LM REPORTS

Use wetting agents, cultural procedures to reduce dry spots

■ Localized dry spots appear in hot, dry weather as varied patterns of brownish or tan turf. As the condition worsens, the turf begins to wilt or take on a bluish color. Water runs off the turf, and the underlying soil is dry.

Localized dry spots are often caused by fungi which coat the soil and repel water, or hydrophobic/hydrophilic thatch or soil.

In research conducted at Ohio State University from 1989 to 1991, Drs. Robert Hudson and Karl Danneberger noticed that soils with localized dry spots had greater amounts of organic matter fractions than wettable soils. The only structural difference observed was from dry spots that occurred on three-year-old greens, and this was only detected following an initial extraction with methanol.

According to Hudson and Danneberger, there is a "unique structure, or interaction between several structures," occurring in the dry soils, and this serves as a priming agent. The syndrome is worsened by continued drying cycles. The researchers report that the origin of the organic compounds could not be determined, but say it is probably derived from bentgrass roots, soil microflora, or both.

Proper treatment ideally starts with prevention, which is difficult since dry spots are difficult to predict.

Hudson and Danneberger suggest the following treatment:

- Topdress with sand containing a minimal amount of fine particles. Small particles may tend to aggravate the problem over time.
- Core aerate in spring and fall.
- Use wetting agents to reduce the surface tension of water. These are best used in a preventive program.
- Eliminate thatch buildup as a preventive measure.

(Syringing greens serves only to lower the canopy temperature, and rarely solves the problem.)

Danneberger: Use wetting agents as a preventive measure.

...for nutrient uptake, thatch penetration

■ Wetting agents are often effective in increasing foliar uptake of nutrients like iron and nitrogen. By spreading water over the leaf tissues and wetting the waxy cuticle, greater stomatal and cuticular absorption can occur. In some instances, herbicide and fungicide activities may also be enhanced by wetting agents.

On sloped areas where thatch contributes to water run-off, a wetting agent can allow rapid wetting of the thatch and better water infiltration. Thatch tends to become hydrophobic (water repellent), and wetting agents are effective in correcting these conditions for one to two weeks after

to page 32

WETTING AGENTS FOR IRRIGATION MANAGEMENT

COMPANY	PRODUCT NAME	NOTES	CIRCLE NO.
Aquatrols Cherry Hill, N.J.	Aqua-Gro	Increases efficiency of pesticides and PGRs; aids herbicide penetration.	**300**
W.A. Cleary Somerset, N.J.	Super-Wet/ Super Wet 15-G	Non-ionic; 15-G is a granular, formulated for golf course use.	**301**
Grace-Sierra Milpitas, Calif.	Hydraflo	Blended non-ionic; less required; reduces leaf wetness and dew-related problems; also in granular.	**302**
Kalo, Inc. Overland Park, Kansas	Hydro-Wet	Can be metered into injection systems; available in ready-to-apply and granular forms.	**303**
Lesco, Inc. Rocky River, Ohio	Accu-Wet	Non-ionic; can help reduce irrigation needs by half.	**304**
Loveland Ind., Inc. Greeley, Colo.	LI700	Non-ionic/biodegradeable; extends activity of insecticides and fungicides.	**305**
Parkway Research, Inc.	Wet Foot	Can be used on all types of turf, trees, shrubs, potted plants,soil mixes; rates as low as 16 oz./acre.	**306**
PBI/Gordon Kansas City, Mo.	Aqua-Zorb	Non-ionic/biodegradeable; can be used in nurseries, on mulch, peat moss, balled trees.	**307**
Precision Labs, Inc. Northbrook, ILL.	Paragon	For dew removal, phytotoxcity reduction, soil moisture retention, evapotranspiration reduction.	**308**
Roots, Inc. New Haven, Conn.	Noburn	Tank mix compatible with liquid fertilizers/pesticides; does not need watering in.	**309**

Source: LM phone/mail survey, Sept. 1992

NUTRIENT *from page 31*
application.

For one to two weeks after applying a wetting agent, less dew is evident, as it spreads over the leaves and thatch instead of forming droplets.

On golf course greens or high maintenance turfgrasses, wetting agents can inhibit diseases. However, on home lawns this side benefit is not solely important enough to warrant applying a wetting agent.

On hydrophilic (wettable soils), which are the vast majority of turfgrass soils, wetting agents have sometimes been applied to improve drainage, structure, rooting and/or aeration. These benefits of wetting agents on hydrophylic soils have not been consistently documented in research studies, nor is there reason to believe any significant benefits would occur.

— Dr. Robert Carrow, University of Georgia, writing in the "Georgia Turfgrass Association News."

Types of adjuvants

■ An adjuvant is a material which, when added to another material, aids or modifies the action of the principal ingredient.

Adjuvants fall into several categories:

1. Surfactants, including wetters, wetting agents, spreaders. These products lower the surface tension of the spray solution. As a result, spray droplets will "flatten" and cover a larger area. They are used for general improvement in spray material coverage. Pesticides with contact modes of action are most appropriate for use with this kind of adjuvant.

2. Penetrants are adjuvants that enhance the uptake of the pesticide into the target. Thus, the pesticide is made more immediately available to do the job for which it was intended.

3. Anti-foamer/de-foamer products are used for preventing or eliminating foam from the spray mixture.

4. Compatibility agents make it possible for combinations of pesticides or pesticide/fertilizers to be mixed and applied concurrently. They also may allow you to salvage materials that have become incompatible.

5. Suspension agents are products which enhance suspendability and resuspendability of pesticidal materials.

6. Crop oil concentrates were originally developed for use with post-emergence herbicides. They enhance coverage and improve penetration or uptake.

7. Stickers, with true adhesive properties, are used to enhance retention of the spray deposit on the target. They also increase the initial deposition of the pesticide. The idea is to retain the chemical material long enough to do its job.

8. Drift reduction agents reduce the number of very small droplets produced by a spray nozzle. Larger droplets are thus heavier so they tend to fall more directly to the target.

9. Tank and equipment decontaminants remove residues from equipment following use. Product that remains in the spray equipment may interfere with material used later. Many pesticide manufacturers specify methods of removing residues from equipment following use.

—Bob Reeves, technical services mgr, Loveland Industries, Inc., Greeley, Colo.