

Sports turf industry officially loses MSMA



Dr. James Brosnan is the new Technical Editor for *SportsTurf* magazine.

MONOSODIUM METHANEARSONATE (MSMA) is a commonly used herbicide in warm-season climates. Since the 1960s, this product has been used to manage infestations of various crabgrass species (*Digitaria* spp.), as well as goosegrass (*Eleusine indica*) and dallisgrass (*Paspalum dilatatum*) in warm-season turf.

MSMA, an organic arsenical herbicide, contains an organic form of the element arsenic. In its organic form, arsenic is relatively non-toxic. For example, the herbicide MSMA is far less toxic than aspirin (see <http://avogadro.chem.iastate.edu/MSDS/aspirin.htm> or <http://www.cdms.net/LDat/mp47P000.pdf>). However, in an inorganic state, arsenic can be highly toxic. It is important to note that **MSMA only contains organic arsenic**. Furthermore, research has continually shown that MSMA is tightly bound to soil organic matter and is not readily leached.

However, water samples from two golf courses in Florida tested high in arsenic in 2006. This spurred a ruling by the U.S. Environmental Protection Agency (EPA) to cancel the registration of MSMA in all aspects of agriculture, including turfgrass

management. There was a concern that organic arsenic from MSMA could convert into the more toxic, inorganic, form in the environment.

Multiple public comment periods followed the ruling and the response from various facets of agriculture was overwhelming. The MSMA task force, an alliance of chemical companies that manufacture the product and the cotton industry particularly, led the charge. Concerns were raised on a number of issues about the ruling, particularly that no information was provided regarding the type of arsenic detected in the water (i.e., organic or inorganic), the source of the arsenic found, and that there was no way to conclusively say that the arsenic was from applications of MSMA.

Latest ruling on MSMA use in turf

On January 16, 2009 the EPA and the MSMA task force announced the final decision regarding the use of MSMA in turf. Sports turf was not deleted in the January ruling; **however, considering it did not receive the same exemption that was provided to golf courses and sod farms, use on athletic fields will be deleted after December 31, 2010, per the EPA's original ruling in August of 2006**. It is important to note that the January 2009 ruling also indicated that it will be illegal to apply MSMA in the state of Florida, regardless of use site, after December 31, 2010.

Golf courses will continue use of MSMA through December 31, 2013. Newly constructed courses will be allowed one broadcast application, and existing courses will be able to use MSMA only as a spot treatment providing that spots are less than 100 square feet and no

more than 25% of the course is treated within a given year.

Sod farms will be able to use MSMA through December 31, 2013 as well. Two broadcast applications of MSMA will be allowed per crop, and a 25-foot buffer strip will be required for farms bordering permanent water bodies.

The latest ruling deleted "residential turf" as a legal MSMA use site. Thus, lawn care operators will not legally be able to apply the product after December 31, 2010.

What's next?

Before 2013, the EPA will conduct an external review of the scientific information outlining the risks posed by inorganic arsenic in the environment. The use of MSMA will continue beyond 2013 should this review conclude that there are no health risks evident from applications of MSMA on golf courses and sod farms. EPA will also review the role that MSMA plays in weed resistance management before making a decision about use beyond 2013.

The loss of MSMA will certainly make managing weeds in warm-season turf more difficult, and inevitably, more expensive. Research is continually evaluating new compounds, as well as combinations of existing compounds, that will help soften the blow. To follow the latest research being conducted at the University of Tennessee, visit <http://tennesseeturfgrassweeds.org>. ■

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Dealing with the ruling

Sports turf managers have slightly less than 2 years to prepare their fields for life after MSMA. Focusing on a few key principles may help make the transition easier.

Cultural practices. The best defense against any weed invasion is healthy, dense, vigorous turf stand. Implementing cultural practices (aerification, fertility, mowing, etc.) to maximize turf density will make fields less susceptible to weed encroachment. For example, goosegrass thrives in compacted, poorly drained soils. Soils of this nature are commonly found in high traffic areas on sports fields where there is minimal turfgrass cover. Improving soil conditions in these areas through aerification and topdressing will reduce the likelihood of a goosegrass infestation.

Use the product while it is still available. Field managers dealing with infestations of annual grassy weeds should use MSMA while it is still

legal to do so. Make a diligent effort to control these weeds now and then shift the focus to pre-emergence control of annual grasses after 2010.

This point especially rings true for dallisgrass, as there are no options other than MSMA for selective postemergence control of dallisgrass in turf. Herbicides such as foramsulfuron (Revolver) and trifloxysulfuron (Monument) will only provide dallisgrass suppression, not control. Research is currently exploring new chemistries, as well as combinations of existing chemistries, to provide selective dallisgrass control in both warm and cool-season turf.

Effective preemergence practices. The loss of an effective, economical postemergence herbicide like MSMA renders preemergence control of annual grassy weeds more important than ever. When applied correctly, preemergence herbicides such as proflaminate (Barricade), oxadiazon (Ronstar),

dithiopyr (Dimension), and pendimethalin (Pendulum) can provide effective control of annual grassy weeds like crabgrass and goosegrass for extended periods of time. It is imperative that these materials be applied prior to the germination of weed seed and are watered in after application. Most labels require ½ inch of irrigation or rainfall after application. Research will be conducted in 2009 at the University of Tennessee to evaluate the efficacy of the materials under simulated traffic.

The loss of MSMA will have a significant impact on the sports turf industry. Some may think that December 31, 2010 is so far in the future that they need not worry about it now; today's game or tomorrow's practice is more important than preparing for something nearly 2 years away. Those individuals are wrong. Sports turf managers who start preparing for the loss of MSMA now will reap the benefits later. ■

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