

# Turf pros respond to biostimulants

■ Biostimulants improve turfgrass vigor. Their effect is most observable on stressed turfgrass. Exactly how they do this is being researched.

A decade ago, many turfgrass professionals scoffed at the idea of spraying something like processed seaweed extract on turfgrass. They're listening now. And they're also buying so-called plant biostimulants in record amounts.

Emerald Isle says it began selling PanaSea to turf pros 16 years ago. "For the first years of our company we spent all of our time creating awareness that biostimulants could be useful," says company spokesman Doug Middleton.

Now, as many as 15 companies may be selling them to turfgrass managers. This rush started after Roots Inc., New Haven, Conn., initiated a strong marketing campaign about seven years ago. The company, using independent research, documented *real* benefits to turfgrass (trees and shrubs, too) with its product. That opened eyes. Even competitors admit that Roots helped legitimize and broaden the use of biostimulants for turfgrass.

But really, what is a biostimulant?

"For marketing purposes, the industry started describing these products as stimulants and the word 'bio' got put on it too. It stuck and it's descriptive," says Dr. R.E. "Dick" Schmidt. "We could call them stimulative growth regulators. That would probably be more accurate, but that's a mouthful."

Many people loosely describe biostimulants as products that contain plant hormones, often—but not always—along with other growth enhancement ingredients. (Some more broadly include *non*-hormone, non-nutritive growth stimulators, too.)

All plants produce hormones. Three of a plant's five hormones stimulate growth—auxin, gibberellins, and cytokinin. Cytokinin is the hormone most commonly found in manufactured biostimulants, although some contain trace amounts of the others too. The most popular natural source of cytokinin is seaweed.

Schmidt's research at Virginia Polytechnic Institute helped popularize biostimulants. Others like Drs. Michael

Goatley of Mississippi State, Dr. Keith Karnok of Georgia and Dr. Tom Turner of Maryland added to Schmidt's data.

Companies claim, in varying degrees, that their respective products:

- ✓ improve turfgrass rooting
- ✓ improve drought resistance
- ✓ provide a level of salt tolerance
- ✓ improve plant density and color
- ✓ decrease nutrient requirements

How well, and under what conditions, they provide *all* of these benefits is still being sorted out.

"It's probably not the product itself that's the reason for any skepticism. It's the claims surrounding the product," says Johnny McRight, McRight Agri-Management, Greenville, Miss.

Adds William Byrnes, president of Floratine Products Group, Memphis, Tenn., "Unfortunately, a salesman's first inclination is to say that their product will solve all problems all the time and, of course, that's impossible."

The theory behind adding biostimulants to turf is simple, says Byrnes. During periods of stress, turfgrass depletes its supply of hormones and welcomes a boost from an outside source. That's when biostimulants produce visible and positive results.

"We're not trying to change what the plant does. We're simply trying to help it do what it does naturally."

End users typically spray biostimulants onto turfgrass. They can be applied alone, with fertilizer, or with iron. Schmidt favors biostimulants with iron.

"You end up with more root biomass; more root biomass translates into more root-to-soil contact for mineral and water uptake," says Jim Schaefer, president of Soil Technologies, Fairfield, Iowa.

Several products marketed to turfgrass managers also contain "growth-enhancing" substances in addition to hormones. Iron, nitrogen-fixing bacteria, sugars, and humic acid are not uncommon. Build healthier soil and grow healthier turfgrass, say producers of these products, adding that these products boost populations of beneficial microorganisms, make nutrients more available for uptake, create more pore



Dale Minick, superintendent at Kirtland Country Club near Cleveland, is convinced that biostimulants boost plant health.

## 'Why quit using it now?'

■ If traffic's not bad, you can drive due east on I-90 from downtown Cleveland to the Kirtland Country Club golf course in about 35 minutes. You trade skyscrapers and steaming manholes for a country estate with freshly mowed turfgrass on rolling hills.

From appearances, you're on a different planet.

Superintendent Dale Minick oversees this greener, quieter world, and his philosophy is: if your turfgrass ain't broke, don't fix it. That's why Minick has used a biostimulant (PanaSea) on the course for the past 12 years.

"I don't want to quit using it and find out why I was using it in the first place," says Minick, superintendent at Kirtland.

"Every time the USGA has come out, they've always commented on the root system of the turfgrass here. I've got to believe the biostimulant is part of that," he says.

Minick's crew sprays the biostimulant, sometimes with fungicide, on 32 acres of fairways and about 6 acres of tees and greens. Tees, greens and fairways are all bentgrass. The course hosts about 17,000 rounds each season. He estimates he spends about \$4,000 each year on the biostimulant.

"I don't use it to reduce using something else," says Minick. "I do know that we don't do very much syringing during summer afternoons. I think that has something to do with the biostimulant."

He uses biostimulant on the golf course's perennial gardens too. "There you can really see the root growth because you can pop the flower out and check the roots," he says.

Minick grew up in nearby Kirtland, attended The Ohio State University and has worked at Kirtland CC, in one capacity or another, nearly his entire adult life. A pretty fair golfer in his own right, he's been superintendent at Kirtland the past 15 years.

—Ron Hall

spaces in the soil. Some even contain fertilizer.

"The end users get so darned confused because everybody is calling everything a biostimulant," says Doug Middleton, Emerald Isle.

That might be, but Schaefer of Soil Technologies says there is no going back. He claims turfgrass managers now recognize that their nutrient management programs go beyond N, P, K. "There are more

refined, more intelligent approaches to deal to deal with the management of quality turfgrass rather than using nitrogen, a single element, to try to solve so many damn problems," he says.

So far, the most enthusiastic turf users of biostimulants have been golf course superintendents and sod farms, say suppliers. Superintendents regularly apply them to greens, and sometimes tees. The program costs from \$1,000-\$2,000 a season to

the budget of a northern 18-hole course. Some landscapers claim they help transplants recover faster.

Lawn care operators have been slow to incorporate these new products into their programs.

"Their big question is always—can I afford to put this on customers' lawns without charging something extra?" says one supplier.

—Ron Hall

## TURF BIOSTIMULANTS

Company	Product	Description
American Colloid Co. Circle No 311	Enersol 15%, Enersol SC	Nutritional chemical activator, derived from humic acid; promotes beneficial soil microbes.
Aqua-Aid Circle No 312	Aqua-Root Liquid	Soil penetrating, plant stimulant, wetting agent (85%), humic and fulvic acids (15%).
BioPlus Manufacturing, Inc. Circle No 313	BioPlus Turf Mix, HV682	TurfMix: biostimulant, micronutrients, wetting agent HV682: vitamins, hormones, PGRs and root growth stimulators.
EcoSoil Systems, Inc. Circle No 314	BioJect	System to create healthier turf by fermenting and injecting beneficial microorganisms into the soil.
Emerald Isle Ltd. Circle No 315	PanaSea, PanaSea Plus	Liquified sea plant extracts, exclusive extraction processes maximize yield of nutrients, hormones, other beneficial constituents.
Floratine Product Group Circle No 316	Astron, Per "34" Max, Knife Renaissance	Formulations for cool, warm-season turfgrass. Unique combinations of essential secondary and micronutrients with naturally-occurring plant extracts complexed in organic acid and sugar compounds.
Growth Products Circle No 317	Essential	Carbon-rich organic materials in constructive, usable form for soil, plant, microorganisms.
Huma Gro Turf Circle No 318	Start 0-0-0	Creates prime conditions for seed germination and root development. Stimulates beneficial biological organisms to influence the rhizosphere.
Humate International Inc. Circle No 319	humate products	Extremely soluble; high percentage of fulvic acid, high cation-exchange capacity.
Lesco Circle No 320	BioChoice	EPA-registered formulation of two hormones: auxin and gibberellic acid in a chelated source of essential micronutrients.
McRight Agri-Management, Inc. Circle No 321	Turf Touch	Proprietary blend of activated nutrients that are designed to improve growth and activity of microorganisms.
Organic Laboratories, Inc. Circle No 322	BioStim	Enriches soil with proteins, carbohydrates, amino acids, humates, enzymes, plant extracts, vitamins, minerals.
Plant BioTech, Inc. Circle No 323	Cytogro, CytoFe	Liquid turf biostimulant derived from seaweed extracts with cytokinins and auxins. CytoFe: a formulation containing CytoGro plus 5% iron.
Plant-Wise Circle No. 324	3D	A concentrated biostimulant derived from pure quality, cold process seaweed, fortified with proprietary humic acid and beneficial plant growth nutrients.
Regal Chemical Co. Circle No 325	Regal Crown	Balanced combination of PGRs prepared in nutrient broth in which selected bacteria, yeast fungi have been grown under strict conditions.
Roots Inc. Circle No 326	Roots, IronRoots	Organic plant and soil conditioners with peat humic substances, cold-processed sea kelp extracts, plant co-enzymes and Vitamin B1.
Soil Technologies Corp. Circle No 327	Bio-Pro	Warm, cool-season formulas. N-fixing bacteria, seaweed extract, humic acids, plant growth hormones, plant foods.

Source: LM mail and phone survey, August, 1994