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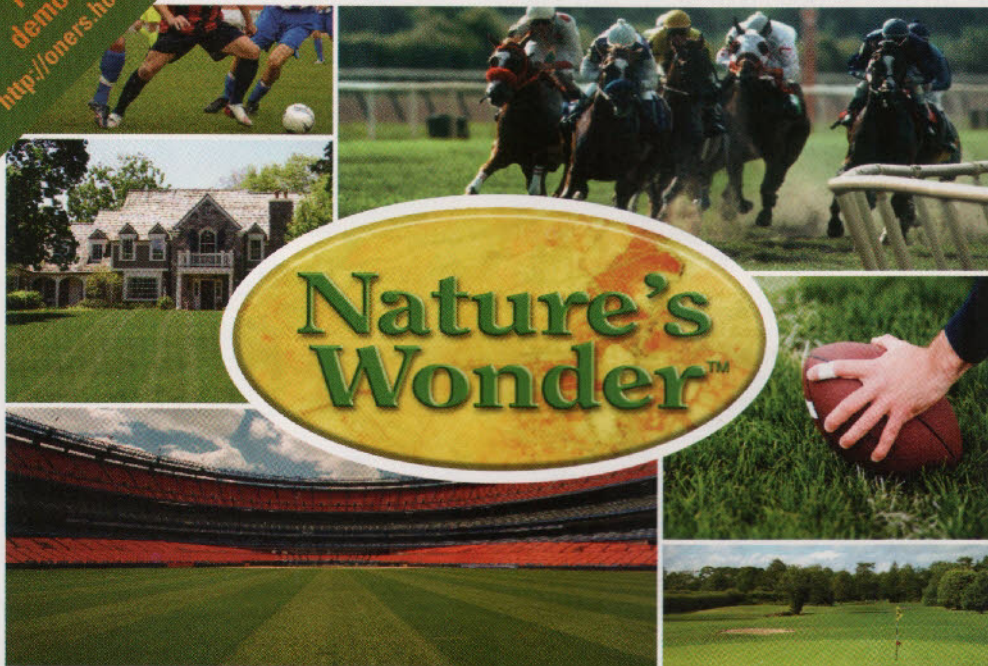
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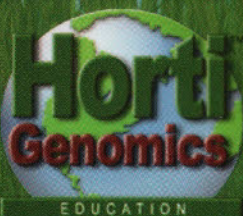
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Advertiser	Web Address	Fill in #	Page #
Aerway/Holland Equipment	<a href="http://www.oners.hotims.com/13974-125">http://www.oners.hotims.com/13974-125</a>	125	27
Airfield Systems	<a href="http://www.oners.hotims.com/13974-133">http://www.oners.hotims.com/13974-133</a>	133	32
Barenbrug USA	<a href="http://www.oners.hotims.com/13974-117">http://www.oners.hotims.com/13974-117</a>	117	17
Beacon Athletics	<a href="http://www.oners.hotims.com/13974-136">http://www.oners.hotims.com/13974-136</a>	136	35
BLEC USA	<a href="http://www.oners.hotims.com/13974-135">http://www.oners.hotims.com/13974-135</a>	135	35
Broyhill	<a href="http://www.oners.hotims.com/13974-132">http://www.oners.hotims.com/13974-132</a>	132	32
Covermaster	<a href="http://www.oners.hotims.com/13974-131">http://www.oners.hotims.com/13974-131</a>	131	31
Covertch	<a href="http://www.oners.hotims.com/13974-147">http://www.oners.hotims.com/13974-147</a>	147	50
Cygnat Turf	<a href="http://www.oners.hotims.com/13974-128">http://www.oners.hotims.com/13974-128</a>	128	30
Deweeze-Goossen	<a href="http://www.oners.hotims.com/13974-139">http://www.oners.hotims.com/13974-139</a>	139	44
Diamond Pro	<a href="http://www.oners.hotims.com/13974-121">http://www.oners.hotims.com/13974-121</a>	121	22
Diversified Sports Specialties	<a href="http://www.oners.hotims.com/13974-149">http://www.oners.hotims.com/13974-149</a>	149	50
EP Minerals	<a href="http://www.oners.hotims.com/13974-119">http://www.oners.hotims.com/13974-119</a>	119	20
Empire State Green Industry Show	<a href="http://www.oners.hotims.com/13974-144">http://www.oners.hotims.com/13974-144</a>	144	47
Ewing Irrigation	<a href="http://www.oners.hotims.com/13974-129">http://www.oners.hotims.com/13974-129</a>	129	29
First Products	<a href="http://www.oners.hotims.com/13974-126">http://www.oners.hotims.com/13974-126</a>	126	27
Fuller Five Landscape Supply	<a href="http://www.oners.hotims.com/13974-148">http://www.oners.hotims.com/13974-148</a>	148	50
Graco	<a href="http://www.oners.hotims.com/13974-118">http://www.oners.hotims.com/13974-118</a>	118	19
Graden USA	<a href="http://www.oners.hotims.com/13974-154">http://www.oners.hotims.com/13974-154</a>	154	51
Green Industry Education	<a href="http://www.oners.hotims.com/13974-159,160">http://www.oners.hotims.com/13974-159,160</a>	159,160	52
GreensGroomer	<a href="http://www.oners.hotims.com/13974-114">http://www.oners.hotims.com/13974-114</a>	114	10
GreenOne	<a href="http://www.oners.hotims.com/13974-141">http://www.oners.hotims.com/13974-141</a>	141	42
Jacobsen	<a href="http://www.oners.hotims.com/13974-162">http://www.oners.hotims.com/13974-162</a>	162	56
John Deere	<a href="http://www.oners.hotims.com/13974-113">http://www.oners.hotims.com/13974-113</a>	113	9
Klawog-Klacon by Wessco	<a href="http://www.oners.hotims.com/13974-156">http://www.oners.hotims.com/13974-156</a>	156	51
KRain	<a href="http://www.oners.hotims.com/13974-111">http://www.oners.hotims.com/13974-111</a>	111	3
Kubota Tractor	<a href="http://www.oners.hotims.com/13974-115">http://www.oners.hotims.com/13974-115</a>	115	13
Laser Leveling	<a href="http://www.oners.hotims.com/13974-116">http://www.oners.hotims.com/13974-116</a>	116	15
Missouri Turf Paint	<a href="http://www.oners.hotims.com/13974-153">http://www.oners.hotims.com/13974-153</a>	153	51
Nature's Wonder	<a href="http://www.oners.hotims.com/13974-158">http://www.oners.hotims.com/13974-158</a>	158	52
Newstripe	<a href="http://www.oners.hotims.com/13974-122">http://www.oners.hotims.com/13974-122</a>	122	16
Ohio State Dept of Hort & Crop Science	<a href="http://www.oners.hotims.com/13974-145">http://www.oners.hotims.com/13974-145</a>	145	47
Ohio Turfgrass Foundation	<a href="http://www.oners.hotims.com/13974-137">http://www.oners.hotims.com/13974-137</a>	137	45
Partac Peat/Beam Clay	<a href="http://www.oners.hotims.com/13974-134">http://www.oners.hotims.com/13974-134</a>	134	33
Peat Inc.	<a href="http://www.oners.hotims.com/13974-146">http://www.oners.hotims.com/13974-146</a>	146	49
Rain Bird	<a href="http://www.oners.hotims.com/13974-123">http://www.oners.hotims.com/13974-123</a>	123	23
RedMax	<a href="http://www.oners.hotims.com/13974-120">http://www.oners.hotims.com/13974-120</a>	120	21
Ring Industries	<a href="http://www.oners.hotims.com/13974-165">http://www.oners.hotims.com/13974-165</a>	165	37
Rotadairon Emrex	<a href="http://www.oners.hotims.com/13974-157">http://www.oners.hotims.com/13974-157</a>	157	51
RTF Turf Producers Association	<a href="http://www.oners.hotims.com/13974-151">http://www.oners.hotims.com/13974-151</a>	151	50
Smithco	<a href="http://www.oners.hotims.com/13974-110">http://www.oners.hotims.com/13974-110</a>	110	2
Southern Athletic Fields	<a href="http://www.oners.hotims.com/13974-127">http://www.oners.hotims.com/13974-127</a>	127	30
Sports Turf Managers Association	<a href="http://www.oners.hotims.com/13974-124">http://www.oners.hotims.com/13974-124</a>	124	25
Stabilizer Solutions	<a href="http://www.oners.hotims.com/13974-164">http://www.oners.hotims.com/13974-164</a>	164	41
SubAir Systems	<a href="http://www.oners.hotims.com/13974-152">http://www.oners.hotims.com/13974-152</a>	152	50
The Toro Company	<a href="http://www.oners.hotims.com/13974-112">http://www.oners.hotims.com/13974-112</a>	112	5
TifSport	<a href="http://www.oners.hotims.com/13974-138">http://www.oners.hotims.com/13974-138</a>	138	40
Turf Specialties	<a href="http://www.oners.hotims.com/13974-155">http://www.oners.hotims.com/13974-155</a>	155	51
Turco Manufacturing	<a href="http://www.oners.hotims.com/13974-150">http://www.oners.hotims.com/13974-150</a>	150	50
TYCROP	<a href="http://www.oners.hotims.com/13974-140">http://www.oners.hotims.com/13974-140</a>	140	42
University of Georgia CE	<a href="http://www.oners.hotims.com/13974-142">http://www.oners.hotims.com/13974-142</a>	142	48
Varicore Technologies	<a href="http://www.oners.hotims.com/13974-161">http://www.oners.hotims.com/13974-161</a>	161	55
World Class Athletic Surfaces	<a href="http://www.oners.hotims.com/13974-163">http://www.oners.hotims.com/13974-163</a>	163	36

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# Fatten up your field

**BY DR. DAVID MINNER**  
Professor, Iowa State University

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**Q:** *I heard you talk about increasing thatch to benefit fields during a Midwest Chapter STMA meeting. Can you explain the benefits of this and indicate how to actually increase this layer, especially in high traffic areas?*  
Chicago

**A:** Fields that have up to a half inch of thatch have more tolerance of wear and recover faster from traffic. The increased layer of biomass, adds cushion to the field and separates players from the soil below (see <http://turfgrass.hort.iastate.edu/extension/grasstrafficsystem.pdf>).

Keeping players from contacting soil will reduce physical breakdown of soil structure (soil aggregates) that leads to soil compaction. The thatch/mat/biomass layer extends approximately one inch below the sole of a shoe when an athlete steps onto a field. Possible components in this zone can consist of: green shoots and stems often referred to as verdure by turf scientists; living crowns and roots; dead and decaying shoots, crowns, and roots; and soil.

In the worst case scenario on highly trafficked fields this zone below a player's foot will contain only compacted soil with no biomass. Fields that have the best chance of tolerating traffic will have a distinct layer of biomass over the soil (thatch) or mixed into the soil (mat). Either way, the layer separates the players' cleats from the area that is distinctly soil below. There are four specific management strategies for cool season fields aimed at making biomass (plant parts) faster than it is destroyed by players or soil organisms:

1) Plant plants – If soil is exposed then turf density is not maximized. Seeding frequently and at higher than normal seeding rates has been catching on as a means of developing plants that can later develop biomass.

2) Grow plants faster to make more shoots, crowns, stems, and roots by fertilizing more with nitrogen – Biomass increases when plant parts accumulate faster than they are destroyed or breakdown. Apply a maximum of 0.75 lbs N/1000 sq.ft./ growing month to stimulate growth on fields that have no visible thatch. Approximately 6 lbs N/1000 sq.ft. can be used with a growing season from April through November.

3) Limit organisms that break down thatch. We have an extremely active earthworm population in my home state of Iowa and consequently most high school football fields are completely devoid of any thatch. This is somewhat controversial since we know that worms are a wonderful and natural method of aerifying soils and reducing compaction.

If we put the horse before the cart, our problem is not compaction; instead it is keeping turf cover in the center of high traffic football fields. Thus, it is logical to reduce worm activity as a means of increasing thatch build-up, especially where it is needed. There are no pesticides specifically labeled for worm control since they are usually thought of as beneficial for soil productivity. Carbaryl (Sevin) is a general use insecticide that is known to suppress earth worms for 30 days.

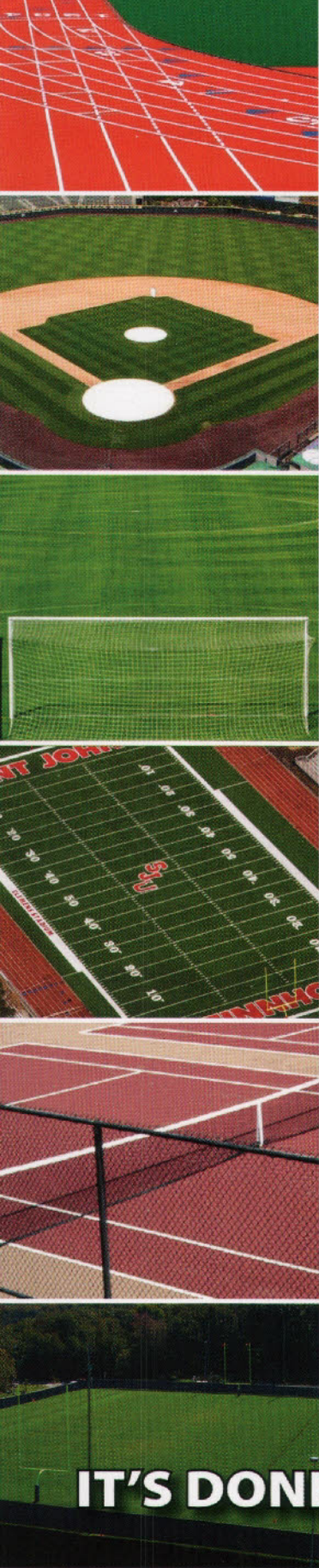
4) Mow shorter and more frequently to maximize the number of shoots per square inch. Again, this is somewhat controversial since we have been trained to develop deep roots with taller mowing. Deep roots are not problem in irrigated turf. If you are in a non-irrigated situation then shorter and more frequent mowing is not recommended for your field since it can lead to shallower rooting and less drought tolerance.

I'll pick on the high schools again since I often observe them mowing tall (often 4 inches or more) and infrequent (often once every 2 weeks) during the summer off-season since the field is not being used for games. When August rolls around the mowing height is lowered to 2 inches in preparation for the upcoming football season. This mowing scenario creates the minimum turf density at the beginning of the football season.

Instead, select the game condition mowing height and do not raise it during the off-season. It may be vacation for the team but you need to keep working the field at the game ready mowing height to build density before the first game in the fall. At the high school level I prefer a 2-inch mowing height mowed twice per week.

Have you ever noticed that highly maintained turf, with short and frequent mowing, usually produces thatch faster? Here is a strategy that will maximize your turf density just before the playing season. Start mowing in the spring as low as possible based on your mower type and budget. It is best to mow just before green-up occurs to avoid scalping off too much new growth. Mowing three times a week at around 1 inch will maximize shoot density. Then raise the height to 2 inches in early August, just in time to start the playing season with maximum turf density and hopefully a little more biomass to make the field play better and wear longer. This should not be attempted if you are not in a position to control weeds, irrigate, and apply a timely fungicide should disease occur.

Remember, your job is to keep the players off of the soil and out of the mud. ■



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