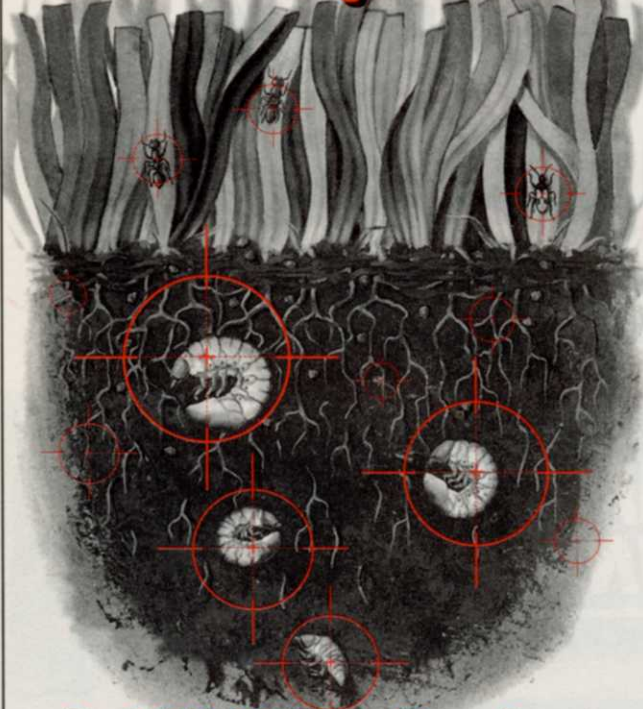


With A Single Application, Control 22 Tough Turf Pests



And All Of Your Toughest Customers

With The Andersons Professional™ Turf fertilizer with Turcam® insecticide, you've got a fast-acting, long-lasting formula that gets you the results you need to please your most discriminating customers.

The success of fertilizer with insecticide combination products is related to particle distribution and getting the most out of the granule's active ingredient.

The Andersons' mini-granular particle sizing used in formulating our Professional Turf Products with TURCAM is carefully controlled to:

- Ensure maximum ease and uniformity of application for lawn care professionals.
- Provide the particle ballistic characteristics needed for efficient operations.
- Eliminate excessive dustiness or pattern disruption due to wind.

*The Andersons.
Uniformly the best in the business.*

1-800-225-ANDY

**The
Andersons**

CAUTION: TURCAM is a restricted-use pesticide.

© TURCAM is a registered trademark of Nor-Am Chemical Company.

Circle No. 104 on Reader Inquiry Card

Compaction from page 24

is influenced by:

- 1) soil texture (coarse texture = less compaction)
- 2) severity of pressure (lighter traffic = less compaction)
- 3) frequency of pressure (less traffic = less compaction)
- 4) amount of vegetation (more vegetation = less compaction)
- 5) soil water content (dry soil = less compaction)

Other problems—As soils become more compacted, other problems find a window of opportunity. Dr. A.J. Turgeon, in "Turfgrass Management," reports:

"Turfgrass communities growing in compacted soil are often invaded by various weed species [such as goosegrass, knotweed and annual bluegrass]. Some weeds that typically grow under these conditions may possess the capacity to transmit foliar-absorbed oxygen to their roots to satisfy respiratory requirements. Thus, specific weeds may have a definite advantage over many turfgrasses through their ability to persist under these conditions."

Besides weeds, other problems crop up like decreased drought resistance, wilt, and some diseases.

"Turfgrass growing under compacted conditions," observes Dr. J.R. Hall III, "has less stored food reserve, more succulent tissue, and greater proneness to wilt and disease. This lack of growth and competitiveness often leads to greater need for irrigation, herbicides and fungicides. Dealing with compaction can therefore save money in the long run."

Dr. R.N. Carrow adds another cost factor to the equation: grass plants use 25 to 50 percent less water under non-compacted versus compacted conditions, but low infiltration rates under compaction make irrigation very difficult. "The grower often finds it necessary to irrigate with low quantities of water on a frequent basis," he notes, "which greatly increases evaporational losses. Therefore, total water use actually becomes greater under compacted conditions."

Cultivation—The number one cultural practice that helps to alleviate soil compaction is cultivation (aeration/aerification). But proper timing is critical.

"Cool-season (grasses) generally require heavy aerification spring and fall with additional cultivation if traffic is heavy," says Dr. Hall. "Warm-season bermudagrasses are best aerified as soon as they have greened up in the spring and through the summer growing period."

"Spring cultivation should be done early enough to allow Kentucky bluegrass, tall fescue or perennial ryegrass time to heal before crabgrass germination begins in late April or early May," adds Dr. Hall. "This is not as critical if good pre-emergence herbicides are applied."

"Aerification too early in the spring or too late in the fall when the turf is not competitive may increase the potential for annual weed invasion. Likewise, aerification during periods of limited moisture may aggravate limited moisture conditions by increasing evaporative water loss from the soil."

Other procedures for halting the problems of soil compaction are listed in the accompanying tables (page 30).

—Jerry Roche

Ammonium sulfate fertilizer suppresses summer patch

■ Researchers at Rutgers University in New Jersey have found that using ammonium sulfate fertilizer (21-0-0-24S) suppresses summer patch by changing soil acidity, according to Dr. Joseph Heckman.

Dr. David Thompson, Rutgers plant pathologist, explains: "Ammonium sulfate reduces the soil pH almost immediately, and

continued on page 30

Sulfate from page 26

that has been shown to suppress summer patch in our tests on Kentucky bluegrass.”

Thompson notes that the commonly-used fertilizer urea will lower the pH somewhat in the long term, but in the short term it actually encourages summer patch. Tests showed a 60 to 80 percent reduction in summer patch when ammonium sulfate was applied, compared to a 35 to 45 percent reduction with sulfur-coated urea. And, after two years, there was no significant reduction at all of the pH when urea fertilizer was used.

What is it?—Summer patch affects

cool-season grasses such as Kentucky bluegrass, annual bluegrass and fine fescue. It generally occurs on turf that has been established for more than two years. The fungus remains dormant over the winter months but thrives in hot, humid summer weather.

Summer patch attacks the grass roots and produces small circular patches of turfgrass that is dead above the ground. The patches may enlarge and blend into one another, resulting in large ragged areas of straw-colored grass and a very unsightly lawn.

Rutgers turf specialist Jim Murphy says

that continued use of ammonium sulfate can virtually wipe out the summer patch fungus.

“In 1992, on test plots where ammonium sulfate had been applied for three years, we saw no summer patch at all and didn’t need to use any fungicides. On plots without ammonium sulfate, we saw substantial disease activity.

“The summer patch suppression we saw in 1992 was likely influenced by the mild summer weather last year. But that underlines the strong effect that ammonium sulfate fertilizer alone had on the disease.

Check soil pH—When using ammonium sulfate over a period of time, you may need to apply lime to maintain a favorable soil pH, Dr. Heckman points out.

“A soil pH level of 6.0 to 6.5 (slightly acidic) is ideal for most turfgrass species. You should have a reliable soil test performed every two to three years, and adjust to a pH of 6.0 where summer patch is known to occur.”

Golf course superintendents who use ammonium sulfate regularly say it promotes early green-up when applied in the spring. They also apply it in the fall to keep plants stronger and more disease-resistant over the winter.

Not all commercial lawn fertilizers contain ammonium sulfate. Read labels or ask your fertilizer dealer for further information.

Cultivation improves water relations on compacted soils by:

- **Greater root viability**

- primarily by enhancing soil O₂ status
- by reducing penetration resistance

- **Improved infiltration/percolation**

- reduces runoff
- allows for better irrigation programming
- reduces evaporation losses

- **Enhanced root extension**

- by improving physical conditions
- by altering chemical properties when cultivation is used to inject lime, gypsum, phosphorus

Source: Dr. R.N. Carrow

Cultivation Treatments Enhancing Soil Water Uptake By Turfgrass Roots¹

PROCEDURE	APPLICATIONS/YR.	ENHANCED WATER EXTRACTION	
		Frequency ²	Magnitude ³
		%	
Floyd McKay Deep Drill	2	100	50 to 120
Aerway Slicer	2	100	38 to 41
hollow tine core aeration	2	50	38
Verti-Drain + hollow tine core aeration	2+2	45	28 to 96
Yeager-Twose Turf Conditioner + lime	2	30	13 to 32
Verti-Drain	2	20	30 to 70
Yeager-Twose Turf Conditioner + gypsum	2	7	27

¹Studies conducted on a compacted Cecil sandy clay loam

²Frequency (%) = percent of water extraction measurements that exhibited greater water extraction than the compacted control

³Magnitude (%) = percent increase in water extraction over the compacted control

Source: Dr. R. N. Carrow