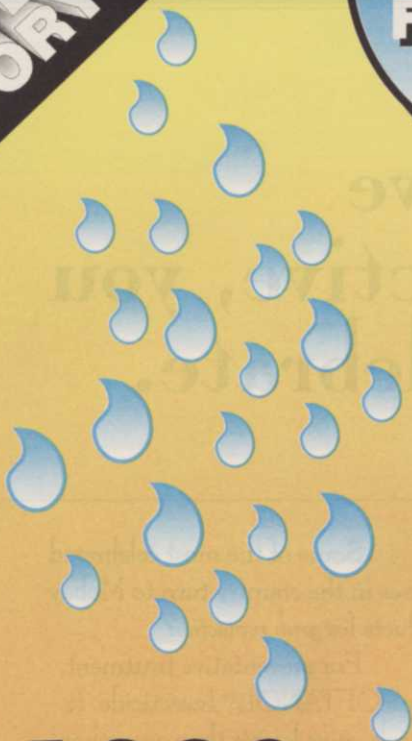


FERTILIZER TRENDS



1980s



1970s
1990s



LIQUID VS. DRY: THE PENDULUM SWINGS

As customers demand more dry fertilizers because of what they see in the news, the lawn care industry responds.

by Terry McIver, associate editor

Is the lawn care industry doomed to be forever pestered by image problems?

Like a toy poodle nipping at its heels, outcry against chemical product safety or efficacy are relentless.

Even within the industry itself, there are biases toward certain products—inclinations that have shaped how companies do business.

In this case, the subject is liquid and dry fertilizers: what do you use, and why?

When ChemLawn first treated lawns in the late 1960s, it was the trailblazer in liquid lawn care. High-tech, high-volume was the way to go. By the late 1970s and early 80s, there was a preponderance of liquid lawn care companies.

The image problem began about 1983. Activist and media attention and phrases such as "spray drift" and "runoff" and "seeping into the groundwater" aroused public demand for more granular fertilizer ap-

plications, which many companies were already using.

So we touch ground in the 1990s, although we're not always landing feet first. And beyond the hype and misinformation, there are valid reasons to choose one or the other formulation.

Agronomic equality

Dr. Chuck Darrah, president of Ag-Vantage, a Columbus, Ohio agricultural consulting firm, says that

agronomically, liquid and dry fertilizers can be used to perform equally.

He reminds turf professionals that, "most nitrogen sources that are used in dry fertilizers are available in liquid form, for example, urea."

Urea is the most commonly-used form of nitrogen in both liquid and dry lawn fertilizers. Darrah says research has shown little or no difference in turf growth and color response to the two forms of N application.

"Likewise," adds Darrah, "the controlled release methylene urea fertilizers as well as the slow release ureaformaldehyde fertilizers and IBDU can be used in liquid sprays or dry fertilizers. Their performance is the same with either application method. The most common exception to this rule is sulfur-coated urea, because it is a product which should only be applied dry. And with a few exceptions the same case can be made for all pesticides. They are available as liquid or dry products and either form can be used to achieve the same results."

View from the field

Lawn care professionals interviewed by *Landscape Management* all prefer granular fertilizers over liquid formulations. Their reasons range from the technical to the psychological.

"You don't have as much surge growth—or quick growth—with granular products as you have with liquid applications," says Bob Priest of Personal Touch Lawn Care, Denver.

Tim Combs, of Combs Landscaping in Westlake, Ohio, says his company has used granular products since it entered the lawn care business 20 years ago. Combs prefers granular products because they are less volatile than liquids.

"With the granular," says Combs, "you get it down into the soil with a little better effectiveness."

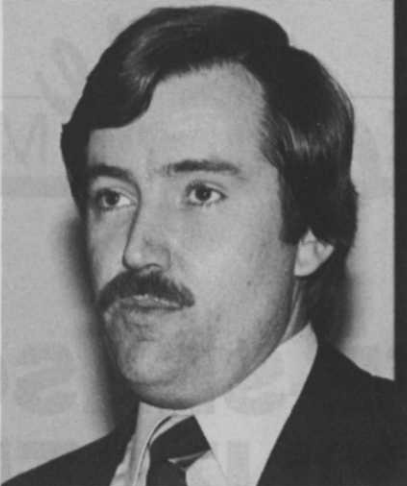
"Another nice thing about a granular product," explains Combs, is that you can target it. Of the four applications we use, only one has a pesticide in it which would be the pre-emergent, pendimethlin. The remainder are straight fertilizer."

Adds Priest: "People prefer granular for a lot of reasons. Granular is more old-fashioned, and I personally feel granular applications are safer."

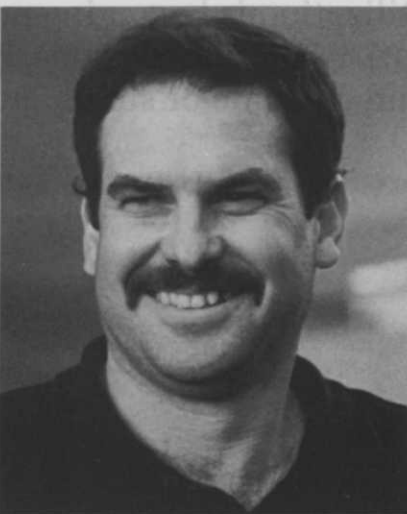
Harper prefers granular products in the fall, since customers are less likely to mow it out.

Freedom of flexibility

Darrah stresses the flexibility liquid



Darrah: There is an advantage in being able to use both formulations.



Priest: Granular products safer.

products lend to the lawn care arsenal, and says surge growth is a myth.

"With liquids," says Darrah, "changing N-P-K grades, using a pesticide at different rates or using multiple pesticides can be easily accomplished. With dry materials, specific products need to be planned, purchased, stored and carried to the site to provide as much flexibility."

There are also those special times when a suitable dry material may not be available. At those times, it's liquids to the rescue.

An example Darrah cites is the situation that requires an application of fertilizer, a pre- and post-emergence weed control product, and insecticide simultaneously.

"This can be easily accomplished with liquids," says Darrah, but it means multiple trips over the lawn to accomplish with drys.

Initial investment specter

The cost required to outfit trucks and provide for storage is a basic—if unglamorous—reason companies may choose dry fertilizer products.

Mike Turner of Custom Lawns, North Olmsted, Ohio, says that the need to get a business off the ground is

a great motivator.

"When we first went into business," recalls Turner, "it was easier to start up with a dry method of application, in terms of equipment. You don't have that tank truck investment."

That concern is echoed by Bob Mann of Hunt & Hulteen, Brockton, Mass., who says the time to apply liquid and dry products is "pretty much a wash."

"And with the significant investment in a liquid system comes the containment system and regulations," adds Mann. He says the state of Massachusetts has a set of regulations pending which would place restrictions on containment systems.

The "all dry" full-service lawn care programs really don't exist, in Darrah's opinion, because common broadleaf weeds cannot be effectively controlled with dry post-emergence weed control products.

Turner believes there is a growing market for granular products, and cites the recent move by some larger, predominantly liquid chemical lawn care companies to granular products.

Degree of efficacy does not influence Turner's decision to go granular.

"We do about 2400 lawns," he says, "and the net result is usually the same. I wouldn't be upset if my only choice was liquid or if my only choice was granular."

Turner lucks out every so often when he encounters prospects who say flat out, "I don't want the liquid." Those people, says Turner, are already sold on the dry product, and the point is moot.

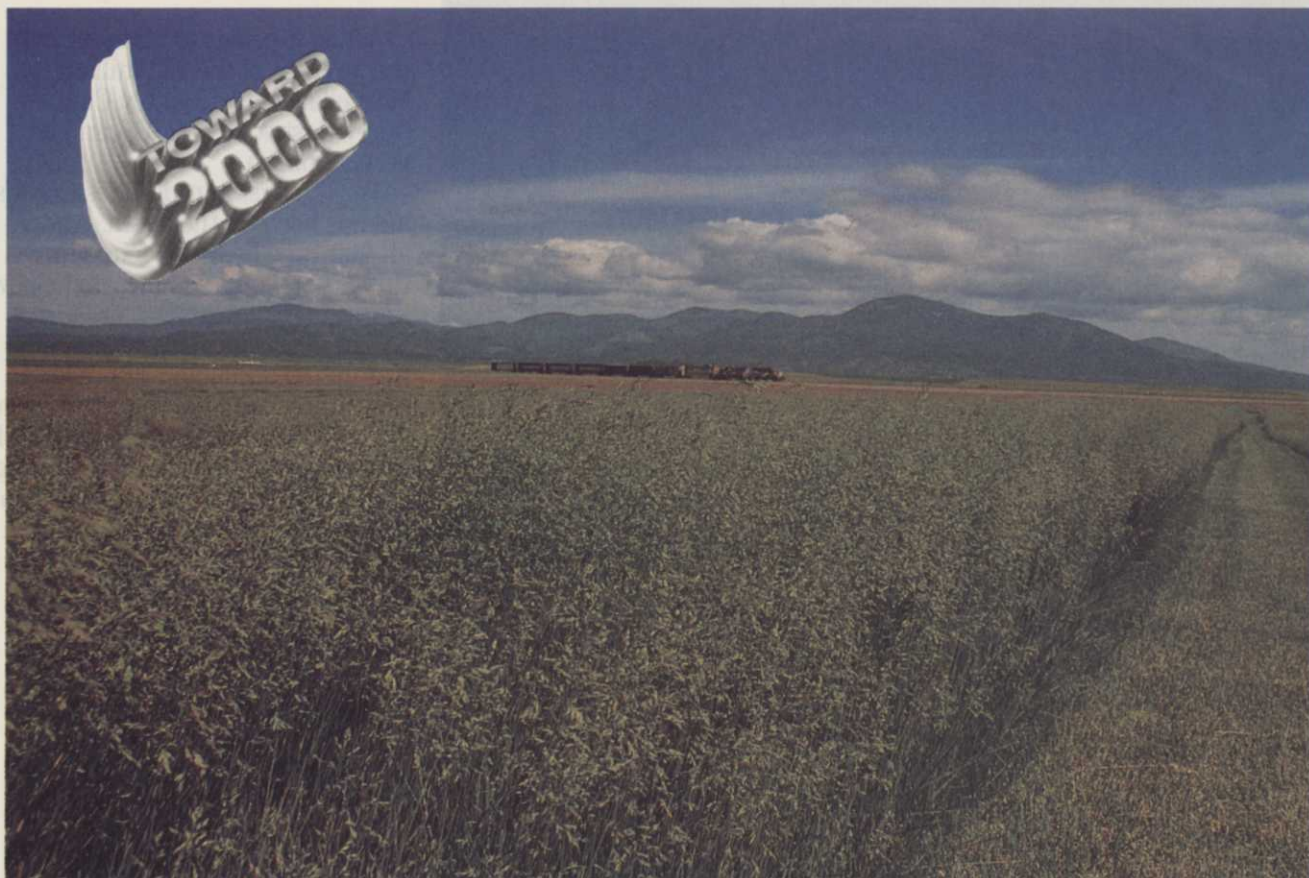
Appearances are everything

It's also not just what you spray, but how you spray it, as one applicator told of a study that showed brown-colored spray hoses are less likely to incite homeowner concern than yellow hoses.

Are some people simply afraid of liquid products? "They want to believe that what a dry company is applying is different than what a liquid company is applying," says Turner, and he offers this example:

After a recent news report on a court decision concerning ChemLawn (see "Green Industry News," this issue), a customer told Turner she was glad to have him as her lawn man. "I wouldn't want what they put on the lawn," the customer said.

Turner's reply: "We put the same thing down that ChemLawn does. And it's the same product that you're going to be buying at your garden center." LM



Early indications are that the 25 days of rain in May make the 1990 seed crop the best in several years. Oregon seedsmen say they'll need all the seed they can get to meet increasing demand.

SEED RESEARCH: OPENING NEW DOORS FOR THE TURF MARKET

A week in and around Oregon's Willamette Valley convinced our editor that already good turfseed is getting even better.

by Will Perry, managing editor

Three days and hundreds of turf plot squats into this year's annual trek through seed country, I began to wonder: *How many varieties of turf can there possibly be?*

My notebook was already full. I had traveled from Dawn to Midnight, across the Amazon to Aspen; I saw a Cowboy and an Apache; a Patriot near a Rebel; a Thoroughbred, Jaguar, Birdies and a Falcon. And for each there were dozens of other still name-

less varieties waiting to compete for limited acreage this coming season.

Ongoing research in the Pacific Northwest—where most of the nation's turfseed is grown—may well mean denser, lower-growing, drought-, heat-, cold-, stress- and disease-resistant turf for landscapers and golf course superintendents.

Researchers insist the landscaper is, or will be, more likely to find a turf variety ideally suited for particular

needs. And, unlike recent years, it appears as if there will be plenty of seed available in coming months (see LANDSCAPE MANAGEMENT's annual "Seed Availability Report" in the October issue).

New science

Proprietary seed is considered a new avenue of research, especially when compared to older agriculture research in crops such as corn and soybeans.

"When you look at turf breeding programs, you have to realize that they're only in their infancy," says Craig Edminster, marketing manager of International Seeds of Halsey, Ore. "Today's turf doesn't need as much fertilizer, requires less oxygen, can go for longer periods without mowing,



Seed researchers continue to seek turf with the growth, color, and tolerance characteristics needed in the various climates and conditions throughout North America and the world.



Colored markers tell the researcher that a particular plant demonstrated one or more desirable traits.

and is adapted to wider areas than ever before. In addition, buyer sophistication is leading the industry into more specialized turf."

An example, says Edminster, is tall fescue, which has become an ideal turf in the transition zone because of its favorable shade, drought and temperature resistance. "Seven to ten years ago, there was no market for tall fescue. Today, more than 100 million pounds are produced annually," says Edminster.

"Turf-type tall fescues are going to a lot of places where they really had to fight to have a nice bluegrass lawn, like Virginia, New Jersey and Kentucky," says International Seeds plant breeder Steve Witten. "People in the Northeast had bluegrass lawns and everyone said, 'That's what a lawn is supposed to look like.' So everyone had to fight, fight, fight to have a nice bluegrass lawn. Now, with the improved turf-type tall fescues, you can have a nice-looking lawn without nearly as much hassle."

High tech seed

International Seeds has employed a computer at its Halsey facility to document each variety's performance under a variety of tests. Test results and breeding information are stored

in a databank for easy access.

"The results of our work will come out in the next five to ten years," says Witten. "They may be good or they may be bad, but we plan on surprising quite a few people."

Dr. Bill Meyer, President for Research of Turf-Seed, also feels tall fescue and ryegrass development has been impressive.

"I think an amazing development in the past five years has been the continual improvement we've seen in ryegrass and tall fescue," says Meyer. "I think we're going to continue to see these two species and we're getting closer to putting fine fescue in that category too."

Turf-Seed's research farm stretches over 105 acres in Hubbard that hold more than 10,000 turf plots. Meyer is taking advantage of every one, it would seem, because he's seeking a broad genetic base in the tall fescues and perennial ryegrasses under development.

"A lot of breeding work that has been done in the last few years has been based on inbreeding and trying to limit the number of parents. We're trying to broaden the number of parents we use, hoping that the turf will be more adaptable and have higher tolerances."



Dr. Doug Brede, research director, welcomes visitors to the Jacklin Seed Company's Idaho ranch.

Researcher examines heat stress

One of today's leaders in bentgrass research is Virginia Lehman, who works with Dr. Milton Engelke at Texas A&M University.

The Texas bentgrass research program is in its fifth year. Lehman says it seeks to produce "new, seeded-type bentgrasses as opposed to older, vegetative types."

Speaking at the Loft's Seed Company 1990 Field Day, Lehman said the great challenge to herself and other bentgrass researchers has been the natural fact that bentgrass does best in mild climates, not the torrid conditions of many Southern golf courses.

"In Europe in July, the mean temperature is 60°," says Lehman, "whereas in the United States, the July mean is 70-75°."

"When grown at non-optimum temperatures," explains Lehman, "there is a drastic decline in tillers, which is then reflected in the inability of the plant to recover from damage: the roots no longer elongate, and you'll see the current roots begin to slough off. And when you lose the root system in bentgrass, you lose the ability to take in water, and the plant cannot cool itself."

The final result of bentgrass decline—or, the result most visible to the golfer—is a decline in putting quality.

"But the superintendent sees disease and weed invasion," Lehman says, "and more pesticides are then required to compensate for the biological deficiencies."

Lehman's quest is for cultivars genetically adapted to the environment, to reduce the dependency on management.

Concerned supers chip in

The Texas A & M research has been funded by the USGA and Bentgrass Research, Inc., a group of about 20 country clubs in the southern U.S. who want and need bentgrass that can stand up to the ravages of summer heat and drought.

"The ability of the plant to take up water is directly related to its actual heat tolerance," says Lehman, who also seeks a more traffic and salinity tolerant species, all the while retaining a quality putting surface.

Lehman recalls that five years ago, information on heat tolerant bentgrasses was lacking. "There was testimony, but from a scientific viewpoint, we needed to separate heat tolerance from dehydration tolerance."

"We have selected plants for their ability to maintain turgor under drought stress," says Lehman. "We've been able to increase the amount of water held in tissue by 10 percent; we're going to improve our drought resistance to ultimately improve our heat resistance."

Lehman's research continues, and she insists that testing is essential to determine plant adaptability; eyewitness testimony is not enough.

Lehman encourages independent research on golf course practice greens and nurseries. "Those are ideal places for turf managers to establish their own evaluations," says Lehman, "rather than rely solely on someone else's testimony."

—Terry McIver □

Meyer said that Turf-Seed likes its varieties to have five to fifty parents, not one or two. In one case, 200 parents were brought together in one synthetic variety under research.

"We're trying to work with color, growth habits and textures that are compatible when putting together types that mix well."

Meyer notes tall fescue's improved establishment rates and says better pythium resistance is in the works. "Last summer we were able to come up with about two clones out of about 500 tall fescues that had excellent resistance to pythium," says Meyer. "This has never been reported before, and now we're making crosses with

that material."

Tomorrow's ryegrasses

Meyer also sees room for improvement in tomorrow's perennial ryegrasses. "We thought we were reaching a plateau on ryegrasses with Citation II and Manhattan II. We had a lot of density, good mowing quality in the heat and real good disease resistance. But this spring we're impressed by a new variety (GH89). This is an indication to us that maybe we can make another jump in ryegrass breeding."

Research is also under way to determine which grasses, if any, will maintain their yield levels without field burning. Field burning opponents are gathering signatures for two initiative petitions that would eliminate or drastically reduce the practice.

Lacking initiative?

"We (the seed industry) dodged a bullet last year when the legislature passed the field burning phase-out bill," says Jerry Pepin of Pickseed West in Corvallis, Ore. "The next battle is the initiative. If that gets on the ballot we're going to have to have a big advertising campaign to try to defeat it."



Fred Ledeboer of Turf Merchants has been researching the "dwarfness" of tall fescues to minimize clipping yields of turf on home lawns.

Field burning opponents are gathering signatures to place one of two initiatives on the November ballot. One would ban field burning, propane flaming and stack burning by Jan. 1, 1991. A second, sponsored by Oregon Gov. Neil Goldschmidt, would rapidly phase down field burning, propane flaming and ban stack burning.

"Without burning, the fine fescues and bluegrasses would suffer," says Pepin. "They're so thatchy that you'd really have to use some heavy duty mechanical work to clean up a fine fescue field. You really need to burn it."

Jacklin Seed researchers, under the guidance of Dr. Doug Brede, are keeping their eyes on 42 varieties of Kentucky bluegrass planted in 1987. They're evaluating the effect burning, herbicide and insecticide application have on seed yields. The company, located in Post Falls, Ida., moved its research facilities to an Idaho ranch.

Turf trials added

Jacklin has also added four new turf trials. In addition to its five-year-old national Kentucky bluegrass trial and perennial ryegrass trial, the company has added national fine fescue and



Steve Witten (l) and Stephen Johnson incorporated a computer databank to track turf for International Seeds.

bermudagrass trials.

Jacklin's Virginia Kanikeberg is studying the feasibility of seed priming, a process that allows seed to germinate more quickly. Priming involves exposing the seed to a solution that allows them to imbibe just enough water to initiate the early stages of germination.

"In places where the growing season is short, grass seeds that germinate faster can take better advantage of the weather and produce more seed heads," says Kanikeberg.

In Tangent, Ore., Fred Ledebor, researcher at Turf Merchants, asked field day attendees this now-familiar question: "What are we going to do with the clippings?"

Ledebor has been comparing the clippings weight of tall fescue to determine growth rates and see which varieties produce the least amount of clippings.

"There are two phenomena that could be called 'dwarf,' says Ledebor. "One is the total plant height at maturity. The other is in the turf, that is, reduced foliage elongation and reduced clippings. With the latter, the practice of mowing on a weekly schedule will change." **LM**

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