

# Fatten up your field

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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. ■