Coated fertilizers explained

Manufacturers rely on polymers to improve and, in some cases, eliminate sulfur coating.

■ Turfgrass managers—and, increasingly, homeowners, too—are embracing the use of coated fertilizers.

"Coated fertilizers represent the fastest growing segment in controlled-release technology," says Harvey M. Goertz of O.M. Scott & Sons. From 1980-1990 sales of coated fertilizers grew 10 percent annually, while sales of all controlled-release fertilizers grew at a rate of 4 percent.

All of this has taken place since the Tennessee Valley Authority developed sulfur coated urea (SCU) in the 1970s. Heated granules of urea are passed through molten sulfur. Sulfur is used because of its nutrient value and its low cost.

But because sulfur eventually shrinks and cracks, the granule is also often treated with a wax sealant. Finally, the granules receive a flow conditioner to keep them from sticking together or gumming up equipment.

"One of the reasons why SCU is used as opposed to other types of controlled-release nitrogen—no matter who makes it—is that it's the most cost-effective, slow-release nitrogen source on the market today," says Dr. Bruce Augustin of Lesco.

Better release—SCU releases nitrogen at a steadier and more prolonged rate than does urea because its coating partially prevents water from reaching the prill, decreasing the liklihood of surges in turfgrass growth and of "burns." More importantly, the turfgrass stays greener longer.

The nitrogen escapes into the soil through imperfections in the sulfur coating. The release rate is affected by coating thickness and quality, and, in the case of SCUs with a wax sealant, temperature also. Microbes must attack the sealant to uncover cracks in the granule.

SCU has some drawbacks. Particles with too light a coating can break and release their nutrient too soon. SCU is a statistical blend of many different coating weights and qualities. This minimizes the effects of particles receiving too light or too heavy coatings.

More precise—Manufacturers say that polymer technology gives them more precise and uniform coating capabilities. Also, by using a polymer, the sulfur coating can be reduced.

"Polymer-coated fertilizer provide a higher degree of controlled release," says John Detrick of Pursell Industries. "It's much more predictable, even after lots of mechanical jostling."

Polymer-coated fertilizers aren't new. They've been around since the late 1950s, says Augustin. But today's products have only become widely available to turfgrass managers in the last two years.

Several major manufacturers market polymer-coated, controlled-release fertilizers with similar names: Polyon by Pursell Industries, Poly-Plus by Lesco, and Poly-S by O.M. Scotts. Grace Sierra's turfgrass product is known as Once, and Cedar Chemical has its Multicote (technically, resin coated).

Although similar in purpose, there are differences in these products.

Some differences—Pursell, for instance, uses its patented reactive layers coating (RLC) process—two co-reactive liquids polymerized to form ultra-thin coatings over a nutrient, usually urea. Detrick says the nutrient release rate, via osmosis, can be programmed by the coating thickness. Polyon is a nutrient (urea) core surrounded by polyurethane.

By contrast, both Lesco's Poly-Plus and Scotts' Poly-S fertilizers have both sulfur, for economics, *and* polymer coatings.

Grace Sierra and Cedar Chemicals apply oil-based resins to coat several different fertilizer substrates. For instance, Cedar's Multicote is coated potassium nitrate.

Coated fertilizers are often manufactured to specific granule sizes and coating thicknesses for specific uses:

- **Standard:** lawn care, homeowner, nurseries
- **Mini-granules:** lawn care, golf courses
- **Micro-granules:** golf greens

By increasing the thickness of the polymer coating, a manufacturer can produce (and probably already has) coated fertilizers that release nutrients for over a year or more. There are practical reasons, including the cost of polymers, why this isn't practical. Besides, how much fertilizer does anyone want to put down in a single application to give the turf its four or five pounds of nitrogen a year?

For a faster green-up, coated fertilizers are often sold in blends with uncoated, more readily available forms of nutrients.

—Ron Hall

Advantages of polymer-coated fertilizers:

- More consistent nutrient release rate.
- Higher N levels available because of thinner coating.
- Less breakage during handling cutting down on premature release and dust.
- More complete release of nutrient.
- Wide range of product sizes, release rates, nutrients.

For more information:

Cedar Chemical Corp.
5100 Poplar Ave Ste 2414
Memphis, TN 38137
Circle No. 300 on Reader Inquiry Card

Grace Sierra
1001 Yosemite Drive
Milpitas, CA 95035
Circle No. 301 on Reader Inquiry Card

Lesco, Inc.
20005 Lake Road
Rocky River, OH 44107
Circle No. 302 on Reader Inquiry Card

O.M. Scott & Sons Company
14111 Scottslawn Road
Marysville, OH 43041
Circle No. 303 on Reader Inquiry Card

Pursell Industries
P.O. Box 540
201 W. Fourth St.
Sylacauga, AL 35150
Circle No. 304 on Reader Inquiry Card