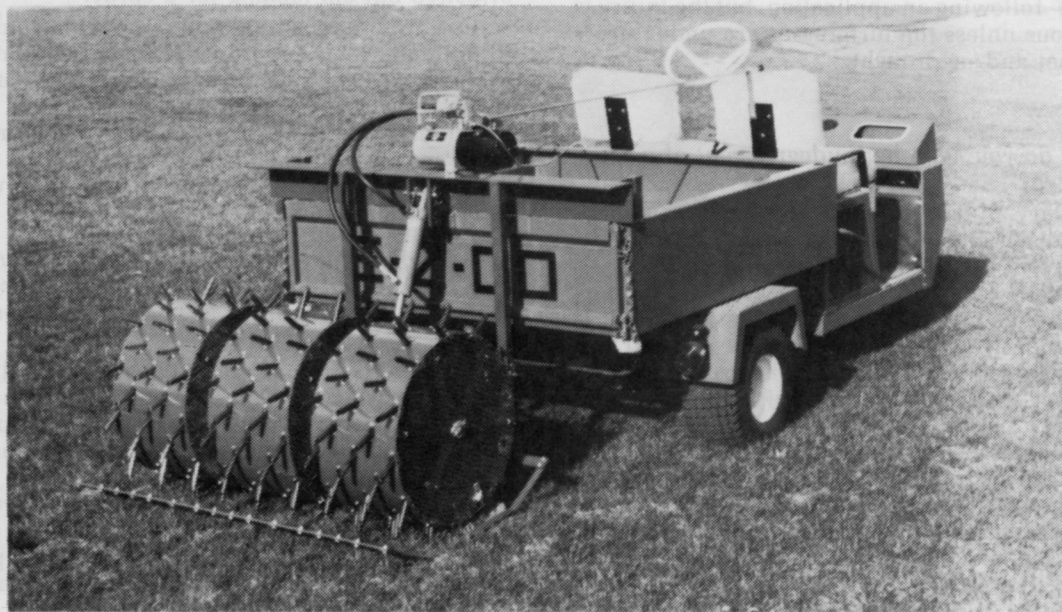


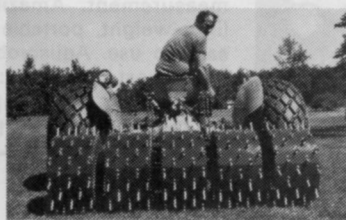
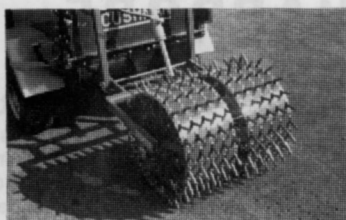
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the control of immature crabgrass and other annual grasses in turfgrass. You should make the first application when the crabgrass is less than one inch tall, and repeat the treatment in 7-10 days. A third application is often necessary to obtain satisfactory control. The herbicides are more effective when the crabgrass plants are actively growing. The organic arsenicals may cause the turf to discolor (yellow) following an application, but the injury is not serious unless the turfgrasses are under stress from heat and/or drought.

**Q:** How do you keep bermudagrass out of a bluegrass lawn?

**A:** Sanitary practices during turfgrass establishment and subsequent maintenance are very important to avoid introduction of Bermudagrass.

Kentucky bluegrass seed or sod should be purchased from a reputable source to ensure that it is free of undesirable weed species. The soil and topdressing should be fumigated or heat-treated prior to planting, and all tools and equipment should be thoroughly cleaned.

Cleaning is also important for mowers and other maintenance equipment which can carry stolons and rhizomes from other turf areas.

Certain cultural practices such as mowing and fertilization can influence the aggressiveness of bermudagrass in a Kentucky bluegrass turf. Mow at a height of 2½ inches, and apply fertilizer during

periods which favor Kentucky bluegrass growth (50°-75°F).

Cultural practices alone, however, may not be sufficient to keep bermudagrass under control. Spot kill with Roundup and reseed or sod the area.

**Q:** Has any spray been found effective against white fly? I have found Temik (granular) to be very effective but am looking for a spray.

**A:** Certain products containing acephate, diazinon, dimethoate, endosulfan, lindane, malathion, Metasystox-R or naled are registered for use on white fly. For specific dosages and methods of application, refer to the product label. Some insecticides may be phytotoxic to certain plants; therefore, use only those chemicals registered for use on the specific plant species infested.

**Q:** This past winter, field mice seriously damaged or completely girdled a lot of my Christmas trees. Is there anything I can do to protect my trees next winter?

**A:** Cultural control of ground vegetation will limit cover for surface runways but will have little effect on the underground activities of pine or prairie mice. In any case, I suspect your area (Maine) has plenty of snow cover for protection.

Poison baits containing zinc phosphate are very effective when applied in fall before snow cover. Contact your local extension agent about preparing your own baits or buying a commercially available source.



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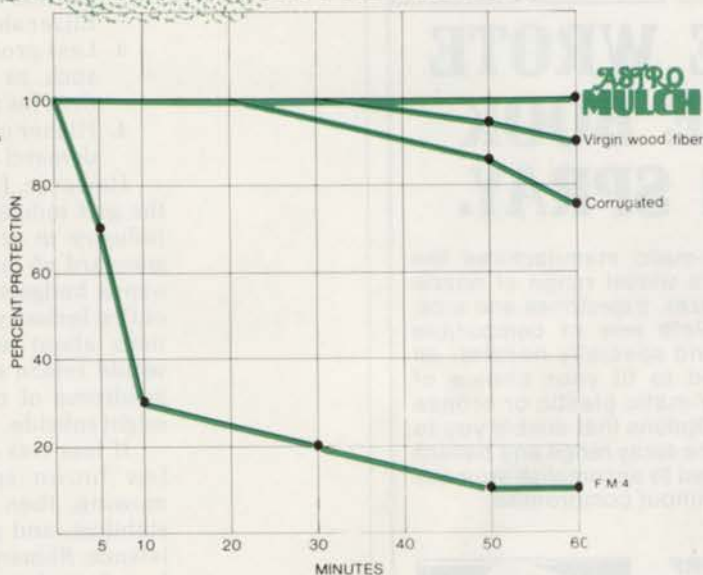
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WT&T

# PROSCAPE

By Michael Hurdzan, Ph.D., golf course architect and consultant

**Q:** In your opinion how do you think the energy crisis will effect the future of the industry? G.F., Springfield, IL

**A:** The total impact of an energy crisis, especially for fossil fuels after the Three Mile Island incident, can only be imagined but a possible scenario might be as follows:

1. Rationing of fuel with most dramatic reduction to less essential users (e.g. aesthetic maintenance, recreation, and recreation travel).
2. Reduction in fuel for production of products for less essential use reminiscent of the fertilizer shortage scare of a few years ago.
3. Less production of petroleum based products such as plastic pipe, polyethylene tubing, tires for recreation vehicles.
4. Higher costs of products based on supply and demand and increased shipping costs.

However, I can see some real benefits to at least the golf industry. The energy crisis may allow the industry to gracefully retrench from a spiraling standard of maintenance that has caused maintenance budgets to reach current high levels. If the entire industry was forced to lower their expectations about maintenance levels then sensibility would return and the "getting ahead of the Jones" syndrome of comparing golf course maintenance might subside.

If less was expected of a golf course, such as a few brown spots, less fertilization, water and mowing, then budgets would lower or at least stabilize, and golf would not be priced out of existence. Remember that the cost per round of golf is based on the price it takes to produce that round plus a profit. So if golf can be made less expensive then we have answered one objection voiced by non-golfers and that is "it costs too much" and golf may become more popular. Coupled to this will be reduced gasoline for travel, so more folks may be forced to stay home, which is bad for the pure golf resort, but it is good for hometown golf. Thus, either the local course will get more support and/or new ones will be built.

An energy crisis may spawn innovated methods of maintenance to cope with less energy and synthetic products or it may revive many abandoned, but sound, procedures used before our present mentality of wall to wall perfection. Loss of "wonder" products will force us to do basic thinking again about the total plant, soil, biotic complex and this is definitely good.

Loss of luxury power consumption may force a return to walking golf (as opposed to riding golf) so golf will be considered good exercise once again. Additionally we may see a renewed use of caddies which will not only provide employment for the young, but it will also expose them to golf and one can easily imagine the benefits of this exposure. The loss of income to the Golf Pro from golf carts may be offset by the increased lessons he will give and the cart companies can increase sales by



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**Q:** What process would you recommend for selecting and hiring a Design or Consulting firm? H.W., Dallas, TX

**A:** You already have a headstart in your endeavor because you have begun to ask questions and you realize that selection is a process. Now all you need is to compose a proper set of questions and plan the process.

To increase the probability that you will retain the "best" firm, you should insure that all competent practitioners are aware that you are taking proposals. This can be accomplished by writing a complete and detailed description of your intended project, giving specific guidelines as to your expectations, time table, and any restrictive limitations. This description will allow the interested and qualified firms to be specific about their services and will help you to make your initial selection on paper if there are a large number of proposals. It may be necessary to employ a consultant to write your detailed description and help with the initial "paper" selections if you do not have an in-house expert. Although the best bet is a firm who does this sort of work, usually the university has someone qualified enough to get you started, but do not rely on them exclusively.

To get the greatest dissemination of your descriptive solicitation, contact all professional trade organizations related to the work (e.g. A.S.L.A., A.L.C.A., A.S.G.C.A., G.C.S.A.A., etc.).

Set a deadline for proposals and after reviewing them began an interview process with all firms that interest you. Since these can be time consuming, and you should plan on secondary and tertiary interviews, work backwards to determine the number of initial interviews you can handle based on your budget of time and money. Although how involved an interview should be, depends on the scope of your project, allow about two hours each for the first presentation. This should permit one hour for presentation and one hour for questions.

Since you are employing this Consultant/Designer for their technical abilities, dwell on the method and not just the finished product. Do not be afraid to ask questions about costs, sequence of events, frequency of inspection trips to be made by the principal Consultant, liabilities supporting documents, and guarantees. If several firms interest you ask for a complete list of past clients.

After the initial interview, eliminate those firms that do not seem to offer the services you need. Next make written inquiries about the firms you still feel are in contention and arrange to visit some of their work. I would talk not just with the owners but I would also talk to employees who tend to be more candid.

Once you have done these things, the final interviews should dwell on the specifics and I would ask for a final detailed proposal from the firm that I thought I wanted to employ. Additionally if a team approach is to be used, before final selection gather the tentative team together and insure that all areas of responsibility are understood and that the team feels it can function harmoniously. **WTT**



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and is white on the shady side and pink on the sunny side. It is tolerant of nearly all soil and sun conditions.

Fragrant Sumac (*Rhus aromatica*) bears small yellow flowers in May, followed by red berrylike fruit, but is grown primarily for its capacity to spread rapidly by underground stems and its yellow to red fall coloring. It is a good choice for bank planting, and tolerates dry, poor soils and full sun to partial shade. It will reach a height of three feet, but can be cut to within six inches of the ground in early spring to keep it in bounds. Its hairy, dust-catching foliage can be either a detriment or an asset, given a particular situation.

Kelsey Dogwood (*Cornus sericea* 'Kelsey') will spread by underground stems to form a mat no taller than 24". Its outstanding feature is the bright red new twigs, although it also displays white flower heads 2½-3" across in late May, white berries in the summer, and reddish summer foliage. It is tolerant of sun or partial shade, and performs best in moist to wet soils.

Bronx Forsythia (*Forsythia viridissima* 'Bronxensis') will reach a height of 2' and a spread of 5'. It blooms in mid-April with greenish-yellow flowers an inch long. The fall color is a beautiful, bronze-purple and the foliage persists well into the winter. This is a good groundcover for bank planting. The Arnold Dwarf Forsythia is also a good

groundcover, reaching a height of 3' and rooting readily wherever the arching branches touch the soil. It does not flower well, so should be planted for its habit only.

Black Chokeberry (*Aronia melanocarpa*) is a good choice when a shrubby groundcover of natural habit is called for. It tolerates many soils, but grows best in shady, wet areas. It displays white flowers in May, and black or purple berries and brilliant red fall coloring. The height is 1½-3'.

Cranberry Cotoneaster (*Cotoneaster apiculata*) is so named for its profuse red berries, borne in the fall following the small pink flowers in mid-April. The recurved branches and low height — 18-24" — require no pruning. It is a good plant for banks and is tolerant of almost any soil. Full sun to partial shade promotes the best growth. A similar species, *C. horizontalis*, reaches a height of 3'. All cotoneasters are susceptible to fire blight and red spiders and do not transplant well bare root.

Running Serviceberry, Juneberry (*Amelanchier stolonifera*) appears best in a naturalized setting where it can sucker freely. The delicate white flowers appear for a brief time before the leaves in early spring. The foliage turns many shades of orange and red in the fall.

Blue Mist Spirea (*Caryopteris x clandonensis* 'Blue Mist') should be cut to the ground each spring to encourage new growth. The silvery foliage is

Continues on page 68



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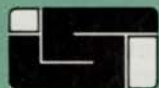
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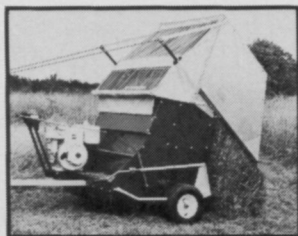


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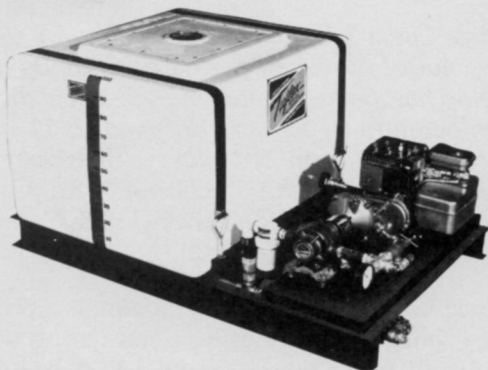
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## Groundcovers from page 66

reminiscent of that of the willow family in texture. The sprays of blue flowers appear in August when few shrubs are blooming. It does well in sunny, dry locations reaching a height of 18-24".

## Evergreen Groundcovers

Juniper species (*Juniperus chinensis*, *J. horizontalis*, *J. Procumbens*) includes a great variety of sizes, shapes, and colors of evergreen groundcovers. None of the junipers are tolerant of shade but perform admirably in dry soils on sunny sites and under city conditions. Most are susceptible to bagworms, scale, red spider mites, and twig blight. The most well-known of the chinensis varieties is the Pfitzer, of which the compact form reaches a height of 3'. There is a gold-tipped variety available which displays pale, yellow new growth — the best of these is *J. chin. 'pfitzeriana aurea'*. The gold color is more pronounced in heavy clay soils. The Sargent Juniper, *J. chin. 'sargentii'*, is one of the best spreaders forming a mat 8-10' wide and attaining a height of only 10-12". Its color is grey-green.

The most familiar horizontalis variety is the Andorra Juniper, *J. horizontalis plumosa*. This feathery, flat-topped juniper turns an unusual silvery plum-pink color in the winter. The variety 'Youngstown' is more compact, reaching a height of only 10-15". The Bar Harbor Juniper has steel-blue summer foliage turning a silver-plum in the winter and reaches a height of 10-12". The lowest of the horizontal junipers is the Blue Rug, *J. horiz. 'Wiltoni'*, which is only 5-10" tall and readily covers rocks and banks. The Hughes juniper, *J. horiz. 'Hughes'* is a 12" groundcover with silver-tipped, bluish green foliage. The Tamarix juniper, *J. sabina tamariscifolia*, has a mounded form and reaches 12" in height. All of these junipers do well when purchased as container plants. The Dwarf Japanese Garden juniper, *J. procumbens nana*, is distinguished from the other groundcover junipers by its blue-green color and predominantly needled foliage.

## Woody Broadleaf Evergreen Groundcovers

Wintercreeper (*Euonymus* species) is one of the most versatile broadleaf evergreens for the Great Plains region. The Purpleleaf Wintercreeper, *E. fortunei coloratus*, spreads rapidly by putting down roots from its prostrate stems, which then hold the soil. It is planted for its purple-bronze winter foliage color. *E. fortunei 'Acutus'* has dark green foliage which it retains through the winter. The Longwood strain of miniature evergreen bitter-sweet; *E. fortunei 'Longwood'* is similar to the Kew Wintercreeper in that it has the smallest leaves of any of the wintercreepers, which makes it suitable for small scale areas. Longwood is hardier than Kew in the Great Plains. The Bigleaf Wintercreeper or Evergreen Bittersweet, *E. fortunei radicans*, is valued for its uniformity of growth and rapid increase. All of the wintercreepers do well in sun or shade although some winter sun protection is helpful in preventing burning. They are not par-

Continues on page 70



# TOUCHDOWN

## Kentucky bluegrass



**Leonard DeLalio and son, Leonard Jr., are the largest growers of sod on New York's Long Island. Headquarters are at Dix Hills with satellite operations at Eastport, Riverhead and Shoreham.**

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Leonard Jr., who attended Texas A & M University, knows the problem and successes of sod production. He planted a monoculture stand of Touchdown to compare it with other varieties. "Roots and rhizomes are the heart of successful sod production and Touchdown is outstanding in this respect" he states. Leonard Jr. also commented on the fast start and quick cover developed by Touchdown. "Surface erosion from both wind and water can be costly — our blends with Touchdown get that all important green cover in place quickly."

Leonard explains to Loft's John Morrissey and Martin Pick that blends of up to 50% Touchdown have reduced his production time. He attributes this to the healthy, disease free qualities of the variety. Leonard told us: "I haven't seen disease working in Touchdown. I'm certain this is an important factor in this variety's ability to make a mature turf quickly. We've been impressed with the speed with which Touchdown recovers from mechanical injury too." And, he concludes "with Touchdown's record we're confident of our customer's satisfaction with their new lawn."

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## Groundcovers from page 68

ticular as to soil and moisture conditions. However, all are susceptible to scale, which must be controlled by a dormant oil spray if it is not to devastate the planting.

Dwarf Oregon Holly-Grape (*Mahonia repens*) has holly-like foliage which turns a bronze-red in autumn. It bears spikes of bright yellow flowers in early May followed by blue-black fruit similar to small grapes. In the plains area a north exposure is preferred to prevent burning of the foliage by the winter sun.

Baltic ivy (*Hedera helix*) climbs by aerial rootlets when planted against a wall, but may be easily maintained as a dense, dark-green groundcover. It should be planted in a north or east location to hold the foliage color through the winter as it burns in the winter sun and wind. Conditions of shade, moisture, and organic material in the soil will encourage the best growth. The variety 'Thorn-dale' withstands winter well.

Hall's Japanese honeysuckle (*Lonicera japonica halliana*) is a semi-evergreen vine which can become rampant if not pruned regularly, but because of its rapid growth habit is a good choice for large areas and banks. Its white flowers turn yellow with age. It is tolerant of nearly all soil conditions including dry soil, and grows well in sun or shade. It should not be planted where it can climb into trees or shrubs.

## Evergreen

Carpet Bugle (*Ajuga reptans*) grows 4 to 12 inches high. While classified as evergreen or half evergreen in the mildest protected areas of the central plains, in most sites the foliage dies to the ground. The plant spreads rapidly by creeping stems. Cultivars bearing blue, purple, white and red flowers in spring are available as are cultivars with bronze, variegated, and variegated with splashes of burgundy. This latter cultivar, Burgundy Glow, requires a site protected from wind and sun or foliage colors will wash out or brown. One of the most popular cultivars is Bronze Beauty which performs well in sun or shade. Don't plant ajuga in poorly drained soil or root and crown rots will develop.

Periwinkle (*Vinca minor*) is one of the best carpet forming groundcovers where conditions are favorable. Most cultivars grow 3 to 6 inches in height although 'Bowles' reaches 8 inches and tend to clump more than other cultivars. The species forms blue flowers from April through May, while 'Alba' produces white ones. Periwinkle does best in a protected area in shade.

Evergreen candytuft (*Iberis sempervirens*) forms a dense mat 6 to 12 inches high. The plant is attractive throughout the year and particularly in spring (April and May) when it produces white, flat flower clusters. Plant in full sun or light shade, in a well-drained soil. Plant is not drought tolerant but requires regular watering. Cultivars such as 'Christmas Snow,' 'Snowflake,' and 'Little-Gem,' grow less rapidly than the species. Tends to do better in the eastern half of the central plains although it is sufficiently temperature hardy with mulch in the western half.

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