hardpan condition found in agricultural soils. This condition may be the result of frequent shallow aeration to the same depth, of layering different textured soil media, or of a combination of these factors.

Since turf roots can't penetrate the deep compaction zone, root growth becomes concentrated in the top few inches of soil. Weaker plants die, further adding to the thatch layer.

Chemical applications, may escape as runoff or become trapped in the thatch layer.

Individual fields and sections of fields react differently due to their soil profile, the amount of activity they have sustained, the conditions under which activity occurred, and the maintenance they have received.

Symptoms of compaction may appear as hard soil; thinning or dying turf; slow water absorption, water runoff, or standing water; poor or shallow root growth; or specific areas quickly showing the effects of stress.

After observing field conditions, pull deep plugs of soil from scattered sections

to check the thatch layer, depth and pattern of root growth, and soil layering. A more precise reading of compaction can be taken with a penetrometer, a device that measures the resistance of an object to movement through the soil.

Options available—*Hollow-tine* or *core-type* aerators pull out plugs of soil which are deposited

on the soil surface. Plug diameters vary from 1/4 inch with quadra-tines to 3/4 inch with closed spoons. Plug length ranges from 1/2 to 3 inches. Cores must be removed or dragged back into the soil. Micro-organisms contained in the core soil help break down thatch.

With deep-tine aerators, soil cores of 6 to 16 inches can be pulled.

Because of the openings created by core-type aerators, it's possible to amend the soil profile with topdressing. Since different textured soils absorb water and nutrients at varying rates, choose topdressing materials compatible with the existing soil.

Core aeration should be scheduled according to play and practice needs. Since it severs turf roots and stolons, it should take place during periods of active growth for most rapid rejuvenation.

Spoon-type aerators, which open up the soil by lateral prying, cause slight disturbances at the point of exit. Open spoon-type aerators may pull soil to the surface.

Spike aerators also have lateral prying. They punch holes in the soil, but remove no soil core. These aerators offer a wide range of spike diameters and lengths.

Slice aerators use star-shaped blades, 4 to 6 inches in length. They cut into the turf, creating narrow openings.

The tines of the *shatter* aerator reach as deeply as 6-1/2 inches into the soil.

Use shatter aeration to penetrate hardpan barriers. Locate underground lines and

TYPES OF AERATION

Type	Disruption	When to schedule
spoon	slight	no parameters specified
core	heaviest	during active turf growth
slice	slight	overseeding; short time
lines	spike	varied when core is impractical
shatter	slight	for hardpan situations
water	none	for deep aeration

BENEFITS OF AERATION

- opens up the soil for air movement
- "softer" soil
- increased water capacity
- longer, stronger turf roots
- more vigorous top growth
- reduced thatch layer
- fewer, lesser amounts of herbicides and pesticides needed

cables to prevent damage.

Short-term relief of compaction can be achieved with a 12- to 20-inch high-pressure *water injection*. This method also works to treat hydrophobic conditions (inability to absorb water).

Avoid aeration when the soil is overly wet or dry, or when hot, windy days would expose grass roots to drying.

Many types of aeration equipment offer options in the size and spacing of tines. The speed at which equipment can be operated, as well as the number of passes needed to achieve the desired results, must be considered.

Not without problems—Weed seeds and disease organisms may be brought to the soil surface. Openings may allow increased insect activity. Herbicide treatments may be disrupted. Repeated aeration to the same depth may increase sub-surface compaction.

For best results, use a combination of aeration options throughout the year, adjusting treatments to match turf problems, growth cycles and field use. Since equipment and labor hours are limited, extend aeration benefits by selective use. For example, aerate clay areas more frequently than sand-based sections, and heavily used portions of a field more frequently than the entire field.

—Bill Chestnut is marketing coordinator for the Golf & Turf Products Division, John Deere Horicon Works, and a member of the Sports Turf Managers Association.

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for new
homogeneous
Greenskeeper
12-25-12.

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