

tire pressure must be considered when using one of the larger units. To minimize tire pressure on the turf, a four wheel chassis has some advantages over the 2 wheel chassis. A larger tractor will also be needed for the larger units, so some care must be taken to match the size of the topdresser to other equipment in use on the premises.

Many people see how quickly a custom operator can complete a topdressing job. What they may fail to realize is that most custom operators use at least a one cubic yard loader bucket. If a turf manager purchases a

4 cubic yard topdresser but plans to use 1/2 yard bucket, the time needed to complete the job may be nearly doubled.

Maximum efficiency on a topdressing job is accomplished by careful placement of the supply pile, and by optimizing topdresser settings. This simply means setting four variables so that the topdresser is emptied in one round trip down the field and back, while applying the desired amount of material. This allows the operator to use the least amount of time to drive the empty machine back to the pile to refill.

The four variables are: ground speed, conveyor belt speed, spinner speed, and metering gate opening.

Owning a topdresser is ideal for many facilities, giving the manager the ability to treat his fields at the optimum time, and at a frequency that aids the maintenance of healthy turf. With a good understanding of the basic considerations discussed above, he or she can decide whether owning a topdresser is ideal for the budget as well. -By Glenn Musser, TurfTime Equipment. ■

MAKING THE CASE FOR FERTIGATION

By Michael Chaplinsky

Editor's note: This article's author is president of Turf Feeding Systems, which sells fertigation systems.

NOTHING HAS CHANGED. Sports turf management and irrigation has not changed in the past 20 years. Albert Einstein defines "insanity" as, "Doing the same thing over and over and expecting a different result." The irrigation industry is marketing "smart controllers" so does that mean they have been selling dumb controllers for years before? Everyone is marketing the same mowers, sprinklers, rakes, and most everything but just painting them green and adding propane tanks doesn't make it different or better.

Sustainable sports field management can change the game. It's an economic value first, reducing usage and costs, and also improving the quality while fitting into any budget. It will reduce irrigation water, fertilizer, chemicals, labor and energy, while improving the quality. This management practice combines the automation of fertigation together with plant and soil health to create a more efficient plant and soil relationship.

Fertigation

Fertigation is the most accurate way to micro-feed the plant and soil lightly with each irrigation cycle. Cars and trucks all use digital fuel injection to accurately manage the fuel system, and fertigation is digital nutrient injection to accurately feed and manage the nutrient delivery to the plant and soil. Each drop of irrigation water is lightly rich and sweet with plant and soil nutrients.

Fertigation can manage the sports field lightly when it is not being used or be adjusted higher to push the plant growth for recovery from damage from over use or heavy tournament play. It is a tool which can be added to any irrigation system to apply any type of nutrient program.

The efficiency of fertigation is realized by feeding lightly with each irrigation cycle. This close interval feeding can reduce the nutrient rates by at least 50% over the traditional soil stored dry fertil-

izer program. The traditional 1lbs of N per 1000ft² rate can be reduced to .5 lbs N per 1000ft² and be more manageable and produce better quality.

Fertigation feeds the plant by root uptake as well as 15% to 20% by foliar uptake, not realized by dry applications.

Drought stress is critical and fertigation can support the sports field in drought conditions with 3-day-a-week irrigation limits. It takes a lot of water to water-in a dry fertilizer application, but fertigation doesn't need it.

Rainy periods of days of rain like Florida is getting, will wash out all the dry fertilizer applied, but during a rain period the irrigation is not used and the fertilizer stays safely in the tank, waiting for a dry period to resume irrigation and fertigation. That benefit can save up to 30% of the annual fertilizer budget.

Controlled application rates

Fertigation is the most accurate nutrient application program, giving the field manager, for the first time, personal growth control of his fields. He can minimize the growth to manage fields between seasons and just maintain the quality, or he can push the growth to get the fields ready for the season or an important tournament. It is all done with the injection rate setting for the fertigation pump.

Soil health is the key to producing a great sports field and healthy turfgrass with deep dense roots. Soil health will also balance the soil



Tools&Equipment

pH, reduce sodium and release nutrients that are tied up and not available to the plant.

A soil test in most areas of the US will show phosphorus in the soil, but it may not be available for the plant. Phosphorus today is a very expensive and important nutrient, and all of the fertilizer salesmen want to sell you phosphorus, but why not just make it available, because it's free.

How do you increase the soil health?

It's simple and there are two simple steps to follow. First, stop killing all indigenous beneficial biology by using less chemicals and pesticides. The only biology in some sports fields are disease pathogens. It's like a hospital that is filled with disease.

When the soil is healthy with bio-diverse biology it will overpower and reduce disease pathogens. It's like putting border collies around your chicken house. They will prevent any coyote from getting close to the chicken. It is that symbiotic relationship that will build a barrier with the plants.

Plants that are strong and not in stress are succulent are disease and insect resistant. Healthy Plants have thick cell walls, which are resistant to fungus, and require less or no fungicides.

Feed the soil

Many companies offer products and programs that will improve your soil health.

You can add any number of organic products to your fertilizer and inject it through fertigation or you can simply spray apply it. There are humic liquid products which feed the indigenous soil biology or bio-inoculants to inoculate the soil with special beneficial biology, like micro Rizal bacteria. This bacteria is well known for creating a network web around the root system to release nutrients for the plant as well as promote dense root systems for the plant.

Turfgrass will turn over its entire root system every 2 or 3 years, leaving tons of dead roots in the soil waiting to decompose and rot into humates. A healthy soil will quickly convert dead roots into humic substances. A humic particle will attract and release ten times the water and nutrients as a clay particle. This will create tons of little sponges that will hold and release water and nutrients in your soil.

It will also keep the soil open to allow it to hold and pass water freely. Watch this video by Ray Archuleta with the USDA to learn more. http://www.youtube.com/watch?v=9_IteHCrLoQ . This shows how healthy soil will absorb and hold water better.

Sodium

Sodium is a problem in many areas of the west and can build up in the soil. This is a big problem when the irrigation water has 100ppm to over 500ppm of sodium. The more the fields are irrigated the sodium keeps building up and the grass keeps dying.

The solution is in the soil and water. A healthy soil will prevent sodium from being tied up in the soil. Humates and other organic products can be injected through irrigation to release and buffer sodium from the soil. Serious sodium problems need serious solutions, and the best product for that is Sodium Blocker a clear liquid that does a great job for water and soil with very high sodium. This is a proven product that can be sprayed or injected. The product uses proven technology and is done every day with great success.

These are real methods and real technologies that work, and will improve your sports field while reducing the maintenance costs by 20% to 60%. But more important, it can reduce your water use up to 50% with your existing control system, by improving the plant and soil health and just turning down your irrigation time. ■



Aeration equipment from Campey Imants

The Koro Recycling Dresser from Campey Imants, as the name suggests recycles the existing soils/root-zones and re-dresses the surface, helping to level the surface after play, and refresh the rootzone by decompacting and redistribution of material.

The Recycling Dresser is possibly the most effective aeration tool on the market that leaves the

surface in play. Amelioration of new materials into the existing soil structure is also possible.

The Imants Shockwave is the original linear aerator at its best with working depths between 3" to 14", working in compacted sports fields where most vertical aeration tools cannot. Protected by a torque limiting pto a huge aid to drainage and root development.

"The Shockwave is something I plan using many times year after year, its ease of use and small surface disruption is only a small part of the benefits I saw from it. I wasn't expecting the results I saw, it was hard to imagine something so simple could work so well in relieving compacted soil," says Chris Morrow, Field Supervisor for the Dallas Cowboys practice facility.

The Imants Rotoknife could be the fastest linear aerator working between 1" to 6". A series of discs slice the ground, decompacting and promoting a free draining surface and promoting root development or tilling a ground driven unit that works well in conjunction with other aeration methods. The surface is immediately playable after use.

Campey Turf Care Systems



3-stage walk-behind snow thrower

Cub Cadet's newest innovation will have you saying "bring it on" to even the most extreme winter forecasts. The new 3X, the flagship of Cub Cadet's X SERIES extreme line of

snow throwers, clears snow up to 50 percent faster than the 2X two-stage snow thrower. The 3X three-stage snow thrower easily cuts through 18 inches of heavy, wet snow. The patent-pending three-stage system works by first gathering snow, ice and slush and moving it toward the center. Then Cub Cadet's new high-volume accelerator cuts and chops through winter's worst, accelerating it into the high-performance discharge impeller, where it's thrown up and out of the high-impact chute. These three stages work together to move more snow faster while putting you in complete control of speed and maneuverability.

Cub Cadet