

## **AGRONOMIC PRINCIPLES FOR MANAGING HOMELAWNS**

**R.C. Golembiewski**

**Department of Plant Sciences**

**Montana State University**

The turfgrass industry consists of well-educated individuals who are in constant pursuit of education to strengthen their overall turfgrass management skills. Most are aware that basic agronomic principles such as soil testing, mowing, fertility, irrigation, and other secondary cultural practices are the cornerstone of any effective turfgrass management program. However, many turfgrass professionals have become so intrigued with having the “perfect” turfgrass stand that they have forgotten about the basic agronomic principles for managing homelawns.

### **Soil Testing and Fertility**

Soil testing is defined as any chemical measurement of the soil for 1) identification of nutrient deficiencies, 2) predicting nutrient needs (fertilization), 3) revealing nutrient, salt, or metal imbalances, and 4) assessing other aspects of the soil that might affect turf growth (pH, OM levels, salts). It is very important when managing homelawns to assess the soil conditions and to proceed with a management plan based on the soil test results. General guidelines for timing of sampling include not after fertilization; same season of the year for routine testing unless a problem exists; every 2-5 years for routine testing; and for new turf stands every 1-2 years until the tests stabilize. For specific procedures in sampling soils contact your soil testing laboratory.

Nutrition is the sum of processes by which a plant takes in and assimilates nutrients. Factors to evaluate in fertilizer program planning include: turfgrass species and cultivars, soil texture, irrigation, budget, equipment, soil test results, condition of turf, season of year, quality of turf desired, use of turf, clipping removal, and the environment.

### **Mowing**

Mowing is defined as the periodic removal of a portion of the turfgrass shoot. Proper mowing height is critical to turfgrass health because it 1) allows for proper food production, 2) reduces stress on the plant, 3) inhibits weed growth, and 4) reduces irrigation requirements. In turfgrass mixtures, mow at the height of cut for the predominating grass species.

Mowing frequency should be based on the growth rate of the grass, not on a set time schedule. The general rule of thumb is to never remove more than 1/3 of the leaf tissue at any one time. This means mowing heights should be higher or mowing intervals closer in the spring and fall when the turfgrass is actively growing. If more than 1/3 of the leaf tissue is removed, severe shock to the plants occurs as a portion of the root system is lost. This occurs because the shoots have priority over roots for carbohydrates.

With regard to clippings, Michigan is 1 of 24 states that has implemented yard waste bans. Fortunately, mulching mowers have become an integral tool in homelawn management. Research has shown that returning clippings benefits turfgrass growth by adding as much as 1 lb. N per 1000 sq.ft. annually.

### **Irrigation**

Irrigation is needed by turfgrass for germination, growth, photosynthesis, nutrient transport, transpiration, turgidity, bacteria and fungi activity, and combatting diseases. Water needs can be estimated by looking at the turfgrass plant, looking at the soil, and/or using weather data, but irrigation rate factors are determined by soil texture, slope, degree of compaction, and thatch/turf density. There are many factors to consider when determining the timing and frequency of irrigation, but in general to keep a homelawn green about 1-1.5 inches of water needs to be applied weekly during the non-rainy periods of the summer. To keep the lawn alive and dormant, but not green, requires about 0.25-0.33 inch of water weekly.

### **Secondary Cultural Practices**

Cultivation is defined as any mechanical method for selective tillage of established turf without destruction of the turf. Cultivation practices are primarily designed to reduce problems associated with thatch and soil compaction. The principal types of cultivation used for managing homelawns are coring, spiking, and vertical mowing. Cultivation practices are preferred during periods of active turf growth with the exception being during crucial weed seed germination periods.

Coring, often called aerification, is the predominant secondary cultural practice used in homelawn management. Benefits of coring include 1) release of toxic gas from the soil, 2) improved wetting of dry or hydrophobic soils, 3) accelerated drying of persistently wet soils, 4) increased infiltration capacity, 5) stimulated root growth, 6) increased top growth, 7) disruption of soil layers, 8) control of thatch, and 9) improved turfgrass response to fertilizers.