TurfComms



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PURPOSE: To pass on what we learn willingly and happily to others in the profession so as to improve turf conditions around the country.

USGA REGIONAL CONF. - DALLAS: Dr. Keith Karnok gave two talks. It was good to get to talk to him again. The first was a talk I believe I have reported on before - **Biostimulants.** his thoughts and mine on the subject haven't changed. There is typically no harm in using them but the chance of them doing the turf any good is pretty remote. He also noted that there was very little quality control in the biostimulant industry which may explain why something works one day and not the next.

His second talk I have also heard and I assume reported on and that was on Localized Dry Spots (LDS). He first noted 7 reasons that might result in LDS and then concentrated on the seventh. The first six reasons were 1) excessive thatch, 2) compacted soil, 3) poor irrigation coverage, 4) improper chemical usage, 5) layering, and 6) certain diseases. The seventh hydrophobic soils has been reported in the literature for forests, citrus growers and pastures. In all cases they were associated with sandy or very coarse textured soils.

A organic coating on the sand grains from decomposition is considered to be the direct cause. There is no practical way to stop this from forming. Sand even with no organic matter added still gets LDS. Incorporation of fine textured materials (silt and clay) will eliminated LDS. It tends to be mostly in top two inches; but can go down as deep as six inches. Severe wetting and drying cycles increase the LDS problem. Keeping the turf constantly moist (wet) stops the LDS from

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developing but the sand grains are still coated and as soon as turf is allowed to dry out LDS appears.

The presence of vegetation is necessary for LDS to develop. Bentgrass and other cool season grasses are usually the worst affected. But, there have been cases of bermudagrass lost due to this problem. Under the same soil and environmental conditions bentgrass will show symptoms first followed by bermuda, tall fescue and zoysia in that order.

Wetting agents he said temporarily alleviate symptoms of LDS. In his research all wetting agents did increase soil water content significantly to some degree in LDS areas. No wetting agent tested at manufacture's recommended rate was phytotoxic to the turf if watered in correctly he reported. No wetting agent was significantly more effective in his research than any other. However, rates and number of applications did vary among products. Effective rate and number of applications may vary with degree of hydrophobicity. He felt soil conditioners (calcined clay, zeolites, diatoms granules, etc.) seem to help.

Dr. David Zuberer gave a talk titled *Enhancing Microbial Activity*. You don't want to increase microbial activity unless you increase soil oxygen content was his conclusion. A very well presented talk. I chuckled over his comment that there was more bacterial cells in and on the human body than there are cells in the human body. And, you need those bacteria.

Jim Latham reviewed current USGA Research. He spent a fair amount of time talking about green construction but, my my only note on that was that peat modified greens had more available water than the same sand modified with any other amendment. He noted that 1/4 inch quadratines are as good as the HydroJect in the raised position as to getting bentgrass greens through the summer. That in the long run (2 weeks or so) after fungicide applications the soil flora is back to normal. There is a measurable difference in flora for 1 to 3 days after a fungicide application.

Dr. David Boyle talked about stress. He noted the best tranquilizer was a good walk. Therefore, superintendents ---- walk that golf course in the early morning hours. Walking is not only a good stress reliever but a good exerciser. Helps reduce the belly size. I know --- I should talk!

DRIVETM: Boy do I wish I had not written that I would have an article about this new herbicide Drive in my next issue of the newsletter. First, I made a request to the TurfGrass Information Center which generated a 44 page fax with at least twice that number of abstracts. Which I than summarized into 10 pages of abrieviated abstracts. Plus, I sent off for full scale versions of six of the articles and had two in my own files. Than I arranged them according to subject matter and my computer refused to give this back to me.

As best I can see Drive does not warrant all that work. It is interesting though to find a material that kills crabgrass and dandelion while being safe on most turfgrasses. The common chemical name for Drive is **quinclorac** and the actual chemical is 3,7-dichloro-8-quinolinecarboxylic acid. It was been tested as BAS 514, and was first released for control of annual grasses and broadleaf weeds in rice (23626)*. It has been released previously as Impact.

*# in () is Turfgrass Information Center's record #

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It is considered to be a new class of auxin herbicides writes Grossman a BASF researcher (57088). According to Grossman, "quinclorac is readily absorbed by germinating seeds, roots, and leaves and is translocated in the plant both acropetally and basipetally. By mimicking an auxin overdose, quinclorac affects the phytohormanal system in sensitive plants. The compound stimulates the induction of 1-aminocyclopropane-1-carboxlic acid (ACC) synthase activity and thus promotes ethylene biosynthesis. In susceptible dicots, increased levels of ethylene trigger an accumulation of abscisic acid (ABA), which, as part of the intrinsic auxin activity of quinclorac, plays a major role in growth inhibition and the induction of epinasty and senescence. In sensitive grasses, such as barnyardgrass species, large crabgrass, broadleaf signalgrass, and green foxtail, quinclorac leads particularly to an accumulation of tissue cyanide, formed as a coproduct during increased ACC and ethylene synthesis. This causes phytotoxicity charactierized by the inhibition of root and particularly shoot growth with tissue chlorosis and subsequent necrosis."

Death in sensitive plants is reported to be quite quick. I wonder what happens to animals that eat the dying grasses that have accumulated cyanide? Quinclorac may not be completely safe under sensitive trees such as red maples and redbuds, although damage may not show up for several months. (34310) Quinclorac like many postemerge herbicides is more effective when moisture levels are high. It may result in less seedhead formation in tolerant grasses so should not be used in seed production fields. Yet when used on bahia in an attempt to reduce seedhead formation it was not very useful as bahia, in part because bahia is not one of the more tolerant grasses.

In reading the research literature I came away feeling that the **cool season grasses** might be more tolerant of quinclorac than the warm season group but there are conflicts in the literature that leave one wondering. Fresenburg, (35076) reported a light amount of browning of tall fescue that disappeared in about 14 days. Dernoeden (14616) reported a chlorosis in **Olympic tall fescue** that lasted over a month. Johnson (34294) also reported injury to tall fescue as well as severe injury to **Penncross at putting green height**. However, most researchers did not report damage to tall fescue. Closely mowed bentgrass on the other hand is not very tolerant, although even there at least one researcher reported only "minimal discoloration" (20126). Wiley a BASF researcher reported yellowing on *Poa annua* and perennial ryegrass for a few weeks. (16315) Prostak (34406) reported *Poa trivialis* injured by Quinclorac and also the **Eagleton** cultivar of Kentucky bluegrass.

More interesting perhaps to Northern U.S. superintendents quinclorac shows a lot of promise for seedling crabgrass control in seedling cool season grasses. It appears best applied after germination of the cool season grasses according to research results and label states four weeks after emergence of Kentucky bluegrass and perennial ryegrass.

The warm season grasses are split with zoysias, seashore paspalum, and buffalograss being very tolerant, bermudagrass moderately tolerant; and bahia, centipede and St. Augustine being damaged. There are variations in response between bermudagrass and seashore paspalum culitvars, with some bermudagrass cultivars are damaged by rates within the label range and some seashore paspalum cultivars are more sensitive than others to higher than label rates. Although BASF lists common bermudagrass as highly tolerant Johnson reported damage (34316) with repeated applications of a low rate of quinclorac. The Argentine cultivar of bahia is more tolerant than the Pensacola cultivar.

Some interesting and very difficult perennial weeds as well as many summer annual grasses are controlled by repeated applications of quinclorac. Kikuyugrass, torpedograss and three of the speedwells. *Veronica. officinalis, V. filiformis*, and *V. sepyllifolia* are controlled by this herbicide.

So in addition to controlling dandelion, soft crabgrasses, clovers, and some other weeds repeated applications may remove some weeds that here to for have been impossible to get rid of.

Combinations of quinclorac with other broadleaf herbicides often but not always result in improved weed control. Sometimes phytotoxicity of the desirable turf has been increased. Like with all herbicides and especially new herbicides **be very careful**.

Quinclorac does not control goosegrass, yellow woodsorrel, broadleaf plantain, mouseear chickweed, Virginia buttonweed, or prostrate knotweed. Already, please note, there is a strain of barnyardgrass resistant to quinclorac. (57088)

GROUND SQUIRRELS: A few suggestions for control of these pests taken from an article on pg. 14 of the IPM Practitioner, XXI(2) Feb. '99. The spring is the most effective time to control them, just after they have emerged from hibernation but before breeding begins. One approach is modified pocket-gopher box traps placed near burrows or runways. Bait with walnuts, almonds, oats, barley, or mellon rinds the author suggests. But, first bait unset traps and allow them to get used to them; then bait and set the traps. The author notes that the #110 Conibear trap is also effective. "All traps should be staked to prevent scavengers from carrying them off." As for fumigants they prefer the smoke bombs used in the Spring when soil moisture is high. The author suggest first filling all burrow enterances and waiting three days to see which are in use before bombing.

PRIMO: In the March issue (V.23, #1) of *The Perfect Lie* is an article on one club's use of Primo on greens and fairways where I encountered one disturbing paragraph in an otherwise 'sounds-good-to-me type article. That paragraph told of an unexpected negative aspect of Primo use. According to the author, an assistant superintendent, "Primo delays the onset of wilting in the turfgrass plant to the point that when we would finally start to notice wilting symptoms no amount of spot watering would bring it back. I mean the grass actually went from healthy to dead in one to two hours." Any comments -- readers?

CALIFORNIA BLOWER BATTLE: In the April Lawn & Landscape magazine there is a summary of a recent Orange County Grand Jury report of hazards that two-cycle leaf blower present to people. 1) excess exhaust pollution, 2) "5 pounds of particulate matter per leaf blower per hour are swept into the air." This amounts to 20 tons/day in the County. 3) The noise they create is a danger to the health of the operator and an annoyance to any County citizen near one. The grand jury went on to recommend ceasing of their use by county and city governments within the County.

As a citizen I hate the use of blowers for reasons 2 and 3 above. I also don't like to see a blower being used to blow yard wastes (clippings and dust) into the public street. It is not quite as bad as throwing your garbage out into the street like they did in the good old days but to some of us it is irritating. So for those in the lawn care business don't invest too heavily in blowers; the move is growing to get rid of them. The blowers I have seen operating on golf courses I tolerate better because the particulate matter usually stays on the course and the noise is much easier to avoid.