



*The distinctive patterns developed by sports turf managers have become a “signature” of some fields.*



Oriole Park at Camden Yards during the filming of Major League II.

## Mowing Tips: Cutting Heights, Frequency and Patterns

By Steve and Suz Trusty

**M**owing is a vital part of the turf growth-control program. Sports turf managers know that mowing decisions concerning cutting height, frequency and patterns impact far more than the aesthetic appeal of the field. They affect turf health, density, playability and grass-variety dominance.

The nature of grasses makes mowing an option in turf control. Growing points are located immediately above the nodes, in the leaf at the base of the sheaths and at the base of a blade. Grass vegetative growth consists mostly of leaves, with little elongation of stems. The stems and growing points (buds) are concentrated near ground level. Thus mowers can cut away the tips of the leaves without stopping their growth and hindering the formation of new leaves.

But mowing does alter natural conditions. The grass leaf area (the blade) is necessary for food production and other plant-life processes. As the mower cuts the grass blade, it inflicts a wound. The plant compensates for this loss by

first channeling more food (carbohydrates) to leaf growth; then “feeding” the roots, rhizomes and stolons. Because the plant attempts to balance its above-ground growth with its belowground growth, root development may slow or stop until leaf growth is restored.

Various grasses have different tolerance to mowing. Creeping, stolon-producing grasses, such as Bermudagrass, tolerate close mowing. More upright grasses, such as bluegrass and ryegrass, need higher mowing levels to thrive. Also, fine-bladed grasses can be cut shorter than coarse-textured grasses.

Optimum height of the cut is determined by the natural growth pattern of the specific grass variety (physiological characteristics); the form and structure of the specific grass cultivar (morphological characteristics); the physical characteristics of the site; the vigor and density of the turf; and the environmental conditions — in conjunction with the role the grass has to play.

In southern regions, hybrid Bermudagrass may have a suggested height of cut ranging from 1/4 to 1 inch; common

Bermudagrass, a range of 1/2 to 1.5 inches. In the northern transition zone, a Bermudagrass cutting height above 1/2 inch may produce a surface too loose and spongy for adequate footing.

The cool-season grasses — bluegrass, perennial ryegrass and turf-type tall fescue — have a suggested cutting range of 2 to 3 inches.

For cool-season grasses the ideal temperature range is 60 to 75 degrees Fahrenheit; for warm-season grasses, the range is 80 to 95 degrees. When temperatures at grass-growing points are above or below these ranges, growth slows or stops, putting the turf into a period of dormancy.

Grass blades provide the growth points with insulation against heat or cold. The leaf tissue also protects growth points from mechanical injury caused by traffic and wear. A cut too low stresses turf, making it susceptible to disease and insect invasion. Sports turf professionals have developed mowing strategies to fit their specific fields and conditions.

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## Mowing Tips

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### Cool-Season Grasses

According to Wayne Klostermann of Klostermann & Associates in Dubuque, IA, the newly installed football field at the University of Dubuque uses a combination of bluegrass cultivars mowed to a height of 2 inches with a reel mower. Mowing directions are alternated to produce 5-yard patterns.

The University of Wisconsin at River Falls women's soccer field was seeded with NK Athletic Pro II, a blend of bluegrasses and perennial ryegrasses. According to Tom Foley, this turf is maintained at 2 to 2.5 inches during the summer. Turf height is gradually reduced to 1.25 to 1.5 inches for the playing season to produce a "faster" surface.

Jeff Thompson, varsity coach in charge of the field at Genoa High School — the 1993 High School Diamond of the Year — uses a rotary rider mower up to three times a week to keep the infield turf — a combination of bluegrass and perennial ryegrass cultivars — "a shade" under 2 inches. The outfield turf is cut at 2 to 2.5 inches.

Dale Getz, athletic-facilities manager for the University of Notre Dame in South Bend, IN, uses perennial ryegrass for the multiuse fields and a combination of bluegrass and perennial ryegrass on the high-profile fields. The newer cultivars of perennial ryegrass take abuse better, giving the turf toughness. The bluegrass has better recuperative qualities, extending field life. The specific combination of cultivars used have proven most adaptive to both field and environmental conditions.

Game fields at the University of Notre Dame are mowed with a reel mower to produce the pattern and striping effect. The practice and intramural fields are mowed primarily with a rotary mower because it's faster. If the blades are kept sharp, the rotary mower delivers a smooth, decent cut.

Des Moines' Sec Taylor Stadium, home of the AAA Iowa Cubs, is a field of bluegrass cultivars. Mike Andresen reports that during drought conditions mowing height was raised to 2.25 inches for the infield and 2.5 inches for the outfield, to reduce water use and provide better cooling for the grass roots. During

the extremely wet season, infield heights were lowered to 1.75 inches with a walk-behind reel mower. The outfield was mowed to 1 7/8 inches with a ride-on reel mower. After the severe flooding of the field, water was at field capacity. Mowing heights were lowered to 1.5 inches to allow better drying and only walk-behind mowers were used to reduce compaction.

Fitton Field is the varsity gridiron of the College of Holy Cross in Worcester, MA. The superintendent of grounds, James D. Long, keeps the field in a combination of bluegrass cultivars and an improved cultivar of Manhattan perennial ryegrass. Turf is cut to 2.5 to 3 inches during the summer to develop a strong root system. In late August and early September, the grass is cropped down to 1.5 inches for seasonal play.

Jesse Cuevas of Johnny Rosenblatt Stadium in Omaha, NE, keeps the field in a combination of bluegrass and perennial ryegrass cultivars. Mowing height is maintained at 1.5 inches. Crews mow every day to keep the height consistent and encourage vigorous root growth.

### Warm-Season Grasses

Mike Hurd is grounds superintendent of McKechnie Field in Bradenton, FL, game field for the Pittsburgh Pirates' spring training, site of the 1995 STMA annual meeting and 1993 Professional Diamond of the Year. The basic infield and outfield grass is Tifway II Bermudagrass. Both infield and outfield are kept at a height of 5/8 inch. The entire field is mowed daily; the infield is mowed twice on game days. The field is overseeded in mid-November with Ph.D. perennial ryegrass at the rate of 12 pounds per 1,000 square feet.

Richard Gonzales of the Rose Bowl in Pasadena, CA, kept the newly sodded Tifgreen Bermudagrass at an initial height of 1/2 inch in May. Game height options ranged from 1/2 up to 5/8 or 7/8 inch.

### Transition Zone

The transition zone is too far north for the warm-season grasses and too far south for the cool-season grasses. Sports turf managers generally must work with both grass types to maintain a decent, playable cover.

Tony Burnett, chief groundskeeper of RFK Memorial Stadium in Washington, D.C., has developed a formula that's

workable; but it still is a constant battle with the weather. He uses the warm-season Bermudagrass (Tifway 419) as a base for its strong root structure, then overseeds it with a blend of perennial ryegrasses to give late-season color. Because Washington winters consistently wipe out 70 to 80 percent of the Bermudagrass, it's replaced with fresh sod each year.

The Bermudagrass is mowed at 3/4 inch while the sod takes hold. During football season, the mowing height is lowered to 5/8 inch. Then, as the perennial ryegrass comes in, the mowing height is gradually raised to 1 inch. That's a "pretty close" grooming down for ryegrass, but with the underlying Bermudagrass base, it provides an excellent playing surface.

Monte McCoy is baseball field superintendent at the University of Oklahoma's L. Dale Mitchell Field, the 1993 College Diamond of the Year. Here, the common Bermudagrass turf is overseeded the first week of October with a blend of perennial ryegrass cultivars. During the spring, the ryegrass is mowed nearly everyday, and double-cut on game days. The outfield is maintained at a height of 1.5 inches with a triplex reel rider mower; the infield at 1.25 inches with a walk-behind reel mower. Mowing direction is rotated with each mowing from home to third, home to first, and home to second to keep the grass growing vertically, combat tire compaction, and create a striking "checkerboard" pattern.

In May, mowing heights are lowered to 1 inch in the outfield and 3/4 to 7/8 inch in the infield, to discourage the perennial ryegrasses and allow the Bermudagrass to regain control. Following the transition, the infield mowing height is moved up to 1 inch.

Bucky Trotter of the University of Kentucky in Lexington uses Vamont Bermudagrass in Commonwealth Stadium and the baseball infield; Quickstand Bermudagrass in the soccer game field, and mixes of bluegrasses and perennial ryegrasses in the practice football and soccer fields and baseball outfields.

During spring and early summer, Bermudagrass fields are mowed at 1/2 inch to promote lateral growth. Starting two or three weeks before the kickoff of the football and soccer seasons, the height of cut is gradually raised to the game height of 1 inch. The Bermudagrass



can go dormant by mid-October, so it's necessary to retain as much in-season leaf surface area as possible. The Vamont Bermudagrass is coarser than some of the other hybrids. Athletes' footing on Vamont at the 1-inch height is comparable to that on a 3/4-inch height on the finer-textured Bermudagrass.

Fields are overseeded with a mix of bluegrass and perennial ryegrass cultivars as temperatures cool. The baseball outfields receive a mix of grasses higher in bluegrass than perennial ryegrass. On the football fields, perennial ryegrasses stand up better to the heavier traffic and lack of moisture. Areas of wear on the cool-season fields normally are filled in with perennial ryegrass because it germinates and establishes faster.

Sturdy cool-season turf is needed to withstand spring's heavy practice schedule. Cutting heights are adjusted to cope with the level of play and fluctuating weather conditions. During stressful conditions, the turf reacts best at a 1.5-inch cut. When possible, that height is lowered to 1.25 inches to better accommodate play.

**Mowing Patterns**

A mowing pattern can be a means of marking dimensions on a field, as with the alternating mowing direction to accent 5-yard intervals on a football field. It can also be a means of adding to the aesthetic appeal for on-site fans and TV spectators. The distinctive patterns developed by their sports turf managers have become a "signature" of some fields.

Though patterns add much to the look of a field, playability depends on "straight up grass" and turf vigor. Cuevas and crews alternate mowing directions each day to keep the turf healthy, vibrant and upright.

On Day One, the outfield is mowed from north to south. On day two, it's mowed across at an angle from northeast to southwest. On day three, mowers run from east to west. On day four, crews mow in a cross pattern again, this time running from southwest to northeast. Starting points are varied, too. For example on the north-south swipes, mowing starts at the warning track one time, at the infield the next. The infield is mowed in a circular pattern, alternating from north to south, east to west, south

to north, and west to east. The starting point also varies each day. Foul territory is mowed in a "U" pattern, starting at the third-base side mowing toward the first-base side one day; then mowing from the first-base side toward the third-base side the next.

Sports turf fields are always "on display." When it comes to mowing, it takes keen observation of growth pat-

terns and weather conditions, along with a well-planned but flexible schedule, to keep turf safe, highly playable and "looking good." □

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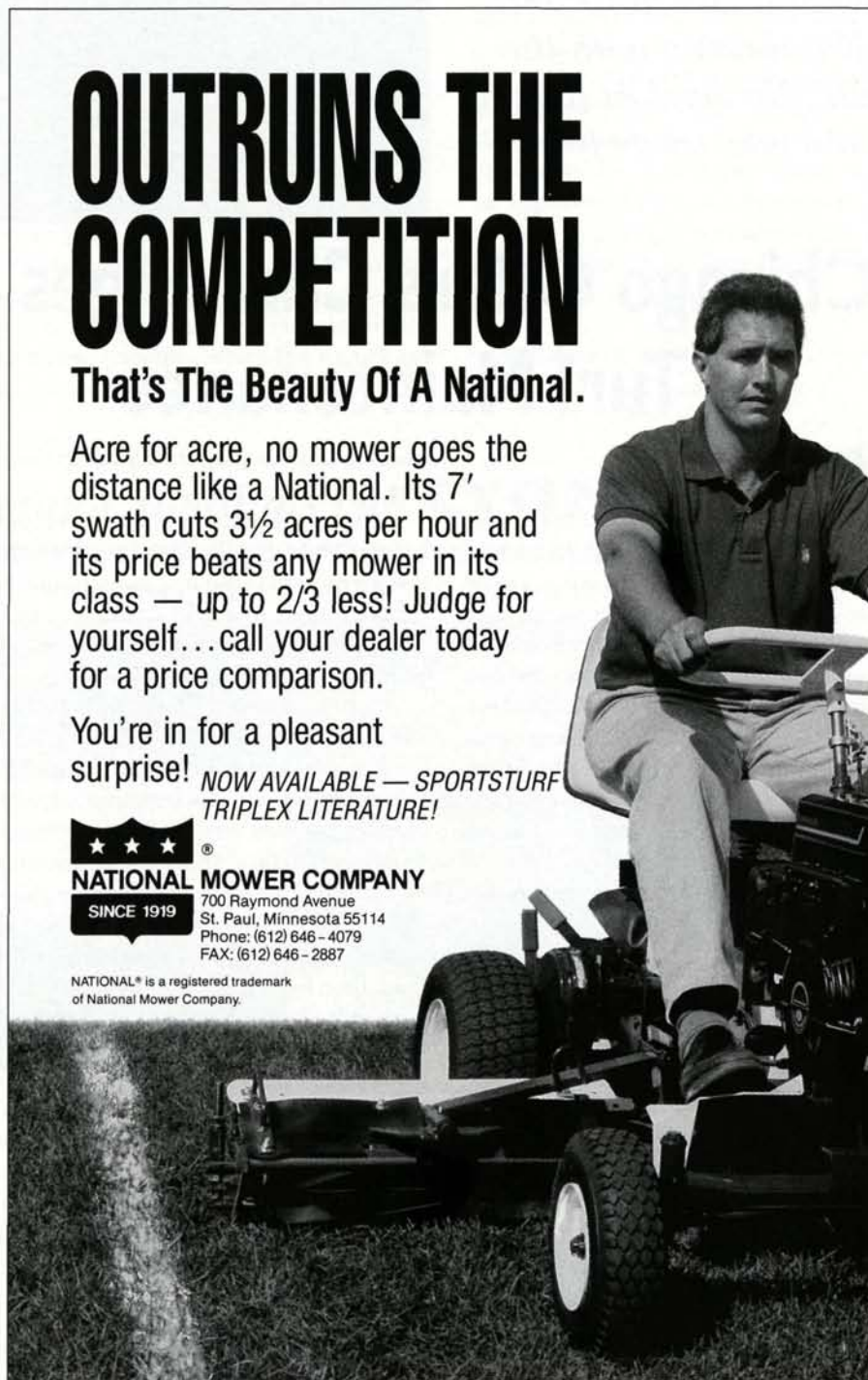
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