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Pfister Menu: All Meet ... but No Potatoes

“A Dudley Smith Impression of the Program at Milwaukee”

The twenty first Wisconsin Turf Symposium in Milwaukee found a classroom full of students going home with empty notebooks. The subject matter was “The Micronutrients (Who Needs Them?)”. The speakers were helpless because research on the use of minor elements on turfgrass has NOT been done. The professors gave us the SWAG treatment (scientific wild ass guessing) commonly called food for thought.

Over 200 turf enthusiasts attended the two day session at the Pfister Hotel, among them 18 from the Chicago area.

Comments from the podium:

Dr. Jack Butler, Colorado State

1. Local problems are NOT always important universally. Micronutrients are NOT a major world concern. Iron (Fe) is as important a fertilizer in western states as N, P, and K.
2. Clipping removal on fairways alters fertilization practices. Bluegrass fairways fed 3 lb. nitrogen annually showed 3 lb. removed in weighed clippings, likewise bentgrass fairways showed nitrogen being discarded in tissues removed.
3. The amount of certain minor elements needed for turf growth is trivial. You could satisfy the need for copper by simply using brass nozzles on the spray rig.
4. Soil tests at Milwaukee Country Club showed one percent iron present (adequate for turf) BUT the iron was in forms unavailable to the plant. Soil testing is a vital tool neglected by most superintendents.
5. Organic fertilizer should be used on sand based putting greens because the minor elements contained are needed in this leached porous media.
6. In Rocky Mountain area research no post graduate work is under study on micronutrients, BUT a thesis is being written on “The Effect of Elk Urine on Creeping Bent Greens.”
7. Putting green speed, or golfball roll, can be reduced by 25% or a matter of inches on the stimpmeter, by an application of sulfate of potash at 1 lb./1000 sq. ft. (If you have a scratch handicap golfer harassing you about putting green speed, wait until the club championship and fertilize every other stripe with potassium sulfate).

Dr. Randy Kane, Illinois

Calcium deficient soils are prone to pythium attack (Couch). Calcium effects soil properties and water penetration.

Nitrogen applied as NH_4^+ lowers the pH in the root zone, H^+ is released and less disease is present. Nitrogen in the NO_3^- form releases OH^- ions from the plant and the pH in the root zone rises and so does the disease level.

Dr. Robert Shearman, Nebraska

1. Of the sixteen essential elements most are available to plants at pH 6.5-7.0. At pH 7.5 iron, boron, manganese are bound up and not released for plant benefit. Are we wasting dollars fertilizing minor elements on high pH greens?
2. High phosphorus applications may produce iron deficiency.
3. Soil tests inform you of the pH status, and the nutrients available at that level.

4. Late Fall nitrogen applications are enhanced by adding iron for root development and winter hardiness, less desiccation.
5. Excess iron sulfate makes BLACK greens. This is foliar desiccation or reverse photosynthesis, a temporary condition.

Dr. James Beard, Texas A&M

1. The closer we get to perfection, i.e. creeping bent fairways, the more obvious our imperfections become. So the need and use of micronutrients (iron) is showing up.
2. Do NOT add large amounts of a single nutrient (iron) assuming it is deficient. You will disrupt the release of the other minor elements. You will destroy the BALANCE.
3. Dr. Beard has traveled the world and NEVER seen deficiency symptoms for micronutrients in turf; with the exception of iron. So how big a problem is it?
4. Root hairs live 14-21 days. We need root hairs for the uptake of nutrients. With temperatures above 80° root development ceases. At this time consider foliar feeding, especially iron. At mid day the stomata on the leaves close permitting the upward flow of nutrients. With the stomata closed we might pick up a different time of day to spray liquid fertilizer, and also to prevent foliar burning.
5. The USGA green mixture is sound IF you stick to the original mix; with part soil and part organic matter. 100% sand greens are asking for trouble. Sand greens go OUT OF BALANCE easily. There is no forgiveness from soil-less greens.

Oscar Miles, Butler National Golf Club

1. In his current rebuilding Oscar uses 80% dune sand and 20% Indiana peat. His experience with 100% sand base was a management nightmare until some organic matter developed. Pure sand base drained too fast, desiccation prevailed, and nutrients leached out.
2. Oscar adds one quart sulfuric acid in his 300 gallon spray rig. This lowers the pH of the solution giving a better performance from the insecticide and fungicide applications. Sulfate of potash is also added when spraying fungicides.
3. In the past six years the pH of the Butler National greens has dropped from 7.8 to 7.3 with the addition of powdered sulfur. Five pounds of sulfur is applied annually. That is five periodic feedings one pound sulfur per 1,000 sq. ft.

Jim Latham, USGA

Using sulfur to control pH is risky. Toxicity of nutrients may develop. Copper and zinc are not mobile in the soil and easily become toxic.

A golf course in Wisconsin had the mishap of spraying CUTRINE on the putting greens rather than the ponds ... terrible black putting surfaces, but nice green lakes.

In the 1960's Chicago had a crusader preaching pH neutrality and the importance of SOIL BALANCE. He cited the merit of sulfate of potash, and the use of high calcium line. Recently, his concern has been the salts in our irrigation water driving the pH level upward. Now, twenty five years later, the professors at the Milwaukee seminar concede they are puzzled by these same issues. You are a good man ... Vaclav Zolman. Same time next year, bring your notebook and pencil.

Dudley Smith, 11/8/86

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