2007 Turfgrass Weed Control Summary – MTF Supported Research

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Best Management Practices: Research investigating the effects of cultural practices, such as mowing height, fertility, and strategic broadleaf herbicide applications has been ongoing at the HTRC. Initiated in 1997, this study examined these effects on plots mowed at 4 and 2 inches. In 2003, a similar study was initiated to examine the same cultural practices at what we decided were more common mowing heights—3 and 1.5 inches. In 2005, the first study, BMP I, was put to rest and concentration began on BMP II, which has proven to behave differently than BMP I. While plots were invaded almost exclusively with broadleaf weeds in BMP I, such as white clover, dandelion, and broadleaf plantain in plots mowed at 4 and 2 inches, there has been much more grassy weed pressure, specifically crabgrass, in BMP II plots at 3 and 1.5 inches.

Observing BMP I, it was found that sound cultural practices like regular nitrogen fertility, occasional broadleaf herbicide applications, and an action as simple as raising a mower deck will dramatically decrease a broadleaf's vegetative ability to compete with the turfgrass. Now, with BMP II, observations reveal that the same cultural practices benefit the turf's ability to compete with germination and seedling survival of annual plants like crabgrass.

In 2005 and 2006, the BMP II research is being collaborated with research conducted by Alec Kowalewski from his masters thesis research dealing with the preemergence dandelion activity of senesced tree leaves. These fallen leaves have been applied to the BMP II plots, replacing the herbicides previously applied for BMP I. We are excited to see the effects of the leaves in conjunction with the cultural practices as well as the practicality of the study to homeowners.

In 2007, leaves were again applied to BMP II plots. Shredded newspaper was also included as a treatment so we can better understand whether there is a chemical within the leaves inhibiting dandelion germination or, simply, smothering of the seed. Dandelion populations will be evaluated throughout the spring and summer of 2008.

The Weed Garden, established in 1998, flourished again in 2007. It proved very useful weed identification tool in MSU classes, as extension agents and lawncare operators that stop by the turf center with a weed question, and for the Weed I.D. workshop at field day.

The Lawn Turf Species Demonstration Trial (irrigated and unirrigated), observational trials, were seeded on June 6, 2007. This visual trial will help homeowners and lawn care operators make more informed decisions when choosing turf specie(s) for their lawns. The trial

investigates two factors, turf specie(s) and fertilization regime. The turf specie(s) planted were Kentucky bluegrass, tall fescue, fine fescue, and Spartan Grade A mixture and the fertilization treatments are none, once/year, twice/year, and 4x/year. Sod, one and two year(s) old, was also included as turf species. Two identical trials were planted, one irrigated and the other unirrigated. A map of the trial is presented in Figure 1.

The trial will give observers a look at Kentucky bluegrass, for example, planted on an unrrigated site that receives fertilizer between 0 and 4 times per year. They will also get the chance to compare each of these species to any other as they are all planted in the same 60 ft^2 block. It will also aid lawn care operators in their recommendations as they can show visual differences between species in differing sites and receiving different amount of fertilizer throughout a year. All of these planted species can also be visually compared to sod, hopefully helping buyers decide if the extra cost of sod is worth the benefit(s).

A Low Input Sustainable Turf (LIST) trial was also planted in 2007, on September, 17. This regional cooperative research project is made up of Kentucky bluegrass, tall fescue, hard fescue, chewings fescue, tufted hairgrass, prairie junegrass, Texas bluegrass hybrid, colonial bentgrass, Idaho, bentgrass, and sheeps fescue – multiple cultivars are evaluated for some of these species. The turf will be mowed at three inches, it will not be fertilized or irrigated after establishment, and will not receive pesticide applications of any kind. Turfgrass quality, establishment, density, percent cover, and disease pressure, will be collected monthly over two growing seasons.

Figure 1: The Lawn Turf Species Demonstration Trial