

"BEEN FARMING LONG?"

So often superintendents of smaller, lower budgeted courses must try to convince board members to upgrade fertilizers from farm grade to turf grade. The response is usually the same . . . grass is monocot like corn and farm fertilizers are good enough, even cheaper. While it is true grass and corn start out producing one seed leaf (monocotyledon) that is where the similarities end.

Technically speaking, grass belongs to the Monocotyledoneae family . . . the same family which includes onions, garlic, lilies and asparagus! Probably, if one grew a corn and turf plant side by side and allowed each to reach maturity (seed heads) the differences would be minimal with regard to growth habits.

However, that's not the real world of turf. The plant is trampled, sheared (sometimes too low), driven over, and generally abused.

A farmer grows corn for one reason—to produce a fruit. The plant is allowed to complete a life cycle from juvenile (vegetative) to reproductive (seed) stages, ending in death. A turf manager, on the other hand, strives to keep the plant juvenile, forcing the plant to constantly produce leaves and frustrating its efforts to produce a seed head (a difficult task when it comes to the black sheep of the family, *Poa annua*).

Mowing is the reason the turf plant stays juvenile. All this replacement of lost leaves takes incredible energy at the expense of root development. Corn is allowed to produce roots of 18-24". How many turf managers can boast that kind of root development?

Because of the larger leaf surface (dry matter) corn can photosynthesize and manufacture its own carbohydrates, channeling these sugars into the cob. Thinner leaves like those of grass, have it more difficult, especially when the leaf surfaces are mowed away several times a week. Fertilizing turf becomes essential to replace the carbohydrate supply lost to the mower blades.

From the very beginning the fertilizing of corn and turf is radically different. In corn fields starter fertilizers (corn poppers) are disced into the top 4" of soil. The soil is friable and can easily encourage good root development. After the plant is actively growing, the fertilizers are spread between the rows (banded) at the base of the plant. The nutrients are able to move into the soil easily and the risk of foliar burn is minimized.

Turf fertilizers are broadcast directly over the plant and the importance of selecting a low salt, low burn potential

fertilizer is essential. Below the turf, the soil has not been disced and usually is compacted from traffic. A heavy thatch layer adds to the barriers of fertilizers ever reaching the soil level.

Frequent applications of fertilizers for corn are needed all season long because of the larger leaf surface and size of the plant. Applications for turf must be timed to avoid summer stress periods. That means whatever is applied in the spring needs to sustain the plant longer even throughout the summer in some cases. However, most agricultural grade fertilizers are of a quick release nature and are readily available for a very short duration.

Nitrogen is the nutrient required in greatest quantity by turfgrass. The plant contains 3-5% nitrogen under ideal situations. Nitrogen is the necessary component in leaf production, but also provides for amino acids, protein, enzymes and chlorophyll. Chlorophyll is the substance produced and stored in the leaves which gives grass its green color.

However, high nitrogen rates produce excessive aerial shoots resulting in more frequent mowings and potential for scalping. Lush growth not only stunts the development of roots, but also suppresses lateral growth (tillering). A plant with too much nitrogen experiences depleted carbohydrate reserves, poor tolerance to heat and cold, and is less resistant to stresses.

Highly soluble fertilizers applied to turf can produce a softer leaf. This succulent leaf is very susceptible to insect and disease penetration. The stalks also do not have the rigidity needed to support a golf ball. They flop over and mat down when mowed. In addition, every mowing produces an open wound, dangerous during periods of high fungus activity. The total plant must be in a healthy state to ward off attacks.

That's another reason to choose the turf professional grades. Many have developed formulations to include the minor nutrients or trace elements (calcium, sulfur, boron, copper, manganese, zinc, molybdenum, magnesium and iron). Although the amount of these required by a plant is small, they play an important role in the plant's health.

Minors are primarily catalysts for the plant's enzyme reactions and "vital signs" such as respiration and photosynthesis. Of all the minor nutrients, it is probably iron which recedes the most. Deficient quantities of iron are evident in turf that takes on a yellow color and

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responds poorly to growth.

In addition to nitrogen and the minors, potassium plays an extremely important part in a turf plant's physiology. It is involved in keeping photosynthesis (the manufacture of nutrients from sunlight) in working order. Potassium is responsible for overall hardness of a turfgrass. It thickens cell walls, making for strong support of stalks and defense against piercing insects and fungus. Thicker cell walls are also a hedge against water loss from summer stress periods and winter winds. The turf industry has realized this and many formulations now offer a higher ratio of potassium to nitrogen for just such occasions.

Corn doesn't have to live over winter and emerge in the spring green, healthy and playable. A farmer is judged on his good yield at the end of the season. If a farmer has a poor crop, he can have another chance—reseed and start over.

The turf manager is judged on a daily basis, continually throughout all seasons (How did he survive the winter? How soon can the course open? How is the turf for the Fourth of July tournament?). Poor fairways never go un-

noticed. The turf specialists can't start over. He has to use the same turf, with often no budget to overseed. He is not harvesting... he is managing.

Some voting members still insist on using the local Ag Co-Op and offer the superintendent a take it or leave it policy. In that case, the superintendent is forced to concede "some is better than none". However, employ caution with the application methods.

Because of the higher salt indexes of farm type fertilizers, insist on applications only in early spring or late fall. Be careful to choose a reputable farmer who pays strict attention to spreader or tank mix cleanliness. It has happened that residual herbicides in a tank were responsible for wiping out many fairways.

A good way to introduce members to the benefits of fertilizing with turf type formulations is to run your own experiment on a few fairways. The investment will be minimal and the members will have a chance to see the results. One good fairway is all it takes to convince the membership that the professional way is the way to go.

Fran Vallillo

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