

THE LITTLE GUY

by Dave Fearis

- He or she is the golf course superintendent of a 9-hole course.
- Often times, he is the whole crew. Perhaps he might have a helper during the summer.
- It isn't uncommon for him to aerify and topdress all the greens by himself. He might be able to only do one green a day because he has to spread the topdressing by hand with a scoop shovel.
- He doesn't mow his fairways with a troplex; he crosses his fingers each day hoping that his 1972 or '73 triplex greensmower makes it through mowing greens.
- He can't push a button and automatically water the greens and tees. He still has to use the hose and roller base to water.
- He doesn't know what a stimpmeter is and probably doesn't care.

He's the "little guy" only in respect to budget. But he's a "giant" in the amount and quality of work he accomplishes. His greens are as true and consistent as those of any major course. Granted his fairways aren't watered, but they're weed-free and very playable. His budget is meager when compared to many other courses, but he still finds the time and money to beautify his tees or clubhouse with flowers.

Is this superintendent less of a professional than the ones at the 18 or 36 hole courses? Of course he isn't, and I'm not trying to put down those at the major courses. The point that I wish to emphasize is that the superintendents at these 9-hole, or even 18-hole, courses, with the small budgets are the forgotten or even ignored professionals. We are constantly reading in the trade magazines about those superintendents with the mega-budgets who are hosting the important tournaments. Also, I would venture a guess that our local and national turf associations are composed mainly of superintendents from the 18-hole courses with the "country club" budgets. Where's the "little guy" in these magazines, and he more than likely wants to go to the meetings. However, he feels "out-of-place" and somewhat uninvited. How we all could benefit from these "little guys," his methods, ideas, and practices.

Let's all make an effort in the future to include the "little guy." he is a very important part of our industry, and he does belong. ■

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SURFACTANTS AND HERBICIDES

By: Dr. Megh Singh
Assistant Professor

Citrus Research and Education Center
Institute of Food and Agricultural Sciences
University of Florida, IFAS
700 Experiment Station Road
Lake Alfred, FL 33850

Surfactants are used as additives to herbicidal sprays to enhance the effect of herbicides on the target species. In this article, I will try to cover some of the fundamental facts about surfactants with practical application to herbicidal sprays such as: what are surfactants, types of surfactants, what are the advantages of surfactants, which ones should be used, how much should be used, etc.

WHAT IS A SURFACTANT? A material which improves the emulsifying, dispersing, spreading, wetting or other surface modifying properties of liquids. A typical surfactant molecule is made of two parts, a non-polar tail and a polar head. Based on net electrical charge on the polar part, surfactants are classified in four groups, cationic or positively charged, anionic or negatively charged and amphoteric which have both acidic and basic moieties in the polar part.

HOW DOES A SURFACTANT WORK? The main function of surfactants in a herbicide solution is to reduce surface tension. Surface tension is a force with dimensions by dynes/cm that is a measure of work required to increase the area of a surface by one square centimeter. Reduction in surface tension increases the wetting ability of a surface (could be a leaf surface) by reducing contact angle. The angle formed by a droplet in contact with a solid surface, measured from within the droplet is called contact angle. Contact angle without a surfactant is shown in Figure 1A in which surface tension is higher and the drop is round in shape. When the surfactant is added to a solution surface, tension is reduced and the droplet becomes flatter as shown in Figure 1B. The additional advantages of surfactants are described later in this article.

HOW MUCH TO USE? As I have indicated earlier, surfactants are only additives to herbicide solutions and they do not contain any herbicidal properties. It is quite normal to believe the old saying "If a small amount is good, then more will be better," however, in case of surfactants, it is not so. Figure 2 indicates that initially, an increase in surfactant concentration reduces the surface tension which reduces the contact angle, and since reduced contact angle is a function of surface tension, consequently wetting is increased. After surfactant concentration reaches a certain limit, there is no further reduction in surface tension which a minimum contact angle and maximum wetting is obtained at this concentration. The surfactant concentration is called "Critical Micelle Concentration" (CMC). At CMC, the liquid surface is covered with a monomolecular layer of surfactant and if additional surfactant is added, there is no surface available to accommodate additional surfactant molecules and they start going below the surface and start micelle for-

mation. Therefore, there is no further reduction in surface tension. Adding surfactant beyond CMC will not benefit the herbicidal effect and will increase costs unnecessarily. CMC varies from surfactant to surfactant but the general range will be 0.1 to 0.25% (v/v). Therefore, surfactants should be added to herbicide sprays in this range. Most effective surfactants have low CMC, lower surface tension and contact angle of CMC.

Advantages of Surfactants in Herbicidal Sprays

- 1. SMALLER DROPLETS:** Herbicide sprays containing surfactants produce smaller droplets which spread more uniformly on plant surfaces. This uniformity of spread improves the efficacy of herbicides.
- 2. SURFACTANTS IMPROVE THE WETTING OF LEAVES:** Surfactants improve wetting of the leaf surface and herbicides are absorbed through a larger area which means more herbicide is entering the plant and producing better results.
- 3. SURFACTANTS IMPROVE SPREADING OF DROP ON THE LEAF:** Without a surfactant in the herbicidal spray, the drop is close to round in shape and easily rolls off the leaf surface. Surfactants tend to flatten the drop and it does not fall easily from the target surface.
- 4. SURFACTANTS REDUCE THE RATE OF EVAPORATION:** Reduction in rate of evaporation caused by surfactants allows herbicide spray droplets to remain in liquid form for longer periods of time. Since herbicides are absorbed in liquid form, the absorption is greatly enhanced.
- 5. SURFACTANTS DISSOLVE THE WAXES:** Most of the leaf surfaces are covered with wax. Surfactants dissolve the cuticle wax and enhance foliar retention and penetration of herbicidal sprays.
- 6. SURFACTANTS IMPROVE THE TRANSLOCATION OF HERBICIDES IN PLANTS:** Surfactants are absorbed by the plant along with herbicides and they increase the movement of herbicides within the plant.

There are many surfactants and surfactant-like materials available on the market today. It is wise to select a proper surfactant. Most of the time surfactants are identified by their trade names for a particular herbicide by the manufacturer of the herbicide. But if this type of information is not available, then the selection could be made on the basis of CMC, surface tension and contact angle values at CMC, and their phytotoxic effect on the plant. Manufacturers of surfactants should be able to provide this information. A good surfactant should have a lower CMC, very low surface tension and contact angle at CMC and should not have any phytotoxic effect on the plant. In Figure 2, both surfactant A and B have approximately the same CMC, but surfactant B has lower surface tension and will produce a smaller contact angle which means higher wetting ability. Therefore, surfactant B is considered more effective than surfactant A. Non-ionic surfactants are most commonly used as additives with herbicidal sprays. ■

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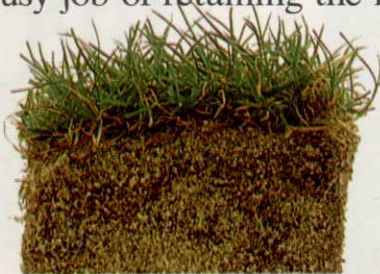


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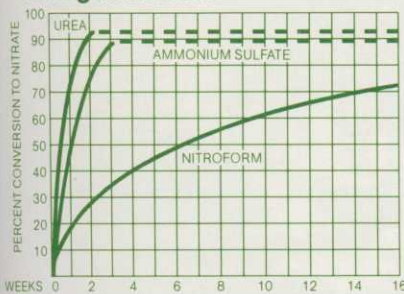
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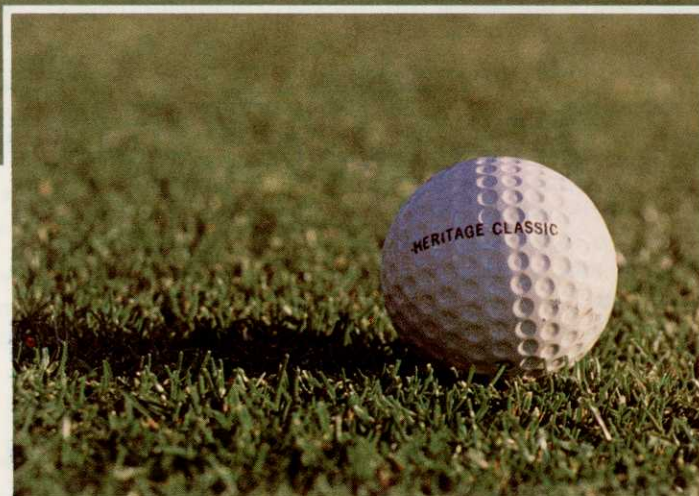


Board meetings, voting, politicking, Trade Show and recognition of largest donation ever to GCSAA kept Florida in the limelight in San Francisco.



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POTASSIUM DEFICIENCIES

by John O'Keefe
Westchester Hills Golf Club

Potassium Deficiencies seem to be showing up more and more throughout the Westchester area as superintendents receive their soil tests. These deficiencies seem especially common in areas where clippings are removed, such as tees and greens. We will probably start to see more of the same problem on fairway tests as the practice of removing clippings becomes more common.

Symptoms of a Potassium deficient turf appear as follows: the first symptoms appear as leaves start to droop and soften, and excessive filtering is evident. As the deficiency worsens moderate yellowing of the inner veins of the leaf occurs, especially in the older leaves, followed by the rolling and withering of leaf tips. Once a deficiency occurs it alters the plant in a variety of ways. The lack of Potash drains carbohydrate reserves, which restricts rooting. It also increases the transpiration rate which often causes premature wilting.

Potassium is a nutrient essential to plant growth and development. It is used for the process of photosynthesis, starch formation and the development of chlorophyll; all of which strengthens a plant. It also is necessary to regulate transportation and aids in translocation. Optimum levels of Potassium benefit a plant in many ways. Root growth is stimulated and the plant becomes more wear tolerant. Turfgrasses have a tendency to promote more stolons and rhizomes. The leaf cells of turf develop more turgidity and plant succulence is reduced. High levels of potassium reduce the proneness to many diseases, such as Brown Patch, Dollar Spot, Fusarium Patch, Ophiobolus Patch, red Thread and Helminthosporium diseases.

There are actually only two sources of potassium for the soil. One of which is through the decaying of old plant material or thatch, which we are starting to eliminate through clipping removal. The second source is commercial fertilizers. There are a variety of potassium fertilizers available. The largest problem with most forms of Potash is that it must be handled with care because of possible burn and high salt content.

During the past three years Tony Grasso of Metro Milorganite has been performing tests with potassium on fairways at a local golf course. The tests involved two fairways, one where clippings were returned and one where clippings were removed. He started these tests to determine the amount of potassium being taken from the soil with clipping removal. Basically his results were that 150 pounds of Potassium per acre are removed annually.

With facts such as these we are able to see how deficiency problems can occur without returning or adding proper amounts of this vital nutrient. ■

Credit: Tee to Green Met CGSA

NINE WAYS TO NEGOTIATE A RAISE

Many persons who have no trouble dealing with their superiors in most day-to-day situations find it very difficult to ask for a raise. If you're fainthearted at negotiation time, consider these recommendations to ease the process:

- Know your worth. Ask yourself how valuable you are to the course, how much would it cost to replace you, what have you done lately to help the organization.
- Pick your place. Get your boss outside of the office to listen to your request. Take him to lunch if possible.
- Detail your reasons. Tell your boss why you deserve a raise.
- Suggest an amount. You, not your boss, should propose the amount of your possible raise.
- Set your figures high. Ask for more than you expect to get. This leaves room to bargain.
- Compromise — but not too easily. Since you've started with a high figure, realize you probably won't get it. Let your boss make a counter-offer, and be ready to compromise.
- Rehearse, don't go into negotiation cold. Be sure to be in top mental and physical condition when the actual talks begin.
- Get it in writing. If possible, get your boss to put it in writing — for both signatures — the raise he agrees to.
- Don't wait — ask. Don't wait around for the company to recognize your value and give you a raise. Ask for it. Your aggressiveness may pay off. ■

Credit: Fore Front

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Educating a Crew and Sharing Information are Superintendent's Job

If the golf course superintendent is to do a quick and efficient job, he must be able to educate his crew regularly and in depth. It isn't easy to find time in a hectic day during the golf season to tend to the basics that don't affect the golfers directly, but it is essential to do it anyway. Following are some ideas to help the superintendent see to the effective education of his crew:

First, share information with them first thing in the morning, when they are fresh and not yet busy all over the course. Tell them in as few words as possible what you need them to know. Don't let your thoughts stray or the conversation wander from the subject.

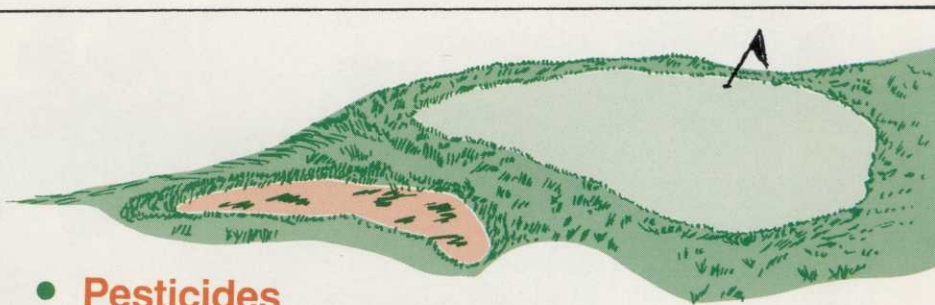
Share praise promptly with all crew members. It doesn't always have to be in group meetings, but when you see a good job being done, stop and say so. Occasionally mention some especially well done work in your group meetings — it builds morale. But be very careful to criticize discreetly and in private. Always try to work in a little encouragement or helpful suggestion with the criticism so it isn't just negative words. This will help build trust and confidence that will spill over into all areas of your crew's work.

Focus whenever possible on what a topic means personally to the crew. A well-kept green can be a reflection of their personal pride and abilities. "What's in it for me?" is a key point of view that's guaranteed to get their attention.

Keep your presentations short — don't kill the subject with words. Break it into segments you can handle in short sessions several running if it takes more than 15 or 20 minutes. Try to allow as much time for questions as you do for your own talking.

Follow up your teaching sessions with on-the-job information. You might explain how a new nine-gang mower works in the shop and then have the operator run it in your presence for a while, for instance.

Communication is part of the turfgrass manager's job, both with the crew and also with golfers. Remember, you'll also have to communicate with the green committee and club officials, so get in practice and learn to relay information efficiently and comfortably. It will pay off. ■



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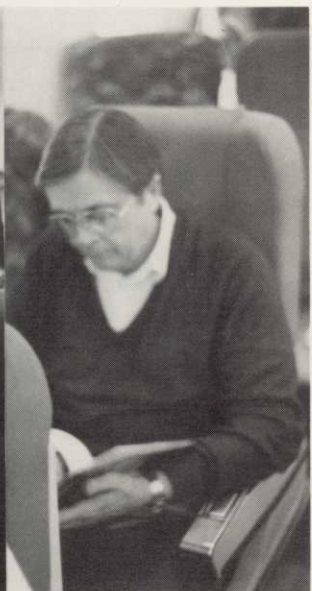
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