Split label rate into 3 equal applications for best results with DMI fungicides

Dr. Beard answers your questions

Chip Lewison, superintendent at Dunedin CC, gathered questions from superintendents around the state and put them to Dr. James Beard, recently retired professor at Texas A&M University in College Station, Tex., for a one-time question-and-answer clinic.

1 Assuming the 30-day waiting period has been observed, what types of effects do DMI fungicides have on overseeded bermudagrass greens?

"We did the work on fenarimol at College Station. We found the best annual bluegrass control was to split that label rate into three equal applications made at two-week intervals.

"We tested some fairly high rates and never found any toxicity in perennial ryegrass on either Tifgreen or Tifdwarf bermudagrass. With a rough bluegrass, there was initial thinning of seedlings even at label rates. However, there was never enough damage to cause concern, since adequate turf was formed rapidly."

Even a 10x rate showed no post-emergence activity

2 What rates of a DMI fungicide would be too excessive use on bermudagrass greens prior to overseeding?

"We didn't see any problems on bermudagrass or perennial ryegrass — over three years of studies on both research plots and golf courses (real world golf courses in Waco, Tex.), from a 2x rate.

"I had one study where a research associate made an error on calculation. He made a 10x rate mistake. Even at 10x the label rate, the bermudagrass was only about 50% thinner and it recovered fully within a year.

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"So at a 2x on bermudagrass and perennial ryegrass under our conditions in College Station, fenarimol did not cause a problem over a three-year period.

"In one study we applied fenarimol at two-week intervals from August through the entire winter. It showed no post-emergence activity of any kind on the *poa annua* - it behaved strictly as a preemergence herbicide in these winter overseeding studies."

Activated charcoal may not be a solution to pesticide residue

3 Some people are wondering if we should apply activated charcoal to our greens once every year or two to aid in "flushing" some of the pesticide residues that may be accumulating. Do you have any feelings on this matter?

"I've never had that question asked before and I really don't know of research to provide the answer.

"The charcoal is only going to be effective on certain pesticides, not all of them. Only certain chemical groups are absorbed onto the charcoal particle surface.

"Also, this charcoal will continue to absorb certain chemicals. This might force one to use higher rates of certain pesticides to get pest control in future years until the charcoal surface has become saturated.

"Thus charcoal may not flush the pesticide residues out; rather it is trapping them and the organic chemicals until they eventually degrade or are displaced.

Five-year old charcoal layer

4 Will that layer stay there from year to year?

"I've seen distinct charcoal layers in greens five years later."

Layer stays, particles move

5 So the charcoal may not go any where?

"No, I didn't say that. There might be some charcoal particles leaching downward, depending on the root zone physical and chemical characteristics and the intensity of leaching."

Some rooting problems

6 What are your studies showing concerning the use of preemergence herbicides on root development of bermudagrass?

"We just finished a series of studies with six preemergence materials on rooting of bermudagrass and St. Augustinegrass. One two-year study involved repeat applications compared to a nonrepeat program. The chemical group where most of the rooting problem ap-

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peared was the Dinitroanlymes."

Broad spectrum approach may no longer be appropriate

7 Would we be better off using more broad-spectrum pesticides in stead of combinations of single-acting pesticides?

"The broad-spectrum approach has traditionally been used whether we are talking the control of disease, insects, or weeds.

"Point in fact: with environmental issues and the activists' microscope golf is under today, we should be accountable on the environmental isues. Thus the trend to more narrow-based, target-specific controls using only as much pesticide as is needed to control a particular pest problem.

"This approach is more costly, involves continuous scouting and proper diagnostic interpretation and timely application of the proper material by a professional.

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Cold storage not necessary on established cultivars

8 Do you believe in cold storage of bentgrass seed for a year prior to overseeding in warm season climates?

"Essentially all seeds — much less in ryegrasses but certainly in bluegrasses — contain a certain amount of a germination inhibitor in them at the time of harvest. In general, this seed-germination inhibitor is short-lived.

"Typically, by the time the seed goes through the harvest, cleaning, bagging, shipping operations, the inhibitor has been degraded and is nol longer a problem in terms of planting that same year with the seeding rates used.

"Whether some of these newer bentgrass cultivars will have a seed dormancy problem requireing extended storage is unclear.

"Along this same line, it takes a minimum of four years before one really knows whether a new turfgrass cultivar possesses superior traits relative to its weaknesses over the long term.

"Most of the new cultivars have not been tested for four years in multiple locations or areas. Unfortunately, many of the new cultivars are being promoted and sold throughout the country.

"I've been in the turfgrass business 35 years and have seen a lot of turfgrass cultivars look good in year one, two or three. The soil and turf ecosystem is not fully stabilized or come into balance and the thatch has not built up, so one really does not yet know the true stress tolerance, pest resistance, or susceptibility and overall longterm performance.

"It takes four years at a minimum to obtain relative data, which is what researchers should be concerned with."

Too early for results on first sound algae research program

9 Are there any good, effective con trols for algae on USGA spec or modified spec greens?

"Currently, Dr. Jeff Krans, one of my former students now at Mississippi State, has an elaborate study on algaes — types of algae species around the country.

"He finds six to eight algae species on a single putting green that rotate one to the other as the dominant population over a growing season. This may explain the erratic control and rapid recovery of algae areas.

"It is too early to have all the answers yet, but it's the first algae research program based on sound science. He is approaching the problem the right way and I look forward to some good information from this research."

Tifway off-types due to contamination, not mutation

10 Can you comment on the problems being raised about Tifway bermudagrass contamination? How true are dwarfs being grown today? Is mutation possible or is contamination more likely the problem?

"Always keep in perspective that the potential for mutation percentagewise, is very, very small. The appearance of off-types in Tifdwarf is appearing far too frequently to be a mutation.

"For the most part, the off-type cause is either from the purchase of plant material that is already contaminated or is planted on a site that was previously contaminated with another berm udgrass.

"You've got to treat greens with methyl Bromide. In Texas there have been a lot of situations where they are treating existing greens with glyphosate and replanting. It doesn't work and is a major source of off types.

"Off types also could be carried in on golf cleats, and equipment. There are

many other ways for it to contaminate greens."

Gibberelin will green it right up under certain conditions

11 Can you offer a strategy to keep non-overseeded Tifdwarf color up during the winter months? What about bringing it back once the color goes down?

"Nitrogen helps at temperataures above chill stress or above 55-60 degrees. The other is gibberelin to correct chill stress or stress below 55 degrees. I've had one master's thesis done in this area.

"In south Texas or south Florida, where the soil temperatures stay relatively high, dropping low on certain nights causes low-temperature discoloration. If you treat the next day with gibberelin, partciularly with Tifdward, it works very well.

"Gibberelin will green it right up.

"The key is whether the soil temperature there is warm enough so that regrowth and chlorophyll synthesis starts again right away. If the soil temperature remains too cold — especially if the site os toofar north or the cold air mass has extended farther south — the gibberellin is not going to help during a longterm period of cold temperatures below chill stress."

DNA technology is there, but is it worth the time and expense?

12 Do you think Dr. Grasshof's DNA testing (University of Tennessee) is reliable? People are very concerned after four or five years now as the problems associated with non-certified grasses (in Florida) continue to leave doubts as to their authenticity and contamination potential.

"I have not done any DNA cultivar characterizations myself, only isoenzymes characterizations, but his program looks promising.

"The technology is there. It is a matter of developng the specific application.

"It involves great expense for the development and equipment. One just doesn't go into a lab and run a few tests. It requires the efforts of a trained biochemist who must perfect the routine but specific prodecures over a period of three to six months.

"It involves an art dimension as well as science.

"The same is true when running starch gel or electrophoretic acrylomide gel cultivar characterizations. As it is rather expensive, these technologies may only be justified when civil action is deemed necessary.

"More significantly, the I.D. techniques may assist growers to assure genetic integrity and purity in their cultivars. This may very well be its most important role."

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