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# Athletic field extras for fabulous final touches

**After turf maintenance come field painting and other grooming chores.**

■ Proper maintenance and feeding of athletic turf are keys to making the field look its best from a turf health point of view. Then come the necessary extras like paint and field amendments.

Improvements have been made recently to industry striping equipment, to make striping easier and more weather resistant.

**Fox Valley Systems, Inc.** of Cary, Ill. has been actively promoting its Super Striper to the green industry. The newest



**Fox Valley's Super Striper cartridges cover about 200 lineal feet.**



**There's less refilling with Pioneer's Brite Striper 2000. It carries a 12-gallon tank.**



**Smithco's Top Liner can be fitted with an optional hose and spray gun kit for paint or weed control spraying.**

model lays down a sharp, 2- to 5-inch strip thanks to a new self-orienting spade tip. Fox Valley says the Super Striper is the only striping machine with a speed indicator and weighted windscreen. Height adjustments and a side striper attachment are other innovations.

**Pioneer Manufacturing** of Cleveland, Ohio markets Quik Stripe, which is described by the company as the brightest aerosol field marking paint available to athletic field managers. When used with the company's Quik Striper machine, the paint product makes a lasting, eye-catching line that holds up to heavy traffic and severe weather. The company also produces custom stencils.

**Smithco's Top Liner** field marker is a riding model that handles tight turns and requires low maintenance. The Top Liner carries a 30-gallon tank, enough to line three football fields, which can come in handy for managers with multiple field chores.

**Weather beaters**—Pioneer's Rain Check is an athletic field absorbent the company says is a fine alternative to clay absorbents.

According to the company, the product absorbs 500 percent more water than clay absorbents. One man working with Rain Check produces the same result as five men working with clay. Less material is used, which may be a plus when it comes

to available storage room.

The all-organic absorbent firms up muddy ground for better footing during game play. Unlike clay, the company says it leaves no detectable residue.

**Infield improvements**—Drag mats are popular tools for finishing off the infield grooming. **Newstripe, Inc.'s** Drag Lite features an adjustable scarifier blade that breaks up hard packed surfaces. The attached mat then grooms the surface to a game-ready condition. Both Drag Lite models are made from tough, recycled rubber products, and carry an 18-month warranty.

The **Kromer AFM** machine is a combination line painter, groomer and sprayer. It stripes four football fields with one tank of paint. And it has a heavy duty spring tooth harrow to loosen up the hardest fields.

The leveling blade fills holes and levels high spots, and a heavy nylon bristle broom smooths the surface and picks up loose weeds. A dragmat is carried in a bracket and can be used to break up hard lumps of dirt.

Additional attachments are available for the AFM, such as a 3-gang reel mower and pull-behind aerifier. Kromer Co. is located in Mound, Minn.

**Conditioned for safety**—One field amendment which caught our eye is the Turface MVP sports field conditioner, manufactured by Aimcor of Deerfield, Ill. Turface particles have flat sides, which the company says helps to reduce bad ball hops and eliminate compaction.

When properly applied during field renovation or construction Turface provides an even, firm moisture absorbent surface.

A second Aimcor product—Turface Quick Dry—is designed to absorb infield puddles.

## For more information:

|                   | Circle No. |
|-------------------|------------|
| <b>Fox Valley</b> | 200        |
| <b>Newstripe</b>  | 201        |
| <b>Pioneer</b>    | 202        |
| <b>Smithco</b>    | 203        |
| <b>Turface</b>    | 204        |

—Terry McIver

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*The Gateway Arch in St. Louis commemorates America's westward expansion.*

# 'Open notch and bore' safer, more productive for taking trees down

by Tim Ard  
Forest Applications Training

■ No amount of experience can eliminate the risks associated with felling trees. Taking safety precautions is not only necessary, but also helps increase profits. The right safety measures do more than protect workers—they reduce fatigue and stress, making crews more productive.

When felling trees, three important safety guidelines apply: preparation, equipment operation and felling technique.

**Preparation**—A key to proper felling is planning your work. Look for hazards such as hanging branches, dead or rotted trees nearby, and vines that could pull a tree in a dangerous direction.

When choosing the direction for the tree to fall, keep in mind side, forward and back leans, wind direction and other work planned for the site. And always clean an escape route. Escape routes should be at 45-degree angles away from the felling direction.

Dress is crucial. You should take safety precautions in apparel and protective equipment, literally, from head to toe. Make sure everybody on the site has a helmet and eye, face and ear protection.

Also, make sure crew members have the right gloves and leg protection. Look for chaps and pants with a UL Classification label and made with chain saw-resistant fibers designed to bind a moving chain on contact.

Lastly, make sure crew members are wearing boots made for the task. Steel-toed boots offer the best protection. And remember to have a first aid kit on the job site.

**Equipment and operation**—Even experienced tree care professionals must take a few moments to ensure proper chain saw operation. Be sure the chain brake is engaged before starting your saw. Start the saw on the ground with the tip of your boot inside the handle as you pull the cord. Keep the chain brake in place until you're ready to begin work. Then, engage it again, should you need to walk around.

Other key points: never use a saw above your shoulders and head, and make sure



**Be sure that the open notch cut is 70 degrees or more, to allow the hinge to guide the tree as it falls.**

your stance is solid before you begin any cut.

**Felling method**—For maximum control, many tree care professionals opt for a felling method that incorporates a directional notch and controlling hinge.

The felling process should never begin until you collect data on the tree and formulate a plan. You must have an understanding of the tree's hazards, its leans, the operators' escape route, and how the hinge will be shaped and formed before deciding on the actual cutting techniques.

Here are recommended steps for this felling method:

**(1)** Begin with an open notch cut on the side of the tree in the direction of the planned fall. Cut the notch at 70 degrees or more, which will allow the hinge to work and guide the tree as it falls.

**(2)** Make a bore cut, beginning from the side of the tree, parallel with the face

notch. Never begin a cut with the upper tip of the bar. It is likely to kick back, creating the potential for an accident. Ask your chain saw dealer or consult your owner's manual about the reactive forces of the guide bar and saw chain.

Consider the tree's lean now. If you can reach through the tree with your guide bar, do so from the up-lean or preferred side of the tree to complete the back cut. If the tree is wider than the total length of your guide bar, you should cut no more than half the tree from the leaning side first and then finish the cut from the preferred side.

The bottom tip of your bar should be several inches from the back of the notch on the right side of the trunk as you face. Cut into the trunk using the bottom end of your bar. As you cut into the trunk, rotate toward the notch you've already cut and plunge the bar directly into the trunk so it's parallel with your notch cut.

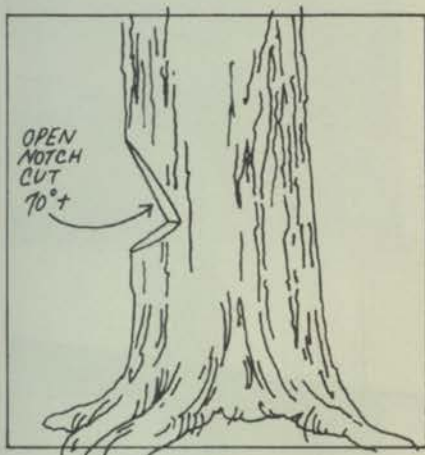
As you make the second cut, take special precautions to enter the trunk with the bottom end of the bar. Do not cut straight into

the trunk without first rotating into the wood. Trying to plunge your bar straight in can create the danger of chain saw kick-back.

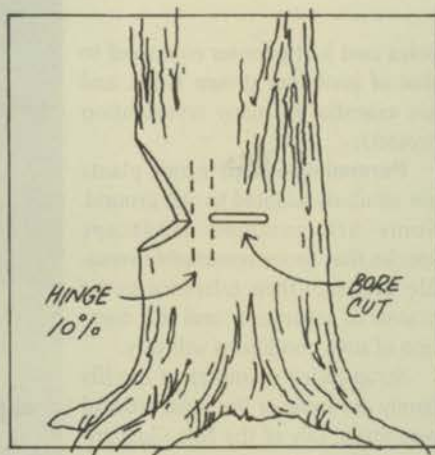
**(3)** Use the top of the bar—now inside the trunk—to cut toward the notch to create the hinge. Your hinge thickness should be about 10 percent of the diameter of the tree; the length of the hinge should be about 80 percent of the diameter.

**(4)** Using the bottom of the bar, cut toward the back of the tree, but leave about two inches as your holding wood.

**(5)** Cut the remaining holding wood, moving from the back side of the tree toward the front until you have severed through. The holding wood should not be confused with the hinge wood, which should never be removed. The hinge will break when the tree is almost to the ground or can be removed if it still holds when the tree has come down.



The open notch should be cut on the side of the tree in the direction of the planned fall. It should be cut at 70 degrees or more, to allow the hinge to work and guide the falling tree.



Begin the bore cut from the side of the tree, parallel to the face notch. Do not cut without first rotating into the wood. Trying to plunge the bar straight in may cause kickback.



To finish felling the tree, cut the holding wood, moving from the back side of the tree toward the front.

Be careful of pressures and binds when working around the downed tree. That's a whole new subject within itself for later discussion.

**Stability counts**—Tree care professionals should easily see the benefits this method provides over conventional methods. Use of the holding wood in place as part of the back-release helps keep the tree stable until the final cut.

Also, the holding wood will keep the bar from getting pinched, with the holding wood acting as a support. The method also

reduces the chance you will cut all the way through the hinge before the tree begins to fall. This will reduce the chance that the tree falls so quickly that it jumps off the stump and possibly back at crew members.

Lastly, the back-release method keeps the bar at the back of the tree, rather than deep into the trunk. That makes it easier to walk away using your planned escape route when the tree falls.

All these combined will make it easier for you and your crew to come safely away, feeling less fatigue, from a job efficiently

done.

Videos of this open notch and bore cut technique are available through many local chain saw dealers and Forest Applications Training, Inc.

*—The author is president of Forest Applications Training, Inc., in Hiram, Ga., and co-creator of "Game of Logging" and "ArborGames," safety and applications training programs for tree professionals. He has been training professional chain saw operations for more than 10 years.*

## Adapted plants for wet ground

**Proper selection is the key to long life, no matter what the cultural conditions.**

by Maureen Gilmer

■ It's 100 degrees, the soil surface appears dry and cracked, the plant wilts. So you pour on the water and the plant wilts even more.

If you've struggled with a very high water table, or an impervious hardpan, or low-lying ground subjected to periodic inundation, you may have already experienced these frustrating symptoms.

The cause: root death due to anaerobic



soil conditions where water displaces vital oxygen.

In order to be sure that the plant died from poor drainage, inspect the root sys-

tem for the characteristic peeling skin, blackened roots and unpleasant smell. This will rule out nematodes and other root diseases which can display similar wilt symptoms in plants.

Once poor drainage is diagnosed, first try mechanical remedies like French drains, diversion ditches, grading alterations or constructing elevated planters. But if this isn't possible, or the problem is widespread, choose replacement

plants that won't succumb to the same fate.

Why can some plants like willow stand saturated ground, even with much of the

## ADAPTED from page 15

plant underwater? Species which reside in natural wetlands and flood plains adapt by a unique method of respiration. When the saturated roots are denied oxygen, the plant can replace it with oxygen obtained through the leaves. These hydrophytic species normally occur in swamps, bogs, marshes and riverine riparian environments. When using locally native plants, you are assured perfect adaptation to local climate and, most importantly, wet soils.

**Good trees**—Many wetland adapted



species are already part of the landscaper's palette: magnolias from high water table Southern states; maples and liquidambar from the bottomland hardwood forests; cedars, tamarack and spruce from Northern bogs; sycamore and cottonwood from seasonally dry stream beds of the West; and dogwood and birch from Eastern riparian habitats.

Other well-known genera of native wetland species include willows (*Salix*), ash (*Fraxinum*), oak (*Quercus*), alder (*Alnus*) and poplar (*Populus*).

Willows and poplars are ideal ornamental trees in high water tables; indeed, they fail to thrive except under such conditions. Both groups develop a web-like network of small roots which help secure them to the often-eroding banks of riverbank riparian habitats under high water flows. When grown in containers, they quickly become pot-bound, and when planted out have little ability to hold up even under mild flooding.

Great success has been achieved by planting these trees as unrooted cuttings or poles from 12 inches to 15 feet long during the dormant season, with about 30 percent of each pole buried in a post hole. This assures excellent stability and a massive root system in a very short time. Better yet,

poles cost just pennies compared to that of container grown stock, and are essential in many revegetation projects.

**Perennials**—Many exotic plants are similarly adapted to wet ground. Some are common landscape species that prove remarkably versatile, although their tolerance to the season of saturation and the duration of such conditions will vary.

Strap-leaved members of the lily family are some of the most colorful perennials. Lily of the Nile (*Agapanthus africanus*) and its cultivars no doubt originated on the flood plain of the Nile and have relatively shallow root systems which lie above the most saturated soils. Daylilies (*Hemerocallis spp.*) bear a similar habit with hundreds of colorful varieties. The common canna lily (*Canna generalis*) also thrives in poorly-drained conditions as its tuberous root is born high in the soil. And often overlooked, but a magnificent flower after dark, the calla lily (*Zantedeschia spp.*) will reach startling proportions with plenty of water.

Many plants like iris and ferns include both arid ground and wetland species, so it's essential that you recognize the difference. For example, Dutch iris and German iris both require fast drainage, but their



Horsetail grass (above) is becoming a popular water garden marginal plant. Below, bamboo and papyrus grow in a natural pool. At left are canna lilies. Daylilies are pictured on page 15.

With the new interest in water gardens, these and other marginal plants are now more widely available.

The enormous family of grasses and sedges contain many true native



Japanese relatives, kaempferi and Louisiana hybrids are true marginals, thriving around the edges of flooded rice paddies in their Asian countries of origin.

hydrophytes which inhabit marshes everywhere. Many are exotics so well-adapted that they have become dangerously inva-

*continued on page 18*

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 Team

## Widely available plants for wet ground

### TREES

| Scientific name         | Common name         |
|-------------------------|---------------------|
| Acer spp.               | maples              |
| Alnus spp.              | alders              |
| Betula spp.             | birches             |
| Casuarino spp.          | beefwoods           |
| Celtis spp.             | hackberries         |
| Cornus florida          | flowering dogwood   |
| Eucalyptus citriodora   | lemon-scented gum   |
| Eucalyptus robusta      | swamp mahogany      |
| Eucalyptus rudis        | flooded gum         |
| Fagus grandifolia       | beech               |
| Fraxinus latifolia      | Oregon ash          |
| Fraxinus pennsylvanica  | green ash           |
| Ilex opaca              | American holly      |
| Ilex verticillata       | winterberry         |
| Larix laricina          | American larch      |
| Liquidambar styraciflua | sweetgum            |
| Magnolia grandiflora    | Southern magnolia   |
| Magnolia virginiana     | sweetbay magnolia   |
| Melaleuca quinquenervia | cajeput tree        |
| Myoporum laetum         | myoporum            |
| Pinus elliotii          | slash pine          |
| Pinus glabra            | spruce pine         |
| Pinus strobus           | white pine          |
| Pinus taeda             | loblolly pine       |
| Platanus acerifolia     | London plane tree   |
| Platanus racemosa       | California sycamore |
| Populus spp.            | poplar, aspen       |
| Prunus serotina         | black cherry        |
| Quercus spp.            | Southern oaks       |
| Rhus spp.               | sumacs              |
| Roystonea spp.          | royal palms         |
| Sabal palmetto          | cabbage palm        |
| Salix spp.              | willows             |
| Sambucus spp.           | elderberries        |
| Sassafras albidum       | sassafras           |
| Ulmus americana         | American elm        |

### PERENNIALS

| Scientific name      | Common name              |
|----------------------|--------------------------|
| Aconitium spp.       | monkshood                |
| Agapanthus spp.      | lily of the Nile         |
| Aguga spp.           | carpet bugle             |
| Alocasia             | elephant's ear           |
| Aster spp.           | Michaelmas daisy         |
| Astilbe spp.         | false goat's beard       |
| Canna generalis      | canna                    |
| Centranthus ruber    | red valerian             |
| Echinacea purpurea   | purple coneflower        |
| Hemerocallis         | daylily                  |
| Hibiscus moscheutos  | rose mallow              |
| Hosta spp.           | hostas                   |
| Iris spp.            | Japanese/Siberian irises |
| Lobelia cardinalis   | cardinal flower          |
| Lythrum virgatum     | purple loosestrife       |
| Mentha spp.          | mints                    |
| Myosotis scorpioides | forget-me-not            |
| Phormium tenax       | New Zealand flax         |
| Primula spp.         | primroses                |
| Zantedeschia spp.    | callas                   |

### FERNS

| Scientific name          | Common name           |
|--------------------------|-----------------------|
| Asplenium trichomanes    | toothed wood fern     |
| Athyrium filix-femina    | lady fern             |
| Athyrium nipponicum      | Japanese painted fern |
| Camptosorus rhizophyllus | walking fern          |
| Lygodium palmatum        | climbing fern         |
| Osmunda cinnamomea       | cinnamon fern         |
| Osmunda claytoniana      | interrupted fern      |
| Osumnda regalis          | royal fern            |
| Thelypteris palustris    | marsh fern            |
| Woodwardia spp.          | chain ferns           |

Source: the author

### ADAPTED from page 16

sive in some North American wildland ecosystems. But the tenacity of pampas-grass, bamboos, papyrus, horsetail and New Zealand flax are in step with the growing popularity of ornamental grasses, and they solve drainage problems as well.

**Natives**—If you must contend with high water and wet ground during the summer growing season, solutions are all around you. Native plants provide a wealth of species in the U.S. The environmental movement to restore damaged wetlands has stimulated new sources of native plants for the landscape trade, and growers specializing in water garden plants combine to provide us with new and exciting alternatives.



As we all struggle with the recent spate of unusual weather (an abnormally wet winter and spring in the West, and record

high summer water in the Midwest and South), it's wise to pay more attention to wet ground species both native and exotic.

Until the weather settles down for a while and returns to its more benign water levels, it makes sense to plan for a wet future in order to reduce the labor demands and costs of continually replacing root-damaged plant materials.

—The author has written "Living on Flood Plains and Wetlands" (Taylor, 1995). For immediate availability of native wetland plants of North America, obtain a plant and supplies catalog from Southern Tier Consulting, 2677 Rt. 305, P.O. Box 30, West Clarksville, NY 14786; (716) 968-3120.



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## Micronutrients take their place in feeding programs

■ Proper feeding of turf and ornamentals is like forging strong links of a chain. To grow and remain healthy, plants need air, water and nutrients.

According to the "Western Fertilizer Handbook," researchers identify 16 elements required for plant growth and reproduction:

- **Carbon, hydrogen, oxygen** and **chlorine** are provided free by air and water.

- **Nitrogen, phosphorus** and **potash** are provided by traditional NPK fertilizer.

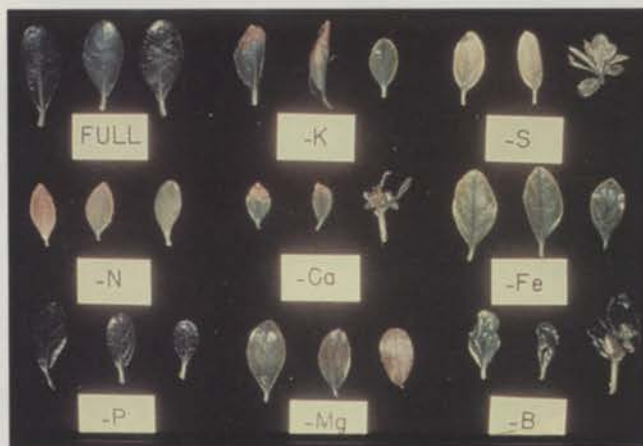
- **Calcium** can be provided by liming.

- **Sulfur** and **magnesium** (secondary nutrients); **iron, manganese, zinc, boron, molybdenum** and **copper** (micronutrients) are too often neglected by turf managers. Special micronutrient fertilizer applications are often necessary to provide these elements.

"Even though micronutrients are used by plants in very small amounts, they are just as essential for plant growth as the larger amounts of primary and secondary nutrients," says the Handbook.

Like a chain, the strength is only as good as its weakest link. If a heavy application of nitrogen or phosphorus is made, it may disturb the balance or, at best, may give the fertility chain one strong link while leaving the other links

### PLANT GROWTH LIMITED BY WEAKEST LINK



The 'nutrition chain' (top) shows the interdependents of elements. Shown below are various deficiency symptoms.

Courtesy United Horticultural Supply

wire-thin.

While major and secondary nutrients provide basic building blocks for cell reproduction, water transportation and root development, micronutrients allow

the synthesis of chlorophyll and activation of enzymes in the growth process. They are essential for the plant to use nitrogen and synthesize proteins.

**Iron**—The most common micronutrient deficiency is a lack of iron, which often results in the decreased ability of turf to produce the chlorophyll that gives plants their green color. Iron can also enhance a plant's ability to tolerate drought, resist disease and develop a stronger root system.

Even though iron is found in substantial amounts in soils all across the U.S., it is often in a chemical form that makes it unavailable to the plant. Therefore, soil tests alone are inadequate to determine plant deficiency. An assay process which determines the iron in the plant itself is a better (but much more expensive and still not reliable) way to determine iron deficiency. Even this tissue analysis only measures the amount—not type—of iron in the plant.

Iron may be naturally unavailable to plants or the deficiency may be induced by high soil pH or presence of calcium carbonate (around new concrete, for example). Removing the top layer of soil in development can also remove the available iron from the plants' rootzone. Excessive amounts of other nutrients, including

*continued on page 22*

### ELSEWHERE

**Phosphate rocks treat contaminated soil,**  
page 22

**Herbaceous plants for shady spots,**  
page 26

**Ground covers beat the weeds,**  
page 28