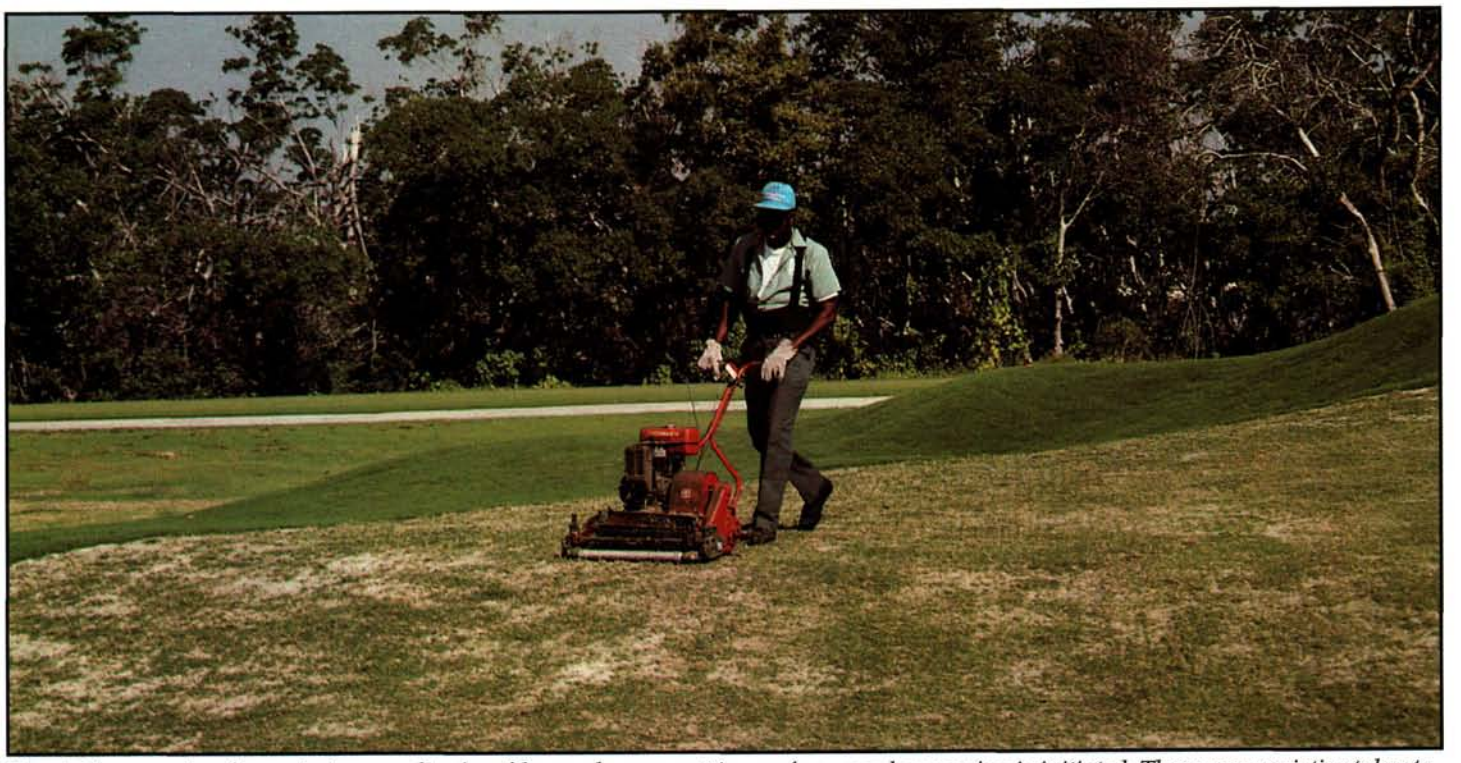
Going Low with Ultradwarf Bermudagrass Putting Greens

While these new cultivars can tolerate very low mowing heights, there are numerous considerations for achieving long-term success.

by TOM COWAN



Two to three weeks after sprigging an ultradwarf bermudagrass putting surface, regular mowing is initiated. These new varieties tolerate heights of cut below those of standard bermudagrass cultivars.

THE ARRIVAL of the "ultradwarf" bermudagrasses is challenging warm-season golf course superintendents to make changes in their cultural programs and maintenance practices for management of putting surfaces. With these ultradwarf bermuda cultivars being used frequently in new construction, and existing greens being renovated to "keep up with the Joneses," volumes will be written on the how-to's by superintendents, researchers, and associated industry professionals. The focus of this article will be to examine one of the most critical cultural practices in the maintenance of ultradwarf putting surfaces – mowing.

It is a well-known fact that grasses can be "dwarfed" by frequent low mowing. However, there are height-of-cut limits that must be respected to ensure turf survival. For Tifgreen and Tifdwarf bermudagrasses, the recommended low height-of-cut limits are 0.187" and 0.156", respectively. While lower mowing heights can be maintained for short periods of time, especially during periods of benign weather, these older cultivars can hit the wall and fail when pushed too far. Through selection and traditional turfgrass breeding efforts, we now have several bermudagrass cultivars that will tolerate much lower mowing heights. It is being recommended that the ultradwarf bermudas Champion, Floradwarf, MiniVerde, and TifEagle be maintained at a height of cut in the range of 0.120" to 0.140". When combined with their finer leaf texture and increased density, a smooth, true ball roll and fast to very fast putting speeds can be provided.

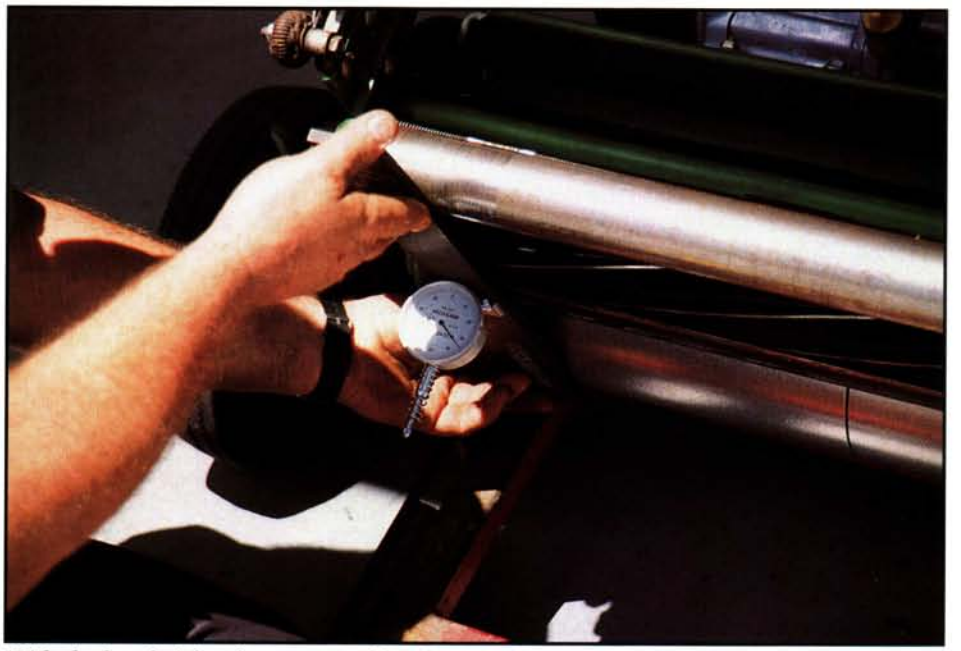
Beginning in the turf establishment phase, the ultradwarfs are being mowed at lower heights of cut. An initial height of cut of 0.187" is typical, and this height is reduced progressively with development of full turf coverage and a smooth surface condition. With optimum growing weather, full turf coverage is being achieved in as little as four to six weeks, and in a few cases the height of cut has been taken all the way down to 0.100".

There are several rules that must be followed to make this happen. First, make a test cut to be sure you are not disturbing the grade (plowing) or pulling out sprigs. Second, make sure that you mow in a different direction every time. Third, topdress and verticut routinely to help smooth the putting surface. Rolling of new greens is also a common surface-smoothing process, but it needs to be used with restraint. Assuming that adequate moisture and fertility are maintained throughout the grow-in process, decisions on height-of-

cut changes should be made every five to ten days. As the height of cut is lowered, the turf surface will become smoother and show fewer scalp marks. As the scalp marks begin to disappear and the putting surface becomes uniform in color, the grooming phase of the grow-in can be implemented.

Just like fast cars and horses, these new bermudagrasses require special attention to keep them running fast. Thinner bedknives, more frequent grinding and back-lapping, less margin of error in reel setup, experimentation with roller types, frequent vertical mowing or grooming (in combination with topdressing) all present additional challenges for equipment technicians. Manufacturers are introducing mowers that will minimize scalping at heights of cut below 0.125". Modifications to existing mowers can also be required to help narrow the cutting plane by reducing the distance from the cutting edge to the front rollers. For example, with the Toro GR 800 or GR 1000 mowers, the front roller brackets can be reversed (left bracket becomes right bracket), which reduces the distance between the cutting edge and the front roller and in turn reduces scalping on undulating greens.

A concern with the ultradwarf bermudas is their more aggressive growth rate and, in turn, increased rate of thatch accumulation. Excessive thatch or a mat layer negatively affects mowing results and in particular increases scalping damage. The importance of managing thatch in the upper rootzone cannot be overemphasized, and it should start in the establishment phase. Different types of vertical mowing knives are being introduced to reduce the amount of organic mat without raping the canopy. Fewer spacers between vertical knives (more blades per reel), carbon-tipped knives, and spiral reel configurations are other modifications that allow for easier movement through the canopy with less surface disruption and improved thatch control.



With the low height of cut required for the new bermudagrasses, there is no room for error in the setup of the mowing units. Equipment managers are constantly challenged to keep the equipment in top shape when dealing with ultradwarf putting greens.

The aggressive ultradwarf growth habit results in a faster rate of thatch accumulation. Thatch must be controlled from the very beginning to ensure top quality mowing results and healthy turf growth.

Just as tolerances in high-performance engines get smaller to create higher speeds, when heights of cut are at 0.125" and below, the margin for error in mower setup is very low. Until technology allows us to laser cut our grass, we are restricted to the thickness of a bedknife and to the "lay of the land." I guess it is not inconceivable that someday we will have the technology to produce a flexible cutting head that will change form to adapt to changes in contours. But until then, the real challenge to every superintendent and head equipment technician is to find the threshold height of cut that provides the fastest ball roll with the greatest aesthetic appeal.

Because of the need for speed, "drivers" of these new dwarfs must pay attention to every indicator of mechanical breakdown. The same rules that apply to growing the older dwarf bermudas apply to the ultradwarfs. At very low cuts, these cousins to Tifdwarf are subject to failure if driven to the brink. Shade is most definitely an enemy. Also, the very dense turf cover and faster rate of thatch accumulation is resulting in localized dry spots (LDS) being a common occurrence. Fertility levels present as many debates as there are growers of the new cultivars. But if there is one cultural practice that has tempted superintendents into pushing the envelope, and one that requires daily scrutiny, it is mowing!

If you are at the wheel of an ultradwarf, test drive it daily behind your

mowers. Hit a few putts to get an idea of how fast and how true your surfaces are. Startling discoveries can be made. When you are living on the edge, you really have to pay attention. It is just as important that your head mechanic check the mowers daily. Even if a mower leaves the shop perfectly adjusted, banging around in transport can knock it out of adjustment. If triplex mowers are used, it is a good idea to train your operators to take the smoothest, safest route from hole to hole. With walk mowers, carefully loading and unloading from the trailer are critical to keeping it in adjustment. Securing the mower to the trailer is also important.

If you are new to the ultradwarfs, it's possible that changes in mowing equipment are required. If triplex mowers have been used in the past, it may be necessary to go to a fixed-head walk mower. It also needs to be remembered that several factors affect the actual height of cut. Total unit weight, weight distribution, bedknife attitude, and front roller setup are a few of the variables. Two mowers with the exact same bench height-of-cut adjustment can produce different actual heights in the field. Before making a decision, it would be wise to demo competitive models and consult other growers. Equipment technicians also are constantly challenged to keep a sharp reel and bedknife.

What is the effective height of cut? Prism gauges are a useful tool for determining the actual mowing height.

As with standard bermudagrasses, the ultradwarf cultivars lack shade tolerance.

Drivers' education (or walkers' education) is not a degree course for your operators. Greens mowing is continuing education. If your machines leave the shop perfectly tuned and ready for the race, the driver must be up to the task. You can train your team to perform to your standards, but once on the course, they assume control. No two greens are alike. No two operators are alike. Special instructions, such as direction of cut for the day or when and where to skip a perimeter pass need to be issued. Emptying baskets frequently enough to prevent excessive weight buildup or simply removing any loose impediments before mowing are other instructions that need to be repeated and can mean the difference between a good and poor-quality cut.

Just as golf is a humbling game, so too is the profession of growing and maintaining the turf on the courses where the game is played. New technology, new grasses, and greater pressure to compete in a market flooded with new courses place additional pressures on today's golf course superintendents. In a world where fast seems to pay dividends, it seems that the greatest dividend will be paid to managers of the ultradwarfs who can pursue speed with caution. Height of cut should not become a contest among your peers. The real prize should be given to the turf manager who can achieve the greatest speed at the highest height of cut. The racecar driver who finishes the most races may indeed have the longest career. The golf course superintendent who manages his speed properly may never hit the wall.

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