right from the start. Ownership of the decision then becomes everyone's, and the mower selected will be acceptable to everyone even if it is a compromise because of finances.

#### Funding

Once the selection team is established, discussions in regard to the selection should begin with the funding. Let everyone know how much money is available to be spent on a new mower and if a piece of equipment you now have will be used as a trade-in.

But this is not *always* the way it works. Sometimes it is necessary to work a little backwards. I work for a public school district. I ask my staff to select a mower and then find out what it costs so I can include the amount in my budget for approval by the school board and then by vote of the taxpayers.

#### Function

Discuss and agree on what the new mower will be used for. Determine the field or fields or lawns it will be used for and whether or not it should just be a mower.

We have a tractor that has a mower attachment, posthole driller, york rake, rotary brush, front-end loader and diamond drag. Changing from one attachment to the other is easy; we don't have numerous tractors to maintain, and we have versatility in one piece of equipment that we can use all year long in a part of the country that has (in my opinion) ten months of winter.

We also have a mower with an eleven-foot cut that only can be used to mow. We decided on this mower rather than replacing our smaller mowers because it saved man-hours and was less costly than hiring another person whose time could not be justified in the winter. So function was justified by the economics.

As an aside, we share use of fields with the towns in our area. With the purchase of the eleven-foot mower, we have entered into an agreement by which we share services. We mow fields for the towns, and they plow snow for us. It saved us from buying more plows and them from buying a new mower. The taxpayers saved all around.

#### Testing

Once you know how much you have to spend and you agree on what the piece of equipment will be used for, you can seriously begin the search process. You might begin by going directly to the yellow pages of your phone book or some other directory to develop a list of dealers to call to demonstrate their equipment. Limit your list to commercial grade equipment. This is much more efficient and practical than visiting them. Ask them to bring literature about the mowers they demonstrate, including available options, attachments, specifications and warranty.

Prior to the demonstrations, mow a particular area with the mower you have and make note of the time it takes to do so. It is also advisable to calculate the size of the area cut. Then when demonstrations take place, you can either cut the test area or an area of similar size to compare mowing time.

As I mentioned above, the eleven-foot mower we bought saved so many man-hours, it was not necessary to ask the board to hire another person. This helped persuade the board to include the purchase of the mower in my budget.

Mow a section of a field with your mower and right next to that portion mow with the demonstrator to compare the quality of the cut. Let everyone on the selection team operate the mower. See how it maneuvers, how loud it is, how it

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# Carries Everything But A Big PriceTag



## New From Cushman<sup>®</sup> The Economically Priced UTV-Max

With belt-tightening becoming standard operating procedure, there's never been a better time for the Cushman UTV-Max. This rock-bottom priced utility vehicle is engineered to carry up to 1,200 pounds. And, because it's built by Cushman, it will carry on for years. Cover 16 miles an hour in the gas-powered model—20 in the electric. Extended bed UTV-Maxim also available. Proudly built in the USA with your diminishing budget in mind.



#### Mowers

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cuts, all the obvious things. Immediately after the demonstration, meet to discuss the demonstrations and make notes of each person's opinions and observations. Conduct as many demonstrations as you feel are adequate. As demonstrations progress, the criteria that will be used to select the mower will develop and be refined.

#### Evaluating

When the demonstrations have been completed, it is time to evaluate and compare the mowers you tried. The criteria you want to compare is a combination of what the team developed and information taken from the many brochures you accumulated from the dealers.

Look at the specifications section, and from all of this, develop a spread sheet listing the specifications along the top of the page plus your criteria and listing the brands down the left side. It then becomes easier to see which mower has what.



Prior to demonstrations, mow a particular area with the mower you have and make note of the time it takes.



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For instance, along the top of the sheet you might list horsepower, transmission type, ground speed, turning radius, service intervals and other pertinent information. As you work your way through each brand, you will be able easily to compare between the different mowers.

You will by this time have formed opinions as to what features are really desirable to have and which are not. You will have an idea of which mower you think might be the best to purchase. During the demonstrations you may find a mower you really like with features which surpass all others. If so and you feel you would like to purchase that mower, ask yourself if you really need the extra whistles and bells. Don't let emotions over-rule logic in making a selection or making recommendations. Narrow your field to three mowers.

#### Selection

Here is the final and most difficult task of the process — narrowing the list to one mower. Your team has done an excellent job up to this point, and there is One thing I suggest at this point is to use one more tool that is at your disposal to help reach your final decision — consult with your counterparts.

consensus on everything done to this point. There is also a high level of anxiety.

The anxiety needs to be relieved in order to conclude this process comfortably. One thing I suggest at this point is to use one more tool that is at your disposal to help reach your final decision — consult with your counterparts. This in no way is meant to suggest that the team cannot make the final decision, but is meant to reinforce the work the team has done and provide information not usually obtainable during demonstrations.

Ask your counterparts what they use and why. Ask them if they ever had one of the mowers you are considering and if it performed well. They can provide information about the service, the dealer, the problems with the mower, and so forth that the demonstration and comparison of criteria will never divulge.

You are now well prepared to choose the one mower that you will live with for many years. Good luck to you and your team!  $\Box$ 

Angelo Ranieri is director of facilities for Susquehanna Valley Central School District in Conklin, NY.



## **APPLICATOR'S LOG**

## **Pre-Emergent Herbicides**

#### By Mary Owen

thletic field managers are challenged to provide dense, safe playing surfaces. A dense turf results from planting the appropriate grass species, proper fertilization, adequate irrigation, proper pH and proper, timely cultural practices. The identification and management of pest problems should be an integral part of a plan.

Even when you practice all basic techniques, the density of a turf can be compromised by the amount of traffic the field receives. As traffic increases and "rest time" for the field decreases, turfgrass plants may not have an opportunity to replenish and repair themselves. With little or no time for rejuvenation, an overused turf will thin. More light will reach the soil surface. The soil becomes compacted more easily. The turfgrasses' competitive edge is diminished. Ultimately weeds will encroach.

#### **Doors for Weeds**

The first line of defense against weed infestation is healthy, vigorous turf. When weeds become a problem, you should begin developing a strategy to manage them by identifying the cause of the infestation. The following situations will open the door for germination and growth of weedy plants in a turf:

- low mowing heights;
- poorly timed aeration and other cultivation practices;
- heavy and frequent traffic;
- intense and concentrated wear;
- too high or too low fertility regimes;
- · too high or too low irrigation levels;
- soil compaction.

A defensive weed management strategy should address any problems contributing to the weed infestation.

#### Success with Pre-Emergents

One tool in a defensive weed management plan is the pre-emergent herbicide. Pre-emergent herbicides are primarily for annual grasses such as crabgrass, goosegrass and annual bluegrass as well as some annual broadleaved weeds such as chickweed and henbit. Pre-emergent herbicides work by interfering with the process of germination and the subsequent progress of seedling development.

The success of a pre-emergent herbicide depends on several factors:

- maintenance of a vigorous and dense turf;
- accurate identification of the weed present or the potential for specific weed invasion;



- knowledge of the life cycle of the weed (Is it an annual grass? Summer or winter annual broadleaf? Perennial grass or broadleaf?);
- matching the herbicide to the weed to be managed as well as the site and turfgrass conditions;
- proper timing and rate of herbicide application;
- adherence to precautions on herbicide labels;
- proper application techniques and equipment;
- scheduling of practices that cause soil disturbance (soil cultivation, coring, spiking and the like) before pre-emergent herbicide application.

The specific weeds controlled and the degree of control depends upon the herbicide. The herbicide label is the source of specific instructions for the weeds controlled, sensitivity of turfgrass species, rate and timing information, and safety precautions.

#### Timing

To be effective, pre-emergent herbicides must be present in the soil before weeds germinate. Germination occurs well before any seedling weeds are evident. Crabgrass germinates when soil temperatures warm to 50-55 degrees F for a week or longer, or 55-60 degrees F for three to five days. Monitoring soil temperatures with a soil thermometer should be part of an overall management plan.

The timing of pre-emergent herbicide applications will vary by location and is influenced by latitude, altitude, soil type and climate. In southern regions and in the transition zone, soils may reach these temperatures in early March while in more northern regions this may not happen until mid-May or even later. Applications should be made so the herbicide is present before germination, but not so early as to be degraded to the point of reduced effectiveness.

Some pre-emergent herbicides may be applied in late summer or early fall in cool-season grass-growing areas for management of annual bluegrass and some winter annual broadleaved weeds such as chickweed.

Recent research at several universities, including the University of Massachusetts, shows that late autumn applications of specific preemergent herbicides may be effective the following spring in controlling germination and seedling development of some annual grasses such as crabgrass.

#### **Reducing Rates**

Research at the University of Georgia on annual-grass control in bermudagrass suggests you may be able to manage annual grasses effectively with reduced rates of herbicides applied in multi-year (three-yearcycle) treatments. Results and efficacy vary by herbicide. The studies show, if you include annual applications of pre-emergent herbicides in your management plan, you may be able to reduce the rate in the second and third year of treatment while maintaining acceptable turf quality.

In cases where control has been less than adequate or on fields with particularly intense traffic, you may have to follow a pre-emergent later in the season with a post-emergent herbicide aimed at emerged seedlings or established weed plants. You should use this sequential-application technique when you've determined that the level of weed infestation is unacceptable or when, according to the site records, a combination of pre- and post-emergent applications has proven to be the most effective.

More research at the University of Georgia has suggested that reduced rates of herbicides may be effective in controlling weeds when a pre-emergent herbicide is followed in a timely manner by a post-emergent application. Such strategies can result in acceptable weed control, reduced levels of pesticides, and reduced expenditures.

#### **Reseeding/Overseeding**

Because pre-emergent herbicides work by inhibiting germination and subsequent seedling development, you must factor into the overall management plan the seeding and establishment of desirable grasses. The interval between pre-emergent herbicide application and reseeding or overseeding varies by material. Sprigging may also need to be delayed following preemergent herbicide applications. The following list gives a *general range* of times for reseeding or overseeding intervals:

- benefin 6-16 weeks,
- benefin + trifluralin 8-16 weeks,
- bensulide 4 months,
- bensulide + oxadiazon 5 months,
- DCPA 60 days,
- ethofumesate varies by grass,
- metolachlor 6 months,
- napropamide 6 months,
- oxadiazon 4 months,
- prodiamine 3-6 months.
- pendimethalin 4-6 months,

• siduron — none.

For specifics about individual materials, application rates, timing and other factors influencing exact intervals, refer to the label of the herbicide. Notice that siduron is the only pre-emergent herbicide labelled for turf that essentially requires no interval between herbicide application and reseeding or overseeding.

If you seed or sprig after the waiting interval following a pre-emergent herbicide application, do so with extra care in all aspects of site preparation. Place seed and/or vegetative parts in good contact with the soil. In some cases it is recommended that the seeding rate be increased. Proper fertility and adequate irrigation are most critical for establishment success.

Turfgrasses vary in their tolerance to specific pre-emergent herbicides, according to grass genera, species and in some cases even by cultivar. Refer to the label for turfgrass tolerance range, mowing height range and degree of turfgrass establishment necessary before application. Any turf under drought stress, heat or cold stress, fertility level, or pest damage may be more susceptible to injury by pre-emergent herbicides. Again, refer to the herbicide label for precautions.

Keep records of cultural practices including applications of pesticides, fertilizers and other materials. Record observations on effectiveness of particular applications of pre-emergent herbicides. Analyzing this information, you can develop or revise a management strategy that focuses on the most effective use of materials and budget dollars and that results in a high quality and safe natural grass playing surface.

Mary Owen is Extension turf specialist with the University of Massachusetts.

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## TIP O' THE MONTH

## **Making Nutrient-Rich Soil**

By Amy Snyder

C ompost heaps work by generating intense heat and biological activity to break down organic material into a rich soil amendment. To expedite this naturally occurring decomposition process, follow the steps below.

**1.** Create a compost area. This can be a remote corner of your grounds or a self-made bin. (For more information on composters and composting supplies, call the American Hort-icultural Society at 1-800-777-7931.)

2. Gather organic material; add in formula. The three-layer formula consists of leaves and grass clippings (this layer approximately four to six inches deep), one inch of soil, and a handful of nitrogen fertilizer. Repeat layers to a three-foot level until the compost bin or area is filled. (Other



Ken Graves displays rich soil he made from green waste. Photo courtesy: Ken Graves.

plant debris and even kitchen waste can also be added to speed up decomposition, but should be shredded into pieces no larger than three-quarters of an inch.)

**3. Add water and stir.** The pile should be kept moist (much like a wrung-out sponge) and should be turned weekly to add oxygen.

The heat in the center of a compost pile can reach 150-200 degrees as microorganisms break down matter. After three to six months, the heap will become dark and crumbly, signaling that it is ready for use.  $\Box$ 

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## HAPPENINGS

### West Coast Anniversary

West Coast Turf's Las Vegas branch is celebrating its second year anniversary by expanding into a new location at 3033 West Ford Avenue, Las Vegas, next to Boomtown Casino. The company has also added more trucks to help with local deliveries, and has hired John Marman as a sales representative. According to Marman, "We [now] have the means to go out and solid sod a golf course for a contractor, as well as deliver a couple of pallets to a homeowner."

West Coast Turf's recent Las Vegas projects include the Desert Pines Golf Course, Primm Valley Golf Club and TPC Summerlin's new Canyon Course.

### **Turf for Carolina**

Thomas Bros. Grass Co. of Granbury, Texas, recently installed 12,000 square feet of its new turfgrass sod in Erickson Stadium in Charlotte, North Carolina, home of the Carolina Panthers. Five semi-truck loads of Tifway 419 Bermudagrass sod made its way from Granbury to Charlotte, where a crew from Texas laid the sod in ten hours.

Said Dwane Smith, manager of the company's farm in Granbury, "It's real pleasing for us to get to supply and install the grass for football stadiums ... Pro football is the upper echelon of where grass is used."

Thomas Bros. began farming turfgrass in 1970 on ten acres of land. Today, the company has five turf farms in Granbury and Wharton, Texas; Fayetteville and Nashville, Tennessee; and Rome, Georgia.

### **Diagnostics** News

Turf Diagnostics & Design (TDD), an agronomic development company specializing in high performance sports turf systems, and HOK Sports Facility Group will be returning to Cleveland, OH, for another stadium project. The Cleveland Browns' new stadium will be designed by HOK. TDD will be the turf system designer. The companies previously worked together on the Kansas City Chiefs' field conversion to natural turf at the Truman Sports Complex in Kansas City.

To reduce field related injuries, TDD has developed a system to make sports fields safer. Utilizing the Clegg Impact Hammer and the newly developed software by TDD called STRIPE (Sports Turf Rebound and Impact Performance Evaluation), the system defines the "hardness" of athletic fields to determine if the players have an increased risk from injury due to the field conditions.

By providing leading edge expertise in the design of high performance sandbased turf systems, TDD continues to garner high profile clients like Disney World's Reedy Creek Sports Complex. A multiple sandbased field design, the complex offers two primary benefits: excellent drainage and safety.  $\Box$ 



### **Deep Drill Aeration**



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