PBI Gordon

Zylam 20SG systemic turf insecticide is a 20 percent active ingredient, soluble granule formulation of dinotefuran, a third-generation neonicotinoid insecticide. It offers "muscle in your tank" for control of tough turfgrass pests, including mole crickets, European crane flies, billbugs and annual bluegrass weevils, and provides activity on chinch bug, cutworms and white grub larvae. The active ingredient acts on insect pests through contact and ingestion, resulting in the termination of feeding. Insect death occurs shortly after. Zylam 20SG's dust-free extruded granules are easy to mix, dissolving completely in water. It is packaged in a convenient 2.7-pound jug, which covers 1 acre of turf.

PBIgordon.com/zylam20SG

Buffalo Turbine

The new BT-Mega Blower sports a 40-hp Kohler engine, wireless control and 12-gallon fuel capacity. Other features of this USA-made unit include a belt-and-pulley drive system; a high-speed, heavy-duty rotation motor; and a self-contained, bolt-on trailer unit. It easily converts to a skid mount unit, the company says, and offers 40 percent more power than other brands.

BuffaloTurbine.com

Bayer Environmental Science

Nortica, which contains the bacteria Bacillus firmus, is used to help manage nematodes by creating a living barrier of protection around the root. In trials, research showed that the new product consistently improved root growth, turf quality and turf density. When temperature-activated, the bacteria in Nortica colonize and grow around the root, coating it and preventing damage caused in the J2 larval stage of all major parasitic nematodes, including Sting, Lance and Root-knot, as well as myriad others. With its natural composition and through multiple modes of action, Nortica provides consistent, long-lasting nematode protection. Instead of killing nematodes, it acts as competition for access to plant roots and interrupts the signaling responses from plant exudates, while also having a negative effect on nematode eggs and J2 larvae. Available in 35-lb. bags as a 5 percent wettable powder, it can be applied to Bermudagrass greens, tees, fairways and roughs.

BackedbyBayer.com

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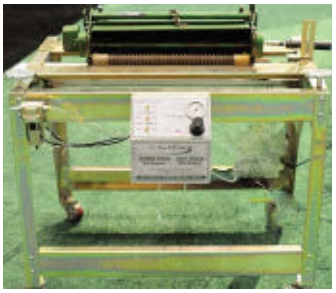

Turf Pride

The PowerEdge II reel sharpener is quickly set-up with no tools needed, just set the reel unit on the grinder. The machine can sharpen reels without the need to disassemble the reel unit, allowing maintenance staff to leave the roller and bed knife in place. The PowerEdge II eliminates "impact" grinding associated with conventional grinders, and does not stress the reel bearings, seals, shafts and frames. The PowerEdge II has no electric switches, sensors, circuit boards, fuses or wiring connecions.
Turfprideusa.com

Arysta LifeScience

Foliar and translaminar systemic activity sets new Endorse WP apart from all other fungicides, the company says. Endorse offers superintendents a unique disease control option, with a natural active ingredient possessing a one-of-a-kind mode of action. This mode of action provides preventive or curative protection against both basal and foliar anthracnose, brown patch, fairy ring, red thread and other leaf spot, snow molds and Zoysia patch diseases.
TotalDiseaseControl.com

Stens

Three new distinctive trimmer line choices are debuting under the Silver Streak brand: The Core, The Fire and The Edge. Each trimmer line has new and improved labeling and packaging, a new multi-spoke design spool for additional strength, and netting to prevent the line from unraveling. The Core is durable, with a dual core and round shape. Less line is used and less time is spent loading the trimmer head. The Fire is an efficient red, round-shaped line, manufactured

with a proven formula of durable copolymer. The Edge is a hexagonal-shaped green line, with six cutting edges that leave a professional finish and a healthier lawn. *Stens.com*

DuPont Professional Products

New DuPont Imprelis herbicide contains a single active ingredient (Aptexor), and exhibits favorable environmental and toxicological characteristics. It is absorbed by the roots and shoots of target weeds, providing consistent, reliable performance. It also offers application flexibility: Research shows that the herbicide is effective against the most common broadleaf weeds of turfgrass and many hard-to-control broadleaf weeds. Imprelis is available in 1- and 2.5-gallon containers; at press time, a 4.5-ounce container was planned for later this year.
ProProducts.DuPont.com

Clark Talks Turf

TIMELY TURF ADVICE

Tomaso-Peterson Helps in the Fight Against Spring Dead Spot

Maria Tomaso-Peterson is an associate professor of turfgrass pathology at Mississippi State University and has spent a good portion of her time investigating spring dead spot in bermudagrass. Tomaso-Peterson shares her insights and experience on coping with spring dead spot.

Q How far are you progressing in being able to predict outbreaks of spring dead spot? Not very far. Spring dead spot remains unpredictable despite our best efforts and those of other turfgrass pathologists. The disease is inconsistent from year-to-year from one golf course to another.

PHOTO COURTESY: MARIA TOMASO-PETERSON

Q Where on the golf course is spring dead spot most common? Superintendents tell me that spring dead spot is most common on fairways.

Q Any ideas on why that is? My theory is that Rubigan (fenarimol) applied as a preemergence to control annual bluegrass on putting greens is suppressing spring dead spot as well. Therefore, superintendents see less spring dead spot on greens since they don't usually apply Rubigan as a preemergence on fairways. Some superintendents have switched to sulfonylurea herbicides to control annual bluegrass on greens and a few report having more spring dead spot after the switch.

Q What steps can a superintendent take on a preventive basis to reduce spring dead spot in fairways? Start with development of a long-term management strategy to reduce spring dead spot. The strategy needs to be carried out consistently year after year to be successful.

A few practices to consider:

- If possible, establish a cold tolerant bermudagrass cultivar. Research and experience have shown that cold tolerant bermudagrass cultivars are more resistant to spring dead spot.
- Recent research from North Carolina State University conducted by Lane Tredway, Ph.D., indicates nonacidifying fertilizers such as calcium nitrate help reduce spring dead spot.
- In mid-June or thereabouts, when the bermudagrass is growing well, implement deep vertical mowing. The deep vertical mowing will stimulate new root growth. Remove and discard the debris so you are not spreading infected plant parts around.

Q If a superintendent has spring dead spot on fairways today, what do you recommend for cultural control/recovery? Patience, to start with. As it warms up the bermudagrass will recover but it takes time. Also consider the following:

- Explore using non-DNA preemergence herbicides. Experience has shown that DNA preemergence herbicides delay the pegging down of new stolons in spring dead spot damaged areas.
- Fertilize using the rates you usually apply at the recommended date for your location.
- Some superintendents spread green sand over the damaged areas to mask spring dead spot damage. This doesn't enhance recovery, but it improves appearance.

Q What fungicide treatment strategies do you recommend for spring dead spot control in the spring? Our research has shown that fungicide applications in the fall compared to applications in spring perform about equally. I recommend making fungicide applications in spring. You can see areas where spring dead spot is active and only treat areas that need treatment. This saves time and money.

In spring, treat when the soil temperature within the root zone at a 2- to 3-inch depth reaches 60° F or above.

Use a fungicide labeled for spring dead spot control. Many provide good control. More important than the fungicide that you select is making sure it is applied properly. Apply in a high volume of water (2 to 4 gallons per 1,000 sq. ft.), water the fungicide in immediately after application and if possible, apply the fungicide when the leaves are covered with dew. This will help move the fungicide into the root zone.

Clark Throssell, Ph.D., loves to talk turf. He can be reached at clarkthrossell@bresnan.net.

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TURFGRASS TRENDS

COURSE MANAGEMENT

How to Minimize Spray Drift

Choosing an appropriate nozzle is key to limiting drift and controlling droplet size *By Robert E. Wolf*

The misapplication of any turf care product is a major concern. One form of misapplication is spray drift. Although drift cannot be completely eliminated, drift deposits can be limited by using proper application techniques and equipment.

When drift occurs, the turf care product a superintendent is using is often wasted. Due to the high potential for sensitive areas in turf settings (flowers, water, etc.), damage may occur outside the target area. The off-target damage from products like 2, 4-D and glyphosate will be obvious, while applications of a fungicide or insecticide may not be as noticeable.

Through vapor drift and particle drift, chemicals move downwind, causing damage to the turf setting. Vapor drift is associated with the volatilization of pesticide molecules and their movement off target. Particle drift is the off-target movement of spray particles formed during or after the application. The amount of particle drift depends mainly on the number of small "driftable" particles the nozzle produces. Although tiny droplets provide excellent coverage, decreased deposition and increased drift potential limit the minimum size that will provide effective pest control.

Factors affecting spray drift

Several equipment and application factors determine the amount of spray drift that occurs. Nozzle orientation, spray pressure, boom height, spray volume and nozzle type and size all affect the off-target movement. The ability to reduce drift is only as good as the weakest component in the spraying procedure (See summary of recommended procedures for reducing particle drift injury on the next page.).

The potential for drift must be considered when selecting a nozzle type. Of the many nozzle types available for applying pesticides, some — especially newer nozzles — are specifically designed to reduce drift by decreasing the amount of small driftable spray particles in the spray pattern. However, those who select a nozzle type that delivers larger droplets for maximum drift reduction should know that those nozzles could potentially decrease coverage and efficacy.

Spray height is also an important factor in reducing drift losses. Mounting the boom closer to the ground (without sacrificing pattern uniformity) can reduce

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STRATEGIES TO REDUCE SPRAY DRIFT

RECOMMENDED PROCEDURE	EXAMPLE	EXPLANATION
Select nozzle type that produces coarse droplets.	Turbo Flood, Turbo Flat-fan, Turf Jet, Air-Induction/venturi	Use as large droplets as practical to provide coverage necessary.
Use lower end of pressure range.	Use 20 to 30 psi for Turbo Flood, Turbo Flat-fan, TurfJet. Air-Induction/venturi may require above 40-50 psi or higher.	Higher pressures generate many more small droplets with greater drift potential (less than 150 microns) except for the air induction/venturi designs.
Lower boom height.	Use as low a boom height as possible to maintain uniform distribution.	Wind speed increases with height. A few inches lower boom height can reduce off-target drift.
Increase nozzle size.	If normal gallonage is 30-40 GPA, increase to 60 to 70 GPA.	Larger capacity nozzles will reduce spray depositing off-target.
Spray when wind speeds are less than 10 MPH and moving away from sensitive plants.	Leave a buffer zone if sensitive plants are downwind. Spray buffer zone when wind changes.	More of the spray volume will move off-target as wind increases.
Do not spray when the air is completely calm.	Absolutely calm air generally occurs in early morning or late evening and is usually associated with a temperature inversion.	Calm air reduces air mixing, and leaves a spray cloud that may move slowly downwind at a later time.
Use a drift control additive when needed.	Several conventional polyacrylamides and the newer biodegradable polymers are available.	Drift control additives increase the average droplet size produced by the nozzles.

This summary table provides several strategies which, when used in combination, will result in the best chance to minimize drift. One strategy alone will not necessarily prevent drift. A combination of strategies will provide the best insurance against the off-target movement of the turf protectant product used.

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drift. Nozzle spacing and spray angle determine the correct spray height for each nozzle type. Wide-angle nozzles can be placed closer to the ground than nozzles producing narrow spray angles. Yet, older wide-angle nozzles also produce smaller droplets, somewhat negating the advantages of lower boom height. However, newer wide-angle drift reduction nozzles (air-induction/venturi) are designed to reduce the number of small droplets, and will therefore help to reduce drift as well.

Using nozzles with larger orifices likewise minimizes drift. Increasing the spray volume by using higher capacity spray tips (usually at lower pressures to maintain constant flow rates) results in larger droplets that are less likely to move off target. Lower pressures can also increase droplet size, reducing coverage, while higher pressures and lower flow rate nozzles will lead to more drift by producing finer spray droplets. Changing pressure alone will change the flow rate per nozzle and the overall application rate. The only effective way to reduce drift by increasing spray volume is to increase the nozzle size.

Although not directly an equipment factor, using drift control additives (commonly called deposition aids) in the spray solu-

tion increases spray droplet size, thereby minimizing the potential for drift damage. Tests show that in some cases downwind drift deposits are reduced from 50 to 80 percent with the use of drift control additives. However, in some cases increased drift has occurred when drift control additives were added to the tank mix. Drift control additives constitute a specific class of chemical adjuvants and should not be confused with products such as surfactants, wetting agents, spreaders and stickers. Drift control additives are formulated to produce a droplet spectrum with fewer small droplets.

A number of drift control additives are commercially available, but to be effective they must be mixed and applied according to label directions. Some products are recommended for use at a rate of two to eight ounces per 100 gallons of spray solution. Increased rates may further reduce drift but may cause nozzle distribution patterns to be non-uniform. Drift control additives vary in cost depending on their rate and formulation, but they are comparatively inexpensive for the amount of control they provide. It is wise to test these products in your own spray system to ensure they are working properly before adapting this practice. Not all products work equally for all systems.

Focus on droplet size

From spray equipment catalogs and web sites, most applicators know how to use flow rate charts to determine the nozzle orifice size needed to deliver a proper application volume (GPA or G/1000 sq. ft.).

Applicators are also comfortable in making those applications with the help of an automatic rate controller, which helps improve the uniformity of application volume. However, a properly calibrated sprayer does not guarantee the application will achieve its highest level of efficacy or minimize drift.

The next step in calibration, calibrating for droplet size, is designed to achieve a more uniform droplet spectra, although most applicators are not familiar with it. The step requires applicators to review droplet size charts to choose nozzle types and pressure levels that will meet a specified droplet classification listed on the pesticide label. The droplet size created by a nozzle becomes very important when the efficacy of a particular turf protection product is dependent on coverage or when the minimization of material leaving the target area is a priority. Pesticide manufacturers are beginning to add droplet specifications and spray quality requirements to their labels. Thus, consulting the nozzle manufacturers' droplet sizing charts is essential.

To help applicators select nozzles according to droplet size, spray equipment manufacturers are including drop size charts with their catalogs and websites. The charts classify the droplet size from a given nozzle at various pressure levels according to a standard established by the American Society of Agricultural and Biological Engineers (ASABE). The standard (S-572.1) rates droplets and droplet size categories are color-coded as shown in the chart. Remember, if the label specifies a particular droplet size category, you are required to set up the sprayer to meet that particular spray quality. The label is the law.

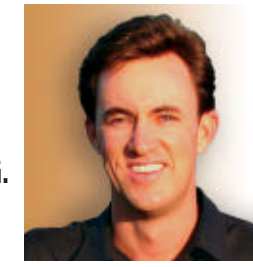
Robert E. Wolf, Ph.D. recently retired from his position as professor and extension specialist, application technology at Kansas State University's Biological and Agricultural Engineering Department. He has formed a consulting company to continue his work with the application industry. He can be reached at rewolf@ksu.edu.

ASABE STANDARD S-572.1 SPRAY QUALITY

CATEGORY	COLOR
Extra Fine (XF)	purple
Very Fine (VF)	red
Fine (F)	orange
Medium (M)	yellow
Coarse (C)	blue
Very Coarse (VC)	green
Extra Coarse (EC)	white
Ultra Coarse (UC)	black

Ad Index

Augusta Syndrome is on the Downswing



THE COURSE WAS JUST A LITTLE SOFTER, THE GREENS NOT QUITE AS FAST AND MOST OF ALL, IT WAS A TEST THAT ENCOURAGED RISK-TAKING.

BY GEOFF SHACKELFORD

A funny thing has happened in the wild and wacky timeline of Augusta Syndrome history: The very worst may have passed.

That's right, I'm boldly declaring that Augusta Syndrome's worst days are behind. Granted, the dire economy is likely to cut down on the number of golfers who demand the replication of conditions they see on television, but did you look closely at the 2011 Masters? It was a thrilling tournament for the ages and a heart-stopper, because the golf course was merely green, sort of fast but definitely not the hyped-up freak show of recent years.

Yes, it's still lush and flowery and over the top, but that will always be the case, for better or worse. However, in recent years the bold aesthetics have been complemented by desperate attempts to speed up greens, firm-up hazard banks and throw in other course setup add-ons that not only set a dreadful example for the game, but also made the Masters less fun to watch.

Either by luck or superintendent Brad Owens' shrewdness, the 2011 version of the Bobby Jones dream course played a little more like a normal golf course. The course was just a little softer, the greens not quite as fast and most of all, it was a test that encouraged risk-taking. The result was arguably the most thrilling Sunday back nine since Jack Nicklaus' epic 1986 win 25 years ago.

Maybe they put a little more rye seed down. Perhaps the spring weather was good to the club. And maybe, just maybe, they decided that all of the excessive low-score combating stuff of recent years — both agronomic and architectural — was doing neither Augusta nor the game any good.

If you've looked closely at late-afternoon play during the last couple of years, you can actually see footprints in the fairway grass thanks to a slightly higher fairway cut.

Which brings us to the unthinkable: The course doesn't look as good as it used to in high-definition television. To combat today's flat-belly bombers, the club mows fairways from green to tee, hoping that the slight grain will slow down drives. Since today's players launch drives over this so-called grain, it has little effect other than to slow wayward drives from reaching trouble. Even better for the game, this cutting pattern has eliminated striping and actually makes the place look a little shaggy when we see a rearview camera shot of a player approaching a green. Yes, shaggy! Augusta National!

The famed course's design is a masterpiece when it's running firm and fast, but the recent changes have narrowed landing areas that, when sped up in tournament conditions, turned solid holes into goofy golf. Furthermore, when the greens are bricks and crew members are rolling lake banks, the entire thing becomes a farcical quest to combat the not-combatable: progress via poorly regulated equipment changes.

Yet with everything throttled back just a wee bit this year, players took a few more chances and provided the kind of thrilling shot-making that is great for the game. When golf is as good as it was during the 2011 Masters, the goosebumps and heroic play take viewers' minds away from mundane thoughts such as how they'd like to see azaleas planted at their course.

Remember, Augusta Syndrome will always be part of the game. But through practices both intentional and accidental, the home of the Masters may just be a little less of a headache for superintendents than it used to be.

You can reach Shack, Golfdom's contributing editor, at geoffshack@me.com. Check out his blog – now part of the Golf Digest family – at www.geoffshackelford.com.

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