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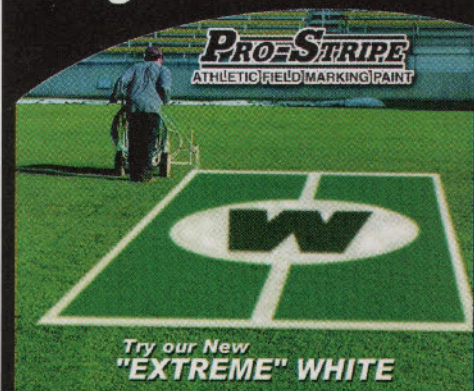
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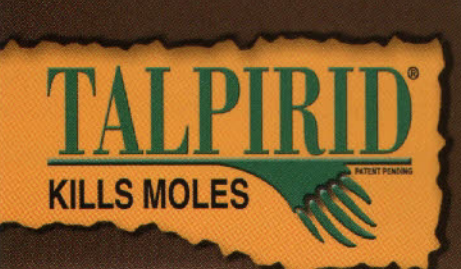
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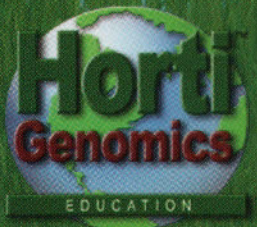
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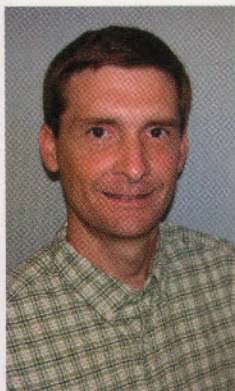
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# Crumb rubber as topdressing

*During a workshop presentation at the 2007 STMA Conference, I was asked about using crumb rubber as a topdressing on athletic fields. Here's my response.*



**BY DR. GRADY MILLER**  
Professor, North Carolina State University

Questions?  
Send them to Grady Miller at North Carolina State University, Box 7620, Raleigh, NC 27695-7620, or email [grady\\_miller@ncsu.edu](mailto:grady_miller@ncsu.edu)

Or, send your question to David Minner at Iowa State University, 106 Horticulture Hall, Ames, IA 50011 or email [dminner@iastate.edu](mailto:dminner@iastate.edu).

**T**opdressing is a positive and useful cultural practice, so I am glad that you have an interest in the subject. Topdressing is usually used to aid in the control of thatch, speed recovery of turf that has stolons, and/or to modify the soil surface. When used in conjunction with core aeration, it can also be used to modify the soil profile.

The typical surface modification desired is increasing water infiltration by adding a coarse texture particle, most often sand. The use of a coarse-textured material such as crumb rubber has been suggested as a means to reduce compactability of a soil and minimize wear. The origin of the crumb rubber is most often shredded or cubed tire pieces.

Previous research has demonstrated that crumb rubber may be an effective topdressing material to reduce surface hardness and protect the crown of cool-season grasses. Another noticeable benefit that has been observed is a quicker greening of grass in the spring due to the dark color of the crumb rubber increasing convection heating. Once the rubber works its way into the soil profile it is not that much of a heating factor. This was certainly the case with bermudagrass in Florida. When rubber was applied just before the grass broke dormancy, we saw a dramatic greening effect for several weeks.

Reports of changes in traction or turf shear have been mixed. In some studies there have been a slight increase and in other studies significant decreases in traction. In some studies I did in Florida, I saw anywhere from a 16 to 31% decrease in traction depending on topdressing rate. A reduction in soil surface hardness has generally been reported in most studies. One Pennsylvania study indicated that a coarse crumb rubber actually increased hardness, but all the other studies I reviewed saw a decrease. In studies I conducted with bermudagrass, I saw a 24% reduction in surface hardness.

What I did not see in my studies was protection to the plant when it was subjected to cart traffic. In fact, I noted more damage in plots that were topdressed with crumb rubber than those topdressed with other materials (particularly sand). There was one report from that Pennsylvania study that indicated that crumb rubber had no effect on density of perennial ryegrass turf under simulated traffic, but generally studies have reported some improvement.

So, why the different results among studies? I still ask myself that same thing. It seems rubber particle size has

something to do with it. In our studies we were using a product that had slightly larger particles than some of the other studies. In fact, it seems the Pennsylvania study also used a larger particle size (think No. 2 pencil eraser size). So, maybe the finer rubber particles perform better. Also, most of the studies were done on cool-season grasses whereas my studies were done on bermudagrass. The differences in growth habit; bunch growth versus stoloniferous growth, may have something to do with it. There are very few scientific studies reporting how these products perform on warm-season grasses.

So, in the end how would I recommend crumb rubber? I would say, I think it has a place. My experience with crumb rubber over 3 years on bermudagrass in Florida with a sandy soil was not as positive as some others have been in different climates, on different soils, and different grasses. In our studies, topdressing with sand, on average, performed the best considering the parameters we measured. This study and others indicated it is tough to beat sand topdressing on bermudagrass. But sand will likely never decrease soil surface hardness to the extent that crumb rubber can; nor is it likely to promote greener turf when the soil is cool since its color does not absorb much light. If these are characteristics that interest you, then crumb rubber may be something you want to try.

Like more information? There has been other positive and negative information related to crumb rubber reported by scientists and turf managers. Some of this information has been scientifically documented and some is just antidotal information. First, an increased release of the element zinc in the area around the rubber has been documented. I have not seen any problems from this reported, but it is a little concerning and should be investigated further. Second, it is a little difficult to get turf established, particularly seeded grasses, in areas with heavy concentrations of rubber. Third, the rubber is easily moved off-site with water sheeting over a thin turf or bare ground. So, the rubber particles may accumulate in low areas or move into drainage basins. Fourth, a thick rubber layer is difficult to core aerify through. The same properties that decrease surface compaction may also work against your cultural practices.

On the positive side, I know people that swear by it for helping out in heavy traffic areas including sidelines, goalmouths, etc. Perhaps the most bazaar comments I have heard is that mole crickets did not like to tunnel in areas with incorporated crumb rubber. While this is unverified, it would be interesting to document. ■





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