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Mowing Practices Reduce Runoff From Turf

SEARCH

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We have known for some time that grasses forming a contiguous ground cover are very effective for reducing runoff and sediment losses from agricultural areas. Managed turfgrasses tend to prevent runoff extremely well because they form a dense cover near ground level due to regular mowing. In fact, researchers at the University of Maryland found that tall fescue sod was more effective for reducing runoff than manmade materials designed specifically for that purpose (Krenitsky et al, 1998).

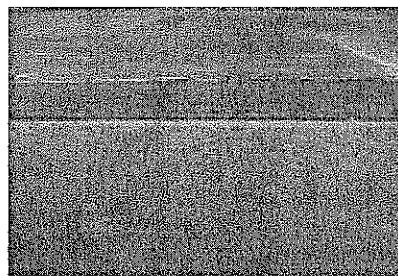


Figure 1. Runoff slows and puddles as it flows across turf mowed at 0.5 inches and encounters a buffer mowed at 2 inches on a 5 percent slope.

Although turf makes an excellent surface for runoff reduction, it does not prevent runoff entirely. A small portion of the nutrients and pesticides applied to turf for general maintenance are occasionally lost in runoff and end up in streams, lakes and other surface water. These chemical losses help to contaminate drinking water and to form the "dead zones" that occur in the Chesapeake Bay, Mississippi Delta and many other water features throughout the world. By using sound chemical application practices and an effective runoff management plan, most of these runoff losses from turf can be prevented.

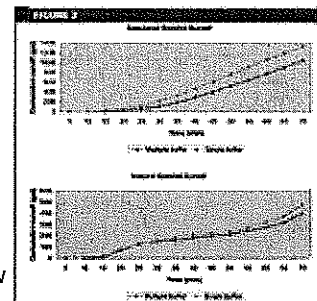
Management practices as simple as mowing height can improve our environment and reduce our losses of nutrients and pesticides. Practicing environmentally sound management can improve our environment and help prevent criticism of our industry.

As turfgrass managers, we have a responsibility to our environment as well as to our clients and colleagues. We should be aware of management techniques that help reduce runoff and environmental contamination.

A good runoff prevention program is a combination of common-sense practices, management experience and attention to research results. For instance, applications of fertilizers or pesticides to saturated soil, frozen soil or non-target surfaces such as concrete or plastic are likely to increase chemical runoff during subsequent rainfall events.

Maintaining dense turf inhibits runoff, but maintaining dense turf through a program of over-fertilization or unnecessary pesticide applications not only wastes money but encourages chemical losses to run off. Soil tests and growing conditions determine when fertilizer is required. Environmental conditions or symptoms determine when pesticide applications are necessary. Application timing is critical to environmentally sound management.

Good planning can result in application windows that allow us to apply chemicals when weather conditions are most



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suitable for chemical activity and runoff losses are least likely to occur. Post-application weather forecasts should not be overlooked. A major rainstorm following a chemical application is quite likely to result in chemical losses to runoff.

Figure 2. Runoff from bermudagrass bordered by a single-height buffer compared with runoff from a multiple-height buffer during 70 minutes of precipitation.

The use of slow-release nitrogen and phosphorus fertilizers and aeration should be part of the runoff prevention program. Slow-release nitrogen and phosphorus sources only provide a small amount of soluble nutrient at any given time, reducing the potential for nutrient runoff.

Aeration helps to increase the surface infiltration rate and slows soil saturation that results in runoff. It could be argued, however, that aeration results in a greater leaching potential by moving chemicals through the soil more quickly. However, the soil is a great filter and can provide some resistance to nutrient or pesticide losses.

One of the most effective management practices for reducing runoff is mowing. As long as the mowing height remains in the range of species adaptability, turf tends to increase in density as the mowing height is lowered.

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