and, in all fairness, the clubhouse should help with composting costs — purchase of a shredder/mixer, preparation of a DNR-approved composting site, extra labor, etc. I'd give this venture some very careful thought and probably pay someone to come in and assess the cost and feasibility before making any commitments.

Q: Here we go again: I'm rebuilding some greens to USGA Green Section specs. What do you recommend for the 20% in the 80/20 rootzone mix?

A: In answering this question, I'll make the assumption that you're not going to send sand and organic amendment samples to a lab for testing. In making this assumption, I'm eliminating composted materials from consideration, leaving us with only inorganic materials and peat as choices. We've used one of the inorganic products in our research and cannot recommend it as a replacement for the organic amendment. Thus, I'd shy away from the inorganics until we see the results of some long term research with them. This leaves peat as the material of choice. The USGA specs cite only one criteria for peat selection; it should contain 85% or more organic material. This is a safe and reasonable recommendation. However, Mike Carlson's research indicates that what is really important is the moisture holding capacity of the rootzone mix. This depends as much on the type of sand used as the organic amendment. Sand that shades to the finer side of the USGA specs will hold more water and peats that contain 50 to 85% organic matter seem to perform as well as those that are more than 85% organic. This means that many of our local peats can be used in rootzone mixes. They must, however, be peat and not muck. Peat contains readily identifiable plant fibers. Muck does not.

We have observed that uniformity of bentgrass emergence is key to the quality of putting greens for at least a year after seeding. To achieve uniform emergence, the rootzone mix must have good moisture retention capacity and the moisture retained uniformly throughout the top inch. To meet the latter requirement, the peat need be reduced to a particle size of 2mm or less.

Q: I've been using fertilizers with the trace or micro element package added. Am I doing any good, or am I wasting my money? Any risk of toxicity problems? RICHLAND COUNTY

A: At least up until now, we have not seen a confirmed micronutrient deficiency on turfgrass in Wisconsin. If we do, it's going to take more than the amounts of micronutrients in a typical package to correct the problem. Some of my colleagues have expressed concern that repeated use of fertilizers that contain unneeded micronutrients may lead to toxicities. I'm not aware of any instance where this has happened. If it does, it will most likely be on acid soils.

One of the seniors in the Turf and Grounds Management Program is conducting a study in the greenhouse. He'll be reporting the results of this study in a later issue of The Grass Roots. Suffice it to say at this time that he'll be presenting evidence that one time when micronutrient applications are a must is at the time of bentgrass establishment on 80/20 rootzone mixes.

So why do so many fertilizers contain micronutrients and so many users deliberately purchase fertilizers because of the presence of micronutrients? I'm not sure of the reason or reasons, but suspect its an outgrowth of an earlier era when the attitude was " It doesn't cost much and its good insurance". This is the type of attitude that leads to accusations that the turf industry is environmentally irresponsible.

Q: There are rumors that some units of government in Wisconsin want to ban the use of phosphate fertilizers or phosphorus containing fertilizers on turf. Several questions: 1. Is there evidence to support claims that phosphate fertilizers are contaminating surface waters? 2. If passed, what are some potential problems in turf establishment and nutrition? WAUKESHA COUNTY

A: So far, the banning of phosphate application on turf has not gone beyond home lawns in individual communities. These bans range from total to a partial ban wherein application is permitted only if soil tests indicate a need for phosphate. Madison is considering this type of partial ban and applying it only to commercial applicators, not homeowners.

To say that grassed areas do not contribute phosphate to runoff waters would be totally irresponsible. But what's important to note is how much P is involved and where it comes from. Numerous studies conducted by turf researchers have led to the generalization that P in runoff water from cropland averages 10 times more than from properly maintained turf. Thus, one can reasonably say that until the watershed of a lake contains 10 times more area in turf than cropland, banning P fertilization will have no detectable effect on the amount of P entering the lake each year. Also at issue here is the source of P in runoff water from turf. My own research, while still limited time-wise, indicates that between September 15, 1993, and this past March 7, of the total amount phosphate detected in the 1.12 inches of runoff collected, 78% of the P was contained in runoff from snow melt in February and March. Is this fertilizer P? Chances are next to nil that this is fertilizer P. Rather it is P leached from the dead tissue from dormant grass. Recent research has shown that nearly 30% of the P in frozen turfgrass tissue is leachable. These observations lend credence to what some people have been saying for some time now; the bulk of P in runoff water from residential areas is in early spring, during snowmelt, and comes from decaying leaves and other types of dead vegetation in the area. If what science indicates is true, banning phosphate use on home lawns will have little to no effect on the amounts of phosphorus annually entering our lakes and streams.

In communities where phosphate use on lawns is banned unless a need is indicated by soil test, special actions have been necessary to ensure homeowners access to phosphate-free fertilizers. All natural organic fertilizers contain phosphate, as does virtually every synthetic fertilizer available to home owners. What communities have done is go to local fertilizer distributors and have them blend a zero P fertilizer for local use by homeowners. Personal experiences with these locally prepared fertilizers have generally not been favorable. They're typically loaded with soluble N (urea), contain little or no SRN, use KCl rather than K-sulfate as the potassium carrier, have widely ranging particle sizes that preclude uniform application, and tend to set up like concrete if stored over winter. I'm ready to predict that in the long run, these low quality fertilizers are going to cause more harm then good on home lawns.

Banning all use of phosphate on home lawns is a sure route to eventual degradation of those lawns and eventual increases in the amount of runoff and sediment losses that occur. Except on soil with very high phosphate levels, the nutrient is a must for turf establishment. Without P, the grass stand is thin to begin with and only gets worse over time. The same holds true when soil P levels in established turf drop below the optimum and are not restored.