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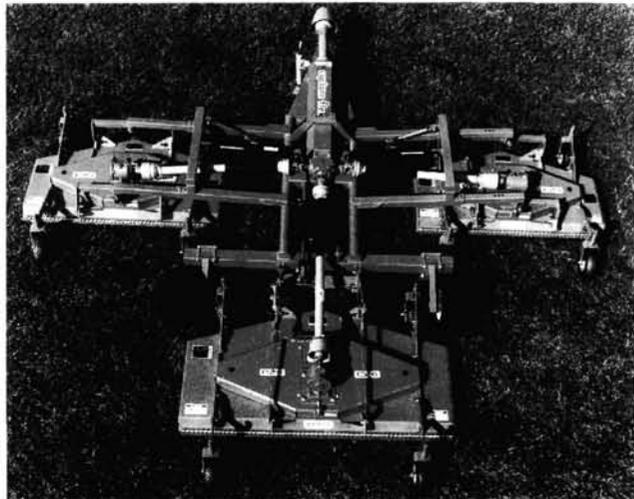
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Math Quiz

by David Wehner

Below is a math quiz that was recently given to students in turfgrass management at the University of Illinois that you may want to try. It was a closed book quiz. The GCSAA has indicated that the math section of the certification exam is usually the one that causes the most problems for superintendents. This quiz has problems similar to those covered in the GCSAA booklet "The Mathematics of Turfgrass Management." The pesticide problems are similar to those that are covered on the State of Illinois applicator and operator certification exams. Next month's issue of **The Bull Sheet** will show how to work the problems and provide the answers.

1. How much 16-3-8 should be purchased to fertilize 2.5 acres of greens at a rate of 0.75 pounds of N per 1000 square feet. (5 points)

2. A superintendent with 20 acres of fairways is going to use a N fertilization program at a rate of 3 pounds of N per 1000 for the season. Half of the nitrogen will come from a slow release (SCU, 22-5-10) N source while the other half will come from urea. How much elemental K will be applied per 1000 square feet? (7 points)

3. The herbicide 2,4-D is frequently used at a rate of 1 pound active ingredient per acre to control dandelion. How much of a 4EC formulation of 2,4-D should a superintendent dump in to a 200 gallon spray tank if the sprayer is delivering 35 gallons of spray per acre? (6 points)

4. Your golf course, with 20 acres of fairways and 5 acres of greens and tees, has been placed on a restricted watering schedule by the local municipality. The allotment for June 1 to June 28 for the course is 275,000 cubic feet of water. You plan to apply 1 inch of water per week to the greens and tees. How much water, expressed in inches, can you apply to the fairways? (1 cubic ft=7.48 gallons, 1 acre inch=27,154 gallons) (10 points)

5. The Turf Products catalog lists several formulations of Dursban, an insecticide. The 4E formulation sells for \$540.75 for a 5 gallon container. The 50WP formulation sells for \$192.50 per case (12 pounds). Which is the more cost effective and what is the difference in price? (8 points)

6. Your sprayer, the one with the 200 gallon tank that delivers 35 gallons per acre, has nozzles with 20 inch spacings and is operated at 3 mph. The pressure gauge broke, and before you could replace it, you found signs of pythium disease on the course. You decide to use the sprayer without the pressure gauge. You collect 8 ounces of water from one of the nozzles in 10 seconds. Assuming that the sprayer will be operated at the same speed as before, what is the rate of spray delivery expressed in gallons per acre? Do you need to adjust the pressure down or up to get back to the 35 gallons per acre rate? (6 points)

$$\text{GPA} = \frac{5940 \times \text{GPM}}{\text{mph} \times \text{W}}$$

7. You decide to spray Embark around the base of the trees on the golf course using a hand held pump sprayer that holds 2 gallons of water. The label states "Apply 4 fluid ounces of Embark per 1000 square feet with a pump type sprayer..." Your mechanic has equipped the sprayer so that the spray tip is a fixed distance from the ground and this distance results in a 10" wide spray band. Your spray technician, walking at a normal pace, tests out the sprayer and covers a 100 foot distance using 16 ounces of spray. How many ounces of Embark should you put in the sprayer for each tank load of solution? (8 points)



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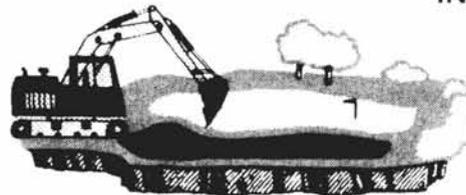
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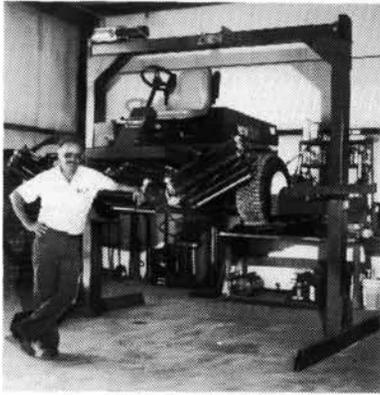
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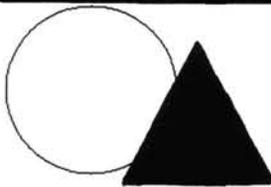
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Annual Charity Gin Classic

by Paul Voykin

March 29 a large group of kind-hearted golf course superintendents and their friends raised over \$1,000 for charity. This year again, the money was donated to the Maryville Academy for abused and drug-addicted children.

In 13 years, we have raised over \$20,00 for charity. I wish all of you could have heard Father John Smyth's poignant, heart-rendering speech about damaged children who are brought to his academy suffering from neglect, abuse and drugs. We were immensely honored and impressed by this towering 6'6" priest (once an all-star basketball player for Notre Dame) who stooped before us extolling many years of involvement with this terrible crisis. The Maryville Academy is not funded by the Catholic Archdiocese. It's strictly self supported by donations only. Father John Smyth does a herculean job for his wounded kids. Truly this wonderful man is the "Father Flanagan of Chicagoland". It's not too late to send your \$40 to "Johnny The Bear" (who as chairman did a marvelous job of organizing the tournament, along with co-chairman Peter, "The Voik"). It's tax deductible; please do it for the little ones.

Here now is what happened at the gin tournament. Mr. Bob "The Splicer" Spicer won the gin tournament, beating young handsome Trent (son-in-law of "Golly, I think-I-made-a-mistake Wally.") "Handsome" Trent was last year's champ and almost won again this spring, but "The Splicer" Spicer got him in a very close gin game. Carl "Bypass" Hopphan had three "open heart" games and "P.V." and "Golly Wally" had a double "open heart", which to my knowledge has never occurred before. The phrase "open heart" is used when a player states that he is calling, say on a seven and then, much to his embarrassment, is told by his opponent that the call card is five. Or say he makes the right call, but then as he lays his hand down, his opponent tells him that he still has 40 points in his hand that aren't in a run. One feels extremely stupid when this occurs and I hold the all-time record for "open hearts". Now when this misjudgement happens, the red-faced player has to turn all his cards face up so his opponent can clearly see his cards. It is very hard to win this way. Yet "Bypass Hopphan" laid down his "open heart" cards three times and unbelievable, won all three games against his stunned opponents who thought the games were a sure thing for them. Carl showed an awesome exhibition of skill (and mostly luck). "Bypass" has now truly become a legend as a gin player and will receive the Purple Heart award from the Clinton Administration.

Some of my dear friends have wondered why I, the founder of this annual gin event, am no longer the charming chairman. The truth is I have been demoted by my former trusted committee of Johnny, Mikey, and Petey and have been reduced to the depressing position of lining up on the tables little pencils along with score pads and playing cards. Then after the game, it is my duty to pick them off the beer-stained floor and clean up. Their jealous decision to get rid of me was based on the alleged assumption that during my three years of tenure as devoted gin chairman, the recipients of our generous donations sent thank you cards from Acapulco, Bahamas and Palm Springs.

Respectfully and humbly submitted, Paul Voykin



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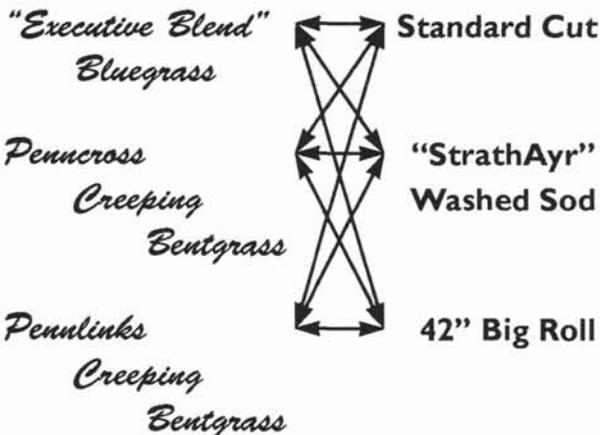
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An integrated approach to controlling summer patch

by Bruce B. Clarke, Ph.D.

Rutgers, The State University, New Brunswick, NJ

Summer patch is one of the most destructive diseases of cool-season turf in North America. Prior to 1984, it was an unidentified component of the disease Fusarium Blight. Summer patch has been reported on annual bluegrass, Kentucky bluegrass and fine fescue.

SYMPTOMATOLOGY

In mixed stands of annual bluegrass and bentgrass maintained under putting green conditions, patches are circular and range from 1 to 12 inches in diameter. As annual bluegrass yellows and declines, bentgrass species frequently recolonize patch centers. On fairways, rings or patches may not develop. In such cases, symptoms may appear as diffuse patterns of yellowed or straw-colored turf that are easily confused with heat stress, insect damage or other diseases.

Infection commences in late spring when soil temperatures stabilize between 65° and 68°F. Symptoms develop during hot (86° to 95°F), rainy weather or when high temperatures follow periods of heavy rainfall. Patches may continue to expand through the summer and early autumn and are often still evident the following growing season.

MANAGEMENT

Chemical Control

Systemic fungicides, such as fenarimol (Rubigan), propiconazole (Banner), triadimeton (Bayleton) and the benzimidazoles (i.e., Tersan 1991, Fungo 50 and Cleary 3336), have proven to be most effective when applied at label rates. Applications should commence on a preventive basis in late spring or early summer when the maximum daily soil temperature exceeds 60°F for four to five consecutive days. Soil temperatures should be monitored at a two-inch depth during the warmest part of the day. Fungicides should be repeated two to three times at 21- to 28-day intervals for best results. Efficacy is enhanced when products are applied to 4 to 5 gallons of water per 1,000 square feet. Post-treatment irrigation has not been shown to increase disease control and may, at excessive levels (i.e., 1/2 to 1 inch of water), actually decrease fungicide effectiveness.

Cultural Control

Because summer patch is a root disease, cultural practices that alleviate stress and promote good root development will reduce disease severity. Since low mowing enhances symptom expression, avoid mowing turf below recommended heights, particularly during periods of heat stress. In the Northeast, symptoms are less apparent when golf greens and fairways are cut at or above 5/32 and 3/8 inches, respectively.

Summer patch is most severe on poorly drained, compacted sites. Aerification over a period of several years should reduce compaction and decrease the incidence and severity of this disease. Spring and spring plus fall aerification schedules are more effective than fall aerification in reducing disease development. Summer patch is stimulated at high soil pH. Therefore, for best results, maintain soil pH between 5.5 and 6.0 with the application of ammonium sulfate or a slow-release nitrogen

(continued page 28)

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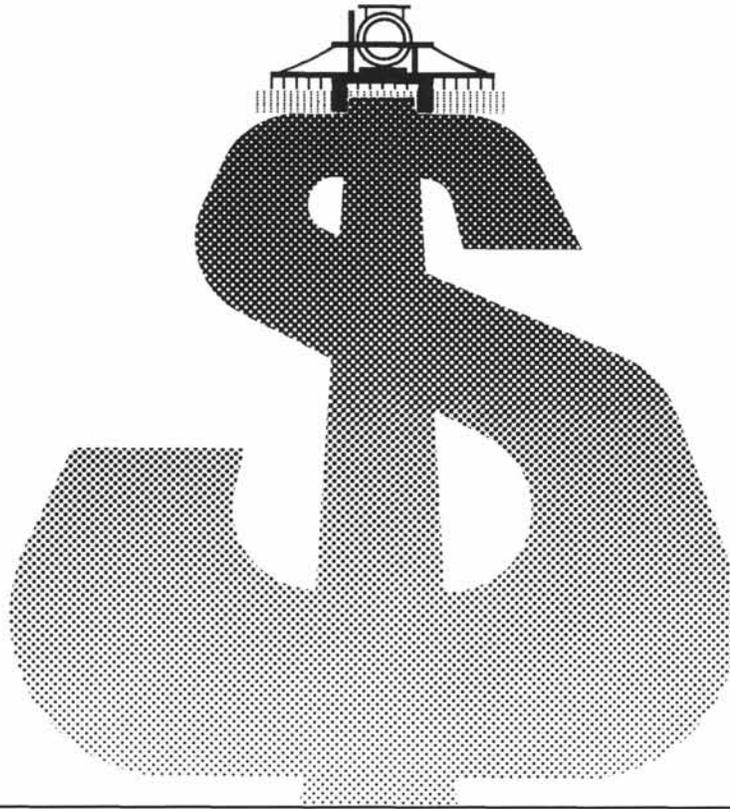
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(Summer Patch continued)

source such as sulfur-coated urea. Irrigate deeply and as infrequently as possible without inducing drought stress. Conversion of golf areas from annual bluegrass to bentgrass will further reduce disease incidence.

Reducing Fungicide Rates

The use of fungicides to control summer patch can be reduced through the implementation of good cultural practices such as aerification, raising the height of cut and fertilizing with acidifying nitrogen sources. Although cultural management practices may take two to three years to reduce disease severity, they represent an environmentally sound means of improving turfgrass vigor and reducing fungicide rates 25 to 50%. The integration of acidifying fertilizers and systemic fungicides has also been used on golf greens to effectively control summer patch and increase the population of bentgrass 11 to 20% over a three year period.

This research was supported by the Golf Course Superintendents Association of New Jersey, the Tri-State Turf Research Foundation, the New Jersey Turfgrass Association and the Rutgers Center for Interdisciplinary Studies for Turfgrass Research.

Credit: The Greener Side, April '94

Editor's comment: Another note from Dan Dinelli with some information that many people may want to know more about.

Dear Fred,

There are a few things I want to mention. Last fall I was appointed as a delegate to the Illinois Conservation Congress. I am part of a group representing Region 2 (Northeast Illinois). IDOC's Conservation Congress is a fairly new concept; this is only its second year. Other states are looking to follow a similar format. Basically, Conservation Congress is an advisory body who drafts recommendations to IDOC. Several recommendations have already been implemented, such as the Habitat Stamp to raise funds for development of a Conservation Easement Program. The 'set aside program' has been cut due to lack of funds. Because of this many acres of land that was once subsidized will be put back into production. This loss of cover has a great impact on the environment and wildlife. The Habitat Stamp will put acres back into cover, creating wildlife corridors and soil stabilization. Another fund raising effort is the States first environmental license plate. These funds (\$25.00 from each purchase) will be deposited in the State Park Fund. If anyone is interested they should call 217/782-2402.

Another project that arose is the Illinois Natural Resources Month. To create awareness in natural resources, April is Natural Resources Stewardship Month. Again, for those interested in a self help manual, I can send them a copy.

If anyone has any comments or concerns for the Illinois Department of Conservation, I would be happy to work with them. They may feel free to call me at home, 708/480-0203 or at work 708/724-4963.

Also, for those interested in IPM Products, they should consider joining BIRC. The Bio-Integral Resource Center provides information on the least-toxic methods for managing pests. Members receive 10 issues of the IPM Practitioner, a newsletter with latest IPM information. Membership also includes an up to date directory of the least-toxic Pest Control Products. For more information people can call me or BIRC, 510/524-2567.

Dan Dinelli

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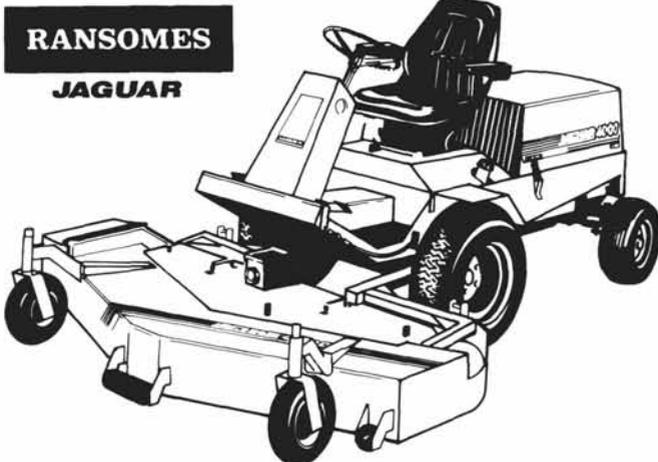


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by Fred Opperman

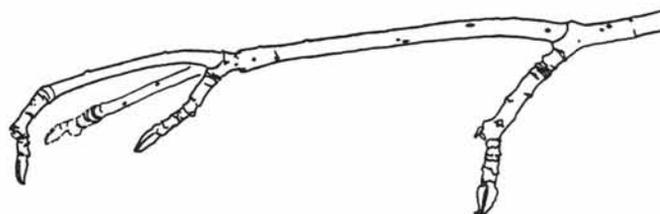
This month's selection is an understory tree, that is a tree that is usually found along the fringes and in the shade of others around it.

Cornus alternifolia — (kor'nus al-ter-ni-fo'li-a), Commonly known as Pagoda Dogwood.

Leaves: This is the only dogwood with alternative leaves. Simple, oval to ovate, pointed at the tip, tapering or rounded at the base. 2 to 5" long, 1 to 2½" wide. Medium to dark green in color. Mostly smooth on the upper surface and hairy on the underside.



Stem: Slender, usually greenish to reddish, purplish brown, shiny; leaf scars alternate.



Buds: Narrowly ovoid ¼" long, pointed and smooth.

Flowers: Several in a group round-topped clusters that appear in May and June, each flower is white ⅓ inch in diameter with 4 narrow petals. Fragrant for up to 7-10 days. Flowers are not showy.

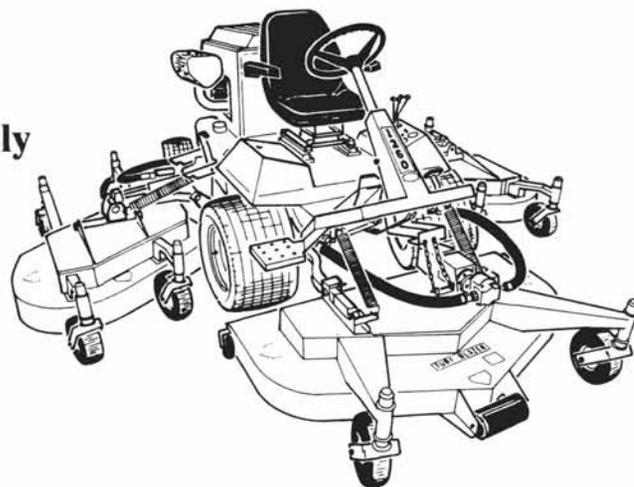
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