

water and chemical use pressures mount

spots. "That's worked real well. It has kept areas green that normally I'd lose," he said.

Snow said wetting agents should be used preventively as well as curatively, to stop dry-spot problems before they occur, because they can be "very hard to re-establish."

President Ray Kimmel of Parkway Research, which has been making wetting agents for many years, said: "When you have a spray going on turf, surface tension may keep it on the blades of grass. That's fine if you are applying a systemic pesticide, herbicide or fungicide. But if you want it to be absorbed and to go to the soil, use a surfactant..."

"Wetting agents initially were —

and I think still are — used mostly as enhancement products for better efficacy for herbicides, fungicides, or fertilizers. But in the last few years, many people are looking at using them as an application in their own right, where they feel they need a wetting agent in the soil to help the water, either natural or irrigated, get through the surface layers.

"If you have high surface tension in the soil, when you irrigate water stays up on top. First, it doesn't get to the root level. Secondly, it breeds fungus."

One superintendent alluded to the effectiveness of wetting agents in helping localized problems. "I hope next year I'll spray for snow mold and wetting agents and use

even water less. My optimum would be to apply wetting agents once a month."

"All diseases need water. Less water means less disease," he added. "Also, we all know the less you water, the better the golf course plays. It plays firmer and you don't use as much to keep it green. You don't need as much fungicide because less water means less disease. And if the greens are firm you can mow higher and still maintain the roll and good grass."

Another benefit, he said, is elimination of dew for a number of days after application because the turf does not respire at night. "That is a great bonus when mowing in the morning and when you

have a tournament," he said.

The fear of wetting agents burning turf has focused researchers' attention on finding a solution to that problem. Roots, Inc. has made that the "essential issue" in its promotion of NoburN. NoburN doesn't need to be watered in, said Roots' Wayne Wall. "We took a chance at staking the future of NoburN on that benefit and it was a winner."

Compaction is another major factor. As Diorio found at Purpoodock, soil compaction can be greatly decreased using wetting agents, which neutralize ions tied up in the soil.

FINDING THE BEST FOR YOU

Diorio suggested comparison testing, saying: "No two courses

are the same. It can even be different on the same course. I have two greens built five years ago, nine built 20 years ago and seven built 70 years ago. I've got native soils, clays. Nothing's the same."

A colleague said: "I'm trying several now to see which works best for me. I've been hitting really bad spots on fairways. And I can see which are coming back quicker. In one or two applications I can see which one's best, then figure it into my budget for next year."

Whichever wetting agents they decide to use, superintendents are increasingly using them in their maintenance schedules. They are another tool in the toolbox for growing better grass with less water and chemicals.

Survey of wetting agents in golf course market

Company Address Phone #	Brand name	Year introduced	Granular or liquid	Days without dew
Aqua-Aid, Inc. P.O. Box 223 White Marsh, MD 21162 301-335-3702	Aqua-Aid	1985	Both	3-10
Aquatrols Corp. of America 1432 Union Ave. Pennsauken, NJ 08110 800-257-7797	AquaGro	1954	Both	8-10
Grace-Sierra Crop Protection Co. P.O. Box 4003, 1001 Yosemite Dr. Milpitas, CA 95035 800-492-8255	Hydraflo	1988	Both	14-21
KALO, Inc. 4550 W. 109th St. Overland Park, KS 66211 913-491-9125	Hydro-Wet	1971	Both	N/A
Montco/Surf-side P.O. Box 404 Ambler, PA 19002 215-836-4992	Surf-side	1976	Both	N/A
Naiad Co. 5627 Stoneridge Dr., #316 Pleasanton, CA 94588 800-541-6662	Naiad	1978	Both	N/A
Parkway Research Corp. 13802 Chrisman Rd. Houston, TX 77039 800-256-3668	Wet Foot	1990	Both	45
PBI/Gordon Corp. 1217 W. 12th St. Kansas City, MO 64101 816-474-0462	Aqua-Zorb		Liquid	
Precision Laboratories, Inc. 333 Anthony Trail Northbrook, IL 60062 800-323-6280	New Balance Penetrate II	1991 1991	Liquid liquid	N/A N/A
Rohm and Haas Co. Independence Mall West Philadelphia, PA 19105 215-592-3292	Latron AG-98	1991	Liquid	N/A
Roots, Inc. 25 Science Park New Haven, CT 06511 800-342-6173	NoburN (formerly SSO)	1991	Liquid	30
J.R. Simplot P.O. Box 198 Lathrop, CA 95330 209-858-2511	Slippery Water		Liquid	N/A
Southern Mill Creek Products Co. 5414 N. 56th St. Tampa, FL 33610 813-626-2111	SMCP Wetting Agent	1980	Liquid	N/A

Manufacturers look to new products in field

Guns, fertilizer blends, and dry and wettable-powder forms are among the advances that hold the future for wetting agent manufacturers.

Because water-needy areas like Southern California and Florida are imposing restrictions on irrigation, producers are impregnating materials like corn cob grounds with wetting agents to act as carriers.

At the same time, Kalo, Inc. of Overland Park, Kan., and others in the chemical additive business, are adding wetting agents to their products.

Spring Valley Turf Products of Jackson, Wis., for instance, is blending Kalo's Hydro-Wet wetting agent with fertilizer.

A growing number of companies are making "guns" that mix their specific wetting agent with water.

Kalo's Pro-Ap is a high-volume, metered applicator that allows people to syringe the wetting agent on to trouble spots.

Parkway Research of Houston, Texas, markets a Big Foot applicator for its Wet Foot wetting agent.

"A lot of competitors are using guns," said Parkway Research President Ray Kimmel. "The next phase of development is designing a product that is ideal for injection directly to the irrigation systems."

Each area of advancement is a race by the industry's research and development teams. It appears a number of companies have left the starter's block and are looking at every angle possible to advance the use of wetting agents in the universe of turf care.

Wetting agents defined

Wetting agents are a substance that, when added to a liquid, increase its spreading and penetrating power by lowering the surface tension. Many materials are used as wetting agents, including long chain alcohols, petroleum sulfonates, acid sulfates and derivatives, sulfonated aromatic derivatives, esters of fatty acids and clays.

The Association of American Pesticide Control Officials defines a wetting agent as "a substance which appreciably lowers the interfacial tension between a liquid and a solid, and increases the tendency of a liquid to make complete contact with the surface of a solid, so that no dry area may remain."