Late-Season Nitrogen Fertilization

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It has been pointed out that heavy nitrogen fertilization during the spring and summer is undesirable for cool-season turfgrasses. Nitrogen fertilization has proven beneficial during the late fall (late season) on cool-season turfgrasses (Powell, Blazer and Schmidt). Decreased disease, improved stress tolerance and increased rhizome and root growth are among several of the claimed advantages to the "late-season" nitrogen fertilization program. The late-season program is based on differences in optimum temperatures that exist between (1) root-rhizome growth versus shoot growth and (2) photosynthesis versus respiration.

Shoot and root growth of cool-season turfgrasses occur most readily in the temperature ranges of 60-70°F and 50-65°F, respectively. Root growth of cool-season grasses will continue at soil temperatures close to freezing (Koski, 1983). Shoot growth will cease at higher temperatures than that for root growth. Late-season nitrogen fertilization capitalizes on this differential. Under late-season fertilization, nitrogen applications should be made when vertical shoot growth has stopped, but the turf leaves are still green to produce carbohydrates via photosynthesis. Air temperatures of 45-50°C are usually necessary for vertical shoot growth stoppage. *It is important to understand that since temperatures will be at a point causing stoppage of topgrowth, roots, rhizomes and stolons will capitalize on any applied nitrogen.* The carbohydrate produced will be more efficiently used for root, rhizome and stolon growth during the late fall and winter periods. It is critical that the nitrogen be applied prior to dormancy for maximum efficiency of applied nitrogen. Once the tissue has turned brown, photosynthesis will no longer occur. "Late-season" fertilization is not dormant fertilization.

During late fall, photosynthesis is higher than respiration for cool-season grasses. With green tissue, photosynthesis will occur readily at low temperatures. The high net photosynthesis during late season leads to maximum carbohydrate production and carbohydrate storage for reserves. The positive carbohydrate balance favors root and rhizome growth over topgrowth since air temperatures are well below that considered optimum for shoot growth.

Nitrogen applications during the late season if timed properly will extend the green of the turf later into the fall and winter. Spring green-up will normally occur earlier. The green turf is photosynthetically active favoring a positive carbohydrate balance. Late-season nitrogen fertilization increases the "green growing" period of the turfgrass plant later into the fall and earlier in the spring. Physiologically, this is a positive agronomic practice.

The most efficient nitrogen fertilizers for use in late-season fertilizaton programs are those independent of temperature for nitrogen release. Soil temperatures and microbial activity are low at this time of year resulting in less efficiency from methylene urea and other temperature-dependent fertilizers. Urea and IBDU are fertilizers that are independent of temperature for nitrogen release and therefore, make for excellent late-season nitrogen sources. IBDU, having a slow-release characteristic, will not cause surge growth even if misap-

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plied (e.g. too early) in the late-season program. Nitrogen is a key component of turfgrass fertilization programs. It has an influence on both the morphology and physiology of the turf plant. High quality turf exhibiting acceptable green color and density requires periodic applications of nitrogen. Nitrogen, however, is frequently referred to as the "TNT" of turfgrass fertilizations programs. It can be as detrimental as beneficial if it is mismanaged. Physiologically, the turf manager must maintain a good carbohydrate reserve. Proper timing and rate of application are important in successful long-term programs. Always remember: greener is not always better. A happy medium must be reached between agronomics and aesthetics.

Credit: Patch of Green Nov./Dec. '85

Add-On Electronic Ignition System ... And It's Retrofittable

Mower starting problems most likely center on the ignition breaker points. To help avoid this problem, there is now available, from Briggs & Stratton Corp., an add-on electronic ignition system that replaces points, condenser and distributor cam, where problems can occur. The new system, called Magnetron®, produces a hotter, more reliable spark and replaces an engine's breaker points and condenser with a tiny, transistorized module.

The system can be retrofitted on virtually all of the company's engines manufactured since 1963.

The module is sealed in a plastic capsule which eliminates common problems associated with breaker point systems — dirt, water and oil that can gradually short out or corrode the ignition system. Best of all, once the unit is installed, it needs no maintenance or adjustments, which, over the life of an engine can save hours of down time.

Electrically, the Magnetron replaces old components, but physically none of the old parts need to be removed. In most cases the system can be installed in 30 to 45 minutes, according to the company.

The first step, is a test procedure to make sure the engines stop switch works properly. This insures that the engine won't start accidentally.

The tools needed to complete installation are: a screwdriver, slip joint pliers and a flywheel holder.

Initially, the blower housing must be removed. Next, the rewind mechanism must be taken off. The next task is wiring the Magnetron module to the ignition system. First, insert the armature primary wire (and stop switch wire, if needed) into the module terminal (see drawing). Next, solder the wire ends together. A spring loaded catch, incorporated in the system, holds the wire ends securely in place while you solder.

Next, twist the long module ground and armature ground together, solder the joint, cut off the shorter end with a wire cutter or scissors. These wires should be glued to the coil with Permatex #2 sealer to protect from vibration.

To test the new ignition system simply pull the starter rope, or turn ignition key.

A detailed instruction sheet is provided in the Magnetron kit.

For more information, contact the Briggs & Stratton Corporation, P. O. Box 702, Milwaukee, WI 53201.

Credit: Divot News 7/84