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Maintaining a fairway can be a real headache. Fine fescues give you less to worry about...

Keeping your course looking great and your budget balanced can be a real headache. Oregon grown fine fescues can make your job just a bit easier. When used on tees and fairways, fine fescues offer shade tolerance with low fertilizer and water requirements. Fine fescues mix well with ryegrass and bluegrass without getting pushy, and they have a tight, upright growth habit. Oregon fine fescues germinate and perform better than imported varieties.

Where do you *find* fine fescues? On tees, fairways, roughs, parks, home lawns, industrial campuses and anywhere a fine textured, shade tolerant turf is desired.

Where do you get fine fescue? Ask your distributor for Oregon grown fine fescue for sure!

For a series of eight tech sheets on Oregon grown Chewings and creeping red fescues, call or write



OREGON FINE FESCUE COMMISSION

2140 Turner Road SE
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Circle No. 142 on Reader Inquiry Card

The artistic as well as the practical come together on a public golf course on Cape Cod. Dennis Highlands offers the old world feel of St. Andrews with an innovative Integrated Planting System using low maintenance grasses, wildflowers and ornamental plants. Golfer and superintendent get the best of both worlds.

Yankee Ingenuity

73 percent of the golf course site receives either no maintenance or low levels of maintenance.

Blend a little Yankee ingenuity with the time-tested golf course design of the Scots, and the product is one of the most unique golf courses in the country—Dennis Highlands in Massachusetts.

In recent years the design trend in American golf courses has been toward "the Scottish look." This has commonly been associated with a naturalized blend of native plants, existing in harmony with the environment, and requiring minimum maintenance.

In Scotland, this effect is a product of the forces of natural selection of plants, often over hundreds of years. Although many attempts have been made to realize "the Scottish look" in America, most have not been totally successful because of incorrect selection of plant materials, or due to a climate too hot to grow the desired species.

In Scotland the predominate plant materials are fine fescues i.e., chewings, creeping red or hard and brown top (Colonial bentgrasses), gorse, heather, and beach grass.

In the northern U.S., golf course fairways and roughs have been traditionally planted to creeping bentgrass or a mixture predominately of Kentucky bluegrasses and perennial ryegrass, which require intense maintenance practices. Fine fescues, the predominate turfgrass found in Scotland, is often used in the U.S. but does not normally persist when subjected to moderate to high fertilization and irrigation, common in today's maintenance techniques.

In fact, it is this high fertilization and heavy use of irrigation that environmentalists find the most objec-

tionable about golf course development. This is particularly true in ecologically-sensitive areas as Cape Cod, Long Island, and the shores of the Middle Atlantic states.

And it is because of this intense respect for the environment that Dr. Michael Hurdzan in particular, is proud of Dennis Highlands.

"We had the utmost respect for the fragile environment of Cape Cod in planning this project," he said, "and I

Hole No. 3 shows contrast between sheep fescue (unmowed) and hard fescue in the rough. The fairway is bluegrass, the green is bentgrass.





Hole No. 3 shows wildflowers and sheep fescue behind and beside Par 3 green.

believe we achieved our goal of being as ecologically responsible as we could. Because of what we planted we reduced pesticide, fertilizer and water use as well."

Unique and practical

The Town of Dennis, Massachusetts, wanted a public golf course that would be unique in its appearance yet functional in its operation and maintenance. It had a 178-acre site, of glacial origin, that featured sharply rolling, sandy hills covered with pine and scrub oak.

In addition, the town wanted to keep developmental and operational cost low so that it could provide cit-

The Town of Dennis, MA, wanted a public golf course that would be unique in its appearance yet functional in its operation and maintenance.

izens and visitors with moderately low cost golf. As with any development there were deep concerns about the availability of ground water and its possible pollution with nitrogen fertilizers.

Realizing these issues, golf course architect Hurdzan, of Kidwell & Hurdzan, Columbus, OH, and Dr. Richard Hurley, vice president and turfgrass and plant material specialist, Lofts Seed, worked together to select plants that would persist under low maintenance and would achieve instantly on Cape Cod what it took centuries to achieve in Scotland. Their objective was to develop an Integrated Planting System (IPS) using commercially available grasses, wildflowers, and ornamental plants.



Wildflowers provide spectacular color as well as low-maintenance groundcover for Hole No. 16 at Dennis Highlands.



The grass along the fence in the photo at left was killed with a fast-acting systemic post-emergent herbicide. Obviously, no professional groundskeeper could abide this ugly mess, so the dead vegetation has to be removed with expensive hand labor. The systemic product is recommended for lawn renovation so, naturally, vegetation will

grow back as new seeds germinate, resulting in an endless cycle of retreatment, ugly dead vegetation and more hand labor. Clean up a fence line with Dyclomec and vegetation will never again be a problem, because an annual pre-emergent application of Dyclomec will form a vapor barrier and keep the area absolutely clean.

Dyclomec turns Problem Areas into Beauty Spots

... and the vapor barrier eliminates repeated investment of hand labor to clean out dead vegetation.

Dyclomec is surely the most efficient herbicide that has ever been offered to professional landscapers. In fact, it is called the *landscaping herbicide*.

Now, at last, the groundskeeper can easily and economically achieve that manicured look, which consists of contrast. Of sharply defined areas where immaculate turf is contrasted with areas of beautiful, naked earth. Where ornamentals grow in an area of beds that are free of any distracting growth.

Until the advent of Dyclomec, such pristine landscaping could only be achieved with repeated investments of hand labor to clean out dead vegetation resulting from an endless cycle of

regrowth and retreatment with a systemic herbicide.

But once an area has been cleaned up with Dyclomec, hand labor to remove dead vegetation will never again be necessary because an annual application of Dyclomec will keep the area absolutely clean. How is this possible?

On the page at the right are step-by-step illustrations of how Dyclomec works. Understanding its principle will help you discover the many labor-saving, money-saving ways it can help you in landscape maintenance.

We urge you to read it carefully and call us toll free if you have any questions.



Dyclomec Applicator for Uniform Distribution

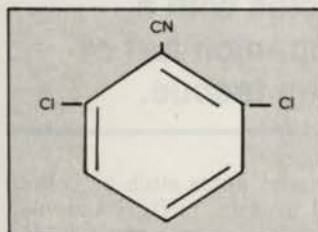
Because proper distribution of Dyclomec is important, this patented Acme Spred-Rite® G Spreader is the ideal tool. Granules are gravity-fed through deflector spikes that give a uniform pattern. Hold the head high for a wide swath; lower for a narrow swath; remove it for the finest line of control. Regulate flow with interchangeable orifice disks. Spreads any granular material. Lightweight. No moving parts.



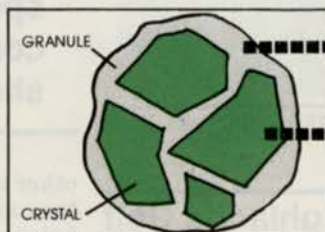
Dyclomec with its pre-emergent and post-emergent action is ideal for vegetation control in mulch, or bark around roses and ornamentals, or in flagstone and

gravel walkways. It works its way down to the ground and forms a vapor barrier which provides season-long weed control and maximum safety to desirable plants.

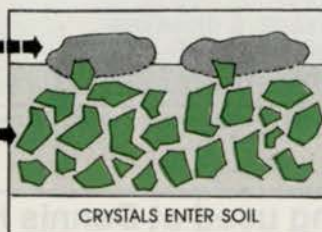
How Dyclomec controls weeds without harming ornamentals:



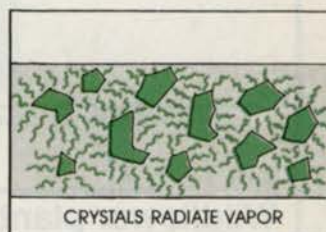
1. Dyclomec is a 2,6-dichlorobenzonitrile, commonly known as Dichlobenil. This unique herbicide goes directly to a vapor stage without going through a liquid stage. It is activated by temperature and soil moisture.



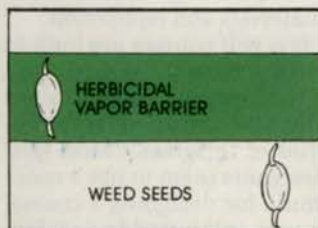
2. This remarkable herbicidal compound of razor-thin crystals is uniquely processed by PBI/Gordon to make a precise granule.



3. Granules are spread on soil surface. Moisture carries the Dyclomec crystals into the upper layer of soil. Because of adsorption by soil particles, lateral movement is minimal.



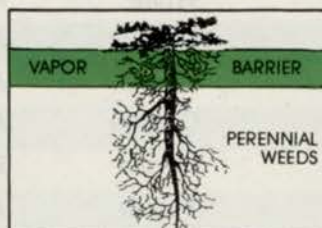
4. Temperature and soil moisture activate the Dyclomec crystals and they begin to radiate a herbicidal barrier. This continues for an entire growing season, and the spent crystals disappear, leaving no residue.



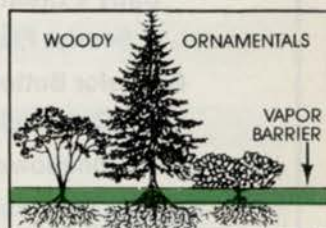
5. In this vapor barrier no plant cell division can occur. Seeds trying to germinate in the barrier will die. Sprouts below this zone will be killed as they try to penetrate the barrier.



6. Existing vegetation such as shallow-rooted grasses and annual weeds having root structures in this barrier will likewise be affected and die after two to three weeks.



7. Certain perennial weeds coming out of dormancy and attempting new growth within the Dyclomec barrier will run into the same dead end: they will be killed by the vapor.



8. Dyclomec, when used as directed, does not affect woody ornamentals, shrubs and trees that have deep roots extending well below the herbicidal vapor zone.



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TABLE A

Golf Course Maintenance

| Vegetative Type | Maintenance Required | Acres | % of Site | Degree of Maintenance |
|--------------------|---|-------|-----------|-----------------------|
| Completely Natural | None | 15 | 8%* | None |
| Wildflowers | Mow once/year in November | 28 | 16%* | Token |
| Roughs | Mow occasionally | 87 | 49%* | Low |
| Fairways and Tees | Minimal water & Fertilizer applied as needed-Mow 2-3/wk | 45 | 25% | Moderate |
| Greens | Water-fertilize-spray for weeds, insects & diseases-aerate-Mow 6 times/week | 2.5 | 2% | High |

* = 73% of the golf course site receives either no maintenance or low levels of maintenance.

TABLE B

Wildflower planting used at Dennis Highlands Golf Course, Cape Cod, Massachusetts

| Variety | Color | Life Cycle |
|-----------------------|-----------|------------|
| Baby's Breath | White | Annual |
| Scarlet Flax | Red | Annual |
| Bachelor Button | Mixed | Annual |
| Calendula | Orange | Annual |
| Purple Coneflower | Purple | Perennial |
| Evening Primrose | Yellow | Annual |
| Catchfly | Pink | Annual |
| Corn Poppy | Mixed | Annual |
| Blackeyed Susan | Gold | Annual |
| Coreopsis, lance leaf | Yellow | Perennial |
| Baby Snapdragon | Mixed | Annual |
| Lewis Flax | Blue | Perennial |
| Sheep Fescue | Gray/blue | Perennial |

Equally important was respecting the fragile environment and ecological balance of Cape Cod.

To do this first required analyzing the soils, the microclimate, and expected climatic factors, then selecting plants compatible with the design intent.

Hurdzan, current president of the American Society of Golf Course Architects and a member of the USGA Green Section Advisory Board, and

his partner Jack Kidwell, wanted to design a golf course that didn't just acknowledge the Scottish look, but rather achieved it. It was at this point they contacted Hurley who holds a Ph.D. in plant breeding.

They decided the best way to achieve the desired results was to make plant selections as the golf course was designed, and not simply follow the traditional seeding specifications. They considered the golf

course as being composed of five distinct areas;

- 1 Completely natural
- 2 Cleared land but out of play
- 3 Roughs
- 4 Fairways and tees, and
- 5 Greens

The only areas they wanted to have intensive maintenance was the greens, moderate maintenance on fairways and tees, low maintenance in rough, and no maintenance in the

The out-of-play areas were seeded to 13 different wildflower species with a companion turf of sheep fescue.

other cleared areas such as behind tees and greens, buffers between holes, and the entrance areas.

One reason why some attempts at the Scottish look have failed is that although they look low maintenance, they often require high expenditures of men, materials and equipment.

"Very few golf courses are built to make a visual impact," Hurley says referring to Hurdzan's desire to use esthetically-pleasing as well as durable varieties of turfgrass. "Most (golf course) designers seem to use a cookbook formula for designing a course. Mike was very interested in developing the character of the course. I'm surprised more architects don't do this."

Keys to success

The key to success, thought the planners, was to specify plant materials that had slow growth rates, require little or no fertilization, and are very drought tolerant.

Since all three men were at one time golf course superintendents, they realized that the greatest expense for fairway maintenance was fertilizing and mowing, and for roughs it is mowing alone, often on a bi-weekly basis. Therefore it seemed the logical solution was to plant the fairways to aggressive bluegrass types that would heal quickly when injured by traffic or pests, and reduce the fairway areas as much as possible by planting low maintenance roughs.

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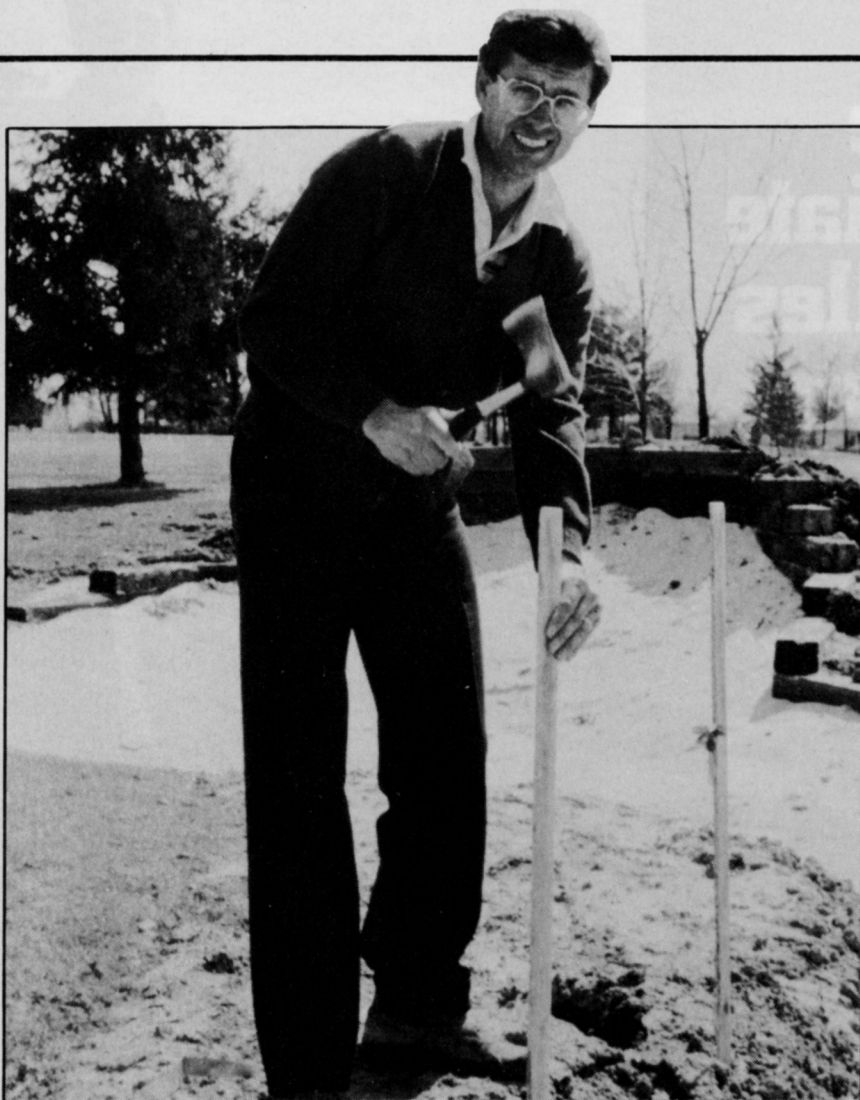
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Dr. Michael Hurdzan, designer of Dennis Highlands, grade stakes a bunker.

Hurley knew that although bentgrass provides the most prestigious and nicest playing conditions, it is also the most expensive to maintain and is usually reserved for country club-type courses. For public or municipal courses such as the Town of Dennis, a bluegrass-perennial ryegrass turf was needed to withstand the wear of 50,000 rounds of golf per year.

The added benefit is that bluegrass turf requires less spraying of costly chemicals to control turf diseases.

Then came the problem of which of the 50-plus bluegrass varieties on the market should be selected for use on the wind swept, sandy hills of Cape Cod.

They chose a blend of Mystic, Touchdown, BenSun (A-34) and Ram I, supplemented with a small percentage of Palmer and Prelude perennial ryegrasses and Jamestown chewing fescue. This blend was selected because of like texture and color of the bluegrasses to each other, their

independent resistance to turf pests, and their observed ability to establish and spread rapidly.

The roughs were seeded by the Delfino Corporation, the golf course contractor, in true Scottish fashion using Reliant hard fescue and Jamestown chewing fescue. The mixture was chosen because of its slower growth rate, resulting in less mowing, while persisting on almost no fertilizer or water.

Further this meant that only a single row irrigation system was needed for fairways which saved money during construction as well as during normal maintenance. The out-of-play areas were seeded to 13 different wildflower species with a companion turf of sheep fescue.

Low maintenance

Thus the basis of the program was to seed as much of the in-play area of the golf course to low maintenance fescues like those found in Scotland, seed fair-

ways to aggressive bluegrass to provide the more-manicured American playing conditions, and other cleared areas to wildflowers and sheep fescue that require no maintenance. (See breakdown of the site, (Table 1).

Since Dennis Highlands has just opened recently, Director of Golf Tom Flaherty could not give exact dollars saved by this concept. However, compared to Town of Dennis' other golf course, (which Flaherty also main-

The designers decided the best way to achieve the desired results was to make plant selections as the golf course was designed, and not simply follow the traditional seeding specifications.

tains) the mowing, fertilizing, and watering could be one-third less once Dennis Highlands matures.

Other monetary rewards were more evident.

"In the first four months of operation, 30,000 rounds were played and \$200,000 in greens fees were collected," reports Flaherty.

Not only was this Integrated Planting System functional from a maintenance standpoint, it also permitted the golf course architects to be more artistically expressive as well.

Palate of color

The fescue roughs were visually different from the fairways in terms of color and texture of the leaf blades, and the wildflowers grew to a height of three feet and produced a rainbow of color from early summer until after several killing frosts in the fall.

These visual differences permitted Kidwell & Hurdzan to make permanent design statements by contour planting as opposed to the less permanent contour mowing.

In addition, the mixing of textures, colors, and heights seem to generate a visual movement of the golf course features, that makes them seem dynamic and flowing and not just

continued on page 62

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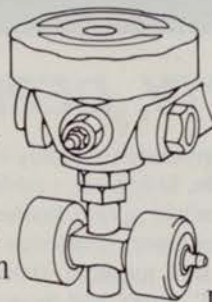
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