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.

IPM and LEAST-TOXIC PEST CONTROL: I think we have made progress in this area. But wonder how much further we are going to be able to go in this direction. Resistance to Bt is developing at a rapid rate. On the positive side we now have a lot of new materials coming available in the area of insect control (see next article). I was reminded of this looking over the current issue of The IPM Practitioner ($35/year to BIRC, PO Box 7414, Berkeley, CA 94707). This journal has always had an entomologist slant but, they definitely cover other pests from bats to weeds. This last issue was their Directory of Products for IPM pest control. 20 pages for insect control, 3 and 1/2 on vertebrate pest control and two pages on weed mgt..

NEW INSECTICIDE: When I was younger I always got a little kick out of learning the chemical formula for various pesticides such as 2,4-D (2, 4-dichlorophenoyacetic acid). I'm not going to bother memorizing the two active ingredients for DowElanco's new **Conserve SC**. Spinosyn A and D are the common names. For Spinosyn A the chemical formula is 2-[(6-deoxy-2,3,4-tri-O-methyl- alpha-L-mannopyranosyl)oxyl]-13-[[5-(dimethylamino) tetra-hydro-6methly-2H-pyran-2-yl]oxy]-9-ethyl-2,3,3a5a,5b,6,9,10,11,12,13,14,16a,16b-tetradecahydro-14-methyl-1H-as-Indaceno[3,2-d]oxacyclodocecin-7,15-dione, [2R-2R*,3aS*,5aR*,5bS*,9S*, 13S*(2R*,5S*,6R*),14R*,16aS*,16bR*]](9Cl)

It is a microbial fermentation product good for moth larva, some beetles, thrips and leafminers. It only has a CAUTION label. It does have a four hour restricted entry interval for agricultural workers but for nonagricultural use one only has to wait *"until the spray has dried."*

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TREE SHELTERS (PLANTING TUBES): After publishing negative comments on these late this last summer I heard how great they were from my son-in-law who was planning to use some (a few thousand) for gas line rights-of-way. In the Eastern U.S. deer grazing is such a big problem that these tree shelters are definitely a justifiable expense where survival of young trees has to be guaranteed. I'm sure that the heating and or temperature fluctuation problems they create in the West is not as serious a problem in the East.

METHYL BROMIDE: As most of you should be aware of by now the fumigant methyl bromide is going to be phased out in the year 2001. So get those greens fumigated now. There has been a lot of $s spent looking for safe and effective alternatives. You may be force to use steam. There have been no quick, effective, economical fumigants yet to appear. Chloropicrin (tear gas) has some ability to kill fungi and seeds, and metam-sodium can be used with some effect. A recent article in HortScience, Vol. 32(7), Dec. '97 pg. 1208, discusses a search for use in polyethylene-mulched tomatoes.

The researchers main concerns were nutsedges and nematodes. They note that chloropicrin is not overly effective against nematodes. They were able to obtain acceptable control of fungi, nutsedges, and nematodes with two combinations. 1) chloropicrin + pebulate (S-propyl butyl (ethyl)thiocarbamate) and 2) 1,3-D(1,3-dichloropropene) + chloropicrin + pebulate. They do not say how effective these materials are against annual grass seeds or bermudagrass rhizomes. But, at least there appears to be some hope.

For more information on **chloropicrin** I went to Weed Control by Crafts and Robbins, 3rd ed. copyrighted 1962. The references quoted there show that most of the research with this material were done between 1934 and '39. Rates of 14 to 16 pounds per thousand square feet are used for killing of weed seeds in soil, pg. 56. The authors write, Stark (1938) at RI Agric. Exp. Sta. "found that a temperature of 65°C or above was necessary and that the seeds must be moist at the time of treatment." pg. 398. If that temperature (65°C or 149°F) is need for good soil sterilization we will have to combine solarization with fumigation, or heat the soil first with steam.

WHITE BIRCH: For those of you in the Northern Plains there is the possibility of improving the aesthetics of your golf course grounds/parks with what is believed to be a bronze birch borer resistant 'white' birch. This is not *Betula pendula* but rather an Asian species *B. platphylla*. The North Dakota State Univ. has released the cultivar 'Fargo' for the landscape trade. It is a narrow, columnar tree with excellent cold and good drought tolerance. It tolerates heavy clay soil with a pH of 7.8.

QUICKSTAND RANKS 11th : Don't let that persuade you from using this new Kentucky selection of bermudagrass. Quickstand ranked 11th in a trial with 10 **forage** cultivars of bermudagrass. This is exactly what you should expect from a turf cultivar. The author, Baker, in Noble Foundations AG News & Views wrote, "the Quickstand variety, appears to be better suited for turf and/or conservation purposes. It established quicker than any variety in the test, and formed a dense persistent sod...it has a very prostrate(low growing) growth habit..."

POLYETHYLENE PIPE SYSTEMS: After my comment on this in the OK Turf Conf. review I received this comment from an Australian superintendent. "Have to support the views from Western Sprinkler re. Poly pipe. Put new system in one of the courses here, no glue joints, poly laterals and pvc rubber ring mains, cast iron fittings, etc. Only 1 leak in 3 years - a single overlooked glue fitting. This is quite standard procedure now."

TURFGRASS BIOTECHNOLOGY: CELL AND MOLECULAR GENETIC APPROACHES TO TURFGRASS IMPROVEMENT, Ed, by Sticklen and Kenna 1997.

I cannot recommend this 300 page text to 98% of my subscribers but, within it is some interesting reading on: the genetic bases of our turf species as well as biological disease and insect control, and a chapter on the use of endophytes. Examples follow:

Bentgrass: A selection from Austria when included in a study of isozyme genetics and cultivar relationships of the 18 bentgrass cultivars on our market shows very little similarity and the authors thus conclude that "European germplasm may be a means to broaden the genetic diversity of U.S. germplasm." pg. 36 I also did not realize that of the six parental clones used to produce the synthetic cultivar 'Crenshaw' that three were from the five used to produce SR1020. pg. 167

Buffalograss: Although I was aware of much genetic diversity having been found in selections of this grass which is native from North Dakota to the mountains of Mexico I was not aware that, "Turfgrass quality of some genotypes may be higher at low mowing heights (below 2.0 cm) and at increased application levels of nitrogen (above 10g N/m^2/growing season) and water." pg. 183.

Buffalograss is known to have three different ploidy levels; where the normal number of chromosomes for a 2n plant is 20, tetraploids (2n=4x=40), and hexaploids (2n=6x=60) occur. More interesting is the diploid plants are found in Mexico and South Texas and are generally of poor cold tolerance. Tetraploids are found in the middle of the buffalograss range and have moderate cold tolerance and good sod strength. Examples are Prairie and 609. The hexaploids are found in the far north. They have "excellent cold hardiness, are pubescent, and have poor to moderate sod strength." pg. 184.

Seashore paspalum (*P. vaginatum*): This salt tolerant warm season grass is also known by some of us as sand knotgrass. It to has tetraploid and hexaploid plants in addition to the normal diploid. The genetics and agrostology of this species is not yet as well worked out at buffalo. It is a close relative of bahia and dallisgrass Poor viable seed production has hampered improved cultivar development.

Disease Control: Chapter 5 by E.B. Nelson is good reading for those that wish to get away from spraying fungicides. The chapter covers the use of microbial inoculants such as fungal, bacterial and actinomycete agents for the control of thatch and diseases in turf. I did not realize the amount of research that had been done on this in the last ten years, or the number of biocontrol organisms that had been studied. Topics covered are: Production of Inhibitory Metabolites, Microbial competition, Siderophores, Inactivation of Plant Exudates, General Nutrient Competition, Mycoparasitism and the Production of Cell Wall-Degrading Enzymes, Induced

Systemic Resistance, Rhizosphere Competence, Transposon Mutagenesis, Reporter Genes, and Transgenic Fungal Biocontrol Agents,.

GROWTH REGULATORS and TALL FESCUE: In the Journal of Turfgrass Management, V.2, No.1, 1997 there is an article on the use of growth regulators to effect the rooting and water use of tall fescue. It promptly caused me to go to my files because it only gave the common chemical and chemical name of the growth regulators used, no trade names mentioned. I thought that some of you might find yourself in the same predicament so I'm including the common chemical names and trade names here prior to giving a synopsis of the results.

Mefluidide - Embark - the old grass redardant, 2nd generation following maleic hydrazide.
Paclobutrazol - O.M. Scott's TGR, and also widely used in ornamental horticulture.
Trinexapac-ethyl - Primo, the newest of grass growth regulators.
Ethephon - Florel - a fruit eliminator (sweetgum, olives, ornament flowering pears) which has been researched with over the last five years for control on mistletoe.

The researchers found that mefluidide and trinexapac-ethyl at 1/2, full and 2x manufacture's rate had only a slight detrimental effect on roots which were significant in only one of the two experiments run. It reduced water use by the plant. Paclobutrazol decreased root density, depth and length; and had no effect on water use. "Ethephon had the most detrimental effect of any PGR" (plant growth regulator) on the root system. It did result in reduced water use. Mefluide produced phytotoxicity symptoms in this and other research; while trinexapac-ethyl, Primo, did not. Thus for growth retardation and water use reduction of tall fescue one should go with the higher quality turf which results from Primo use.

Another article in the same issue of the Journal was on trinexapac-ethyl use on 'Tifway' (419). In this research done on the tropical island of Gaum the researcher did not obtain the degree of retardation that had been reported by Johnson in Georgia on Tifway. Higher rates that gave desirable retardation also gave unacceptable quality. (ratings of <85%). The researcher thought this might be due to the warmer night temperatures or other climate factors.

POETRY: I was turned off on poetry by my English teachers a long time ago. While at my son-in-law's house before Christmas I picked up a copy of **Crazy Quilt** copyright 1997 and got a few good chuckles out of this book of 'Cowboy Poetry'. The author and source is Elizabeth Ebert, HCR 63 Box 125, Lemmon, SD 57638, ph (605) 374-5433.

It isn't all humorous; some is darn right melancholy. But, if you have been raised in the West and familiar with real cowboys and ranching I'm sure you'll enjoy it. I probably enjoyed ODE TO TOFU the best. It was written after the poet "suggested to a lady in a grocery store that she buy beef instead of tofu." And then when she heard from that lady how the methane gas passed by the cows was depleting the ozone layer the poet wrote a short poem with these two last lines:

Just how much gas will people pass
When they're only eating beans?

-END-