

Part one: TifEagle and Champion

This series is dedicated to the management of TifEagle and Champion Bermuda as putting surface cultivars. I have singled out these two cultivars because they have very similar growth habits compared to other cultivars in my opinion. Their growth habit is mostly stoloniferous. That means they grow on top of the ground with runners and put down roots from the nodes to form new plants. One might say their growth habit is very much like St. Augustine. If you have ever noticed how St. Augustine grows, it stacks stolons on top of itself as its canopy thickens. TifEagle and Champion are pretty much the same way in my. That is why they become very puffy if they are not managed correctly. So, let's get into what makes these two grasses work on a putting surface.

But before I do that, there are some differences that separate these two cultivars: density, genetic stability, wear tolerance, disease tolerance, shade tolerance, speed of growth, salt tolerance, recovery from damage, cold tolerance, etc. I am not going to cover the differences between the two grasses, but I can tell you that their density and growth habit is what has forged them ahead in the Carolinas. All they needed was a

substrate with organics to serve as a foundation. And guess what? The growth habit of these two cultivars found the perfect setup in the Carolinas for replacing Bent and Bermuda: old USGA greens, modified substrates with good surface drainage, or newly built greens with slower perk rates and higher CECs and a good climate. Once these cultivars were established, their dense like growth habit would allow them to perform year-round because of their dense growth habit and responsiveness to air temperature in the spring. Basically, it was a marriage made in heaven. The TifEagle and Champion needed moisture and nutrients held near the surface. They found it in the Carolinas as well as many other places. Many organic profiles were perfect. This is what made the No-Till conversion process so popular. "Mother Nature" and years of cultivation by superintendents provided the perfect venue to drop sprigs on the ground and let them grow with very little disruption to the surface. This is just what the doctor ordered for these sprigs to thrive and develop.

This was a drastic change from the days of 80:20 mixes with perk rates of 15"-20" per hour or more for some newly constructed greens. Superintendents had to change their way of thinking. These two grasses needed a different infrastructure as well as different agronomic requirements. Accelerated

drainage was no longer a prerequisite to success. These two cultivars performed best with a lower perk rate and higher CEC to accommodate their presence and success on greens.

However, there were still some non-believers. And they fell victim to the philosophy that accelerated drainage was a key to success.

This led to some failures, i.e., “California Style” greens with straight sand. This was not a recipe success. It was a recipe for the “Kiss of Death”. Below is a picture of a straight sand medium with no organics, no roots, and a low CEC. A picture is worth a thousand words....



Not only was this a recipe for weak turf, but it was also a recipe for desiccation and winter kill due to a lack of organics in the profile to hold moisture. The above scenario was an impossibility. One couldn't put enough water or the right amount of nutrients down to turn this into a viable situation and/or putting surface. Sometimes post construction amendments can help, e.g., Profile, Zeolite, etc. to adjust to substrate, but that is a "tough road to hoe".

So, when one thinks of an organic profile as being bad, don't complain too much about it. It is the foundation that supports TifEagle and Champion in the right proportions.

Now, let's talk about how to manage these two cultivars and what turns them into putting surfaces once they are grown-in and established.

As I mentioned in the introduction, one must understand the growth habit before anything positive can happen. So, where does one start with these puffy, top growing grasses that grow like St. Augustine and respond like kudzu when too much nitrogen is applied to them? Simply put, the stolons must be top-dressed with the right amount of sand and right gradation of sand as they grow. Frequency is the key!! This keeps the stolon mat locked into place and stabilized. Once a week during

the growing season is the best frequency for top-dressing depending on weather. Once the stolon mat is locked into place, the leaf blades will grow up through the sand and set the foundation for a good putting surface. This is an absolute prerequisite for success if one wants a great putting surface! If the stolon mat is not locked into place, the canopy will become shifty and unstable and may result in surface softness, which will most likely lead to mower scalping, drying out, decline, disease pressure, etc. It is essential for the stolon mat to be firm and secure under the surface if these two grasses are expected to perform. If not, they will fail you miserably.

Therefore, top-dressing must be a top priority. Top-dressing continually keeps the stolons buried and locked into place and prevents them from growing on top of the surface.

Below is a picture of sand covered stolons that are properly set. If one didn't know any better, one might think they were rhizomes. Let's not confuse stolons with rhizomes.



Next is the type of sand needed to lock the stolons in place. This is all dependent on water quality. If your water is good, managing these ultradwarfs is predictable. However, if water quality is an issue, the gradation of sand used should be adjusted to compensate for the water constituents that may disrupt permeability. That can affect the outcome of how one manages these grasses. With that said, let's assume that the water is good. If the water is not good, maintaining these two

ultradwarfs may become very problematic due to the fine sand needed to turn them into a quality putting surface.

A good starting point for sand gradation might be 35% medium, 35% fine, and 30% very fine for stolon stabilization as an example. This gradation will allow the particles to fall through the canopy and stabilize the stolons, support leaf blade structure, and provide a foundation for the mowing units. So, select the sand that best fits your situation and goals. If the wrong sand is used to maintain these two ultradwarfs, it will spell trouble for you and the grass. A coarse sand is not the answer for topdressing. The finer particles in the sand will migrate through the canopy, while the larger particles will remain near the surface. Larger particles near the surface will most likely result in surface softness and may lead to mower scalping and imperfections. The larger particles will not stabilize the stolon mat. So, choose the sand that locks the mat into place.

In conjunction with sand gradation, sand angulation is the next most important factor. For example, softer sands may be subangular and easier on the roots. Angular sands will pack better but may be more abrasive on the roots. Use the one that fits your conditions the best. There are several sands in the Carolinas that have proven to be good for managing these two

cultivars, e.g., 65 sand, 65/85 blend, straight 85 sands, etc. Pay attention to the sand and how the grass/stolon mat is responding to it. The more one top-dresses with the right sand during their growing season, the better these two grasses will respond. It sets everything in motion. If you are not prepared to top-dress these two cultivars with a finer sand than a USGA sand on a regular basis during the growing season, then you should not expect them to perform to their fullest potential. I know top-dressing with a fine sand is considered backwards thinking by many, but it is the key to success for TifEagle and Champion. Lots of individuals think it is a recipe for creating an anaerobic condition, but that is not the case if a coarser sand is used for aerification. The fine sand is your first step toward putting surface success. If you can't buy into this philosophy of fine sand, then you cannot get the most out of your ultradwarf. Therefore, it may always be a struggle for you.

Once you have achieved the art of top-dressing to lock the stolon mat in place with the fine sand, it is imperative that a coarser sand is used during aerification to compensate for this fine sand approach. It will help maintain good macro pore space internally so the soil profile can breathe and have life. Think of it this way. If one is going to use a fine sand, one must be committed to using a coarse sand too. Basically, the coarser

sand particles create large pockets within the edaphic environment so air, water and microbes can coexist. This is necessary to maintain good balance. A coarse sand approach for aerification will also augment the displacement of sodium, enhance microbial degradation of thatch, and improve nutrient availability, etc. While there are several coarse sand strategies, I have found that the #35 sand (4.1% very coarse, 43.9% coarse, 34.8% medium, 13.2% fine, and 4.0% very fine) in the Carolinas is one that best fits for most situations. Make sure the holes are completely full of sand. If not, you will be left with indentations all over your greens that will take forever to cover. Once the coarser sand is used, the greens will become soft and unstable for a short period of time. As a result, one must restart the finer sand approach in about 7 days or sooner. Eventually, the finer particles migrate down through the canopy and restabilize the stolons. This is an absolute prerequisite to reestablishing a good cut without scalping! It usually takes about 3 to 4 weeks to get the greens back to normal after a good aerification with the coarser sand. I realize that dropping fines on top of coarse sands may create a perched water table effect to small degree, but that is what makes these cultivars work the best. That is why it is so important to understand sands, and why certain ones need to be used at certain times. Basically, the coarse

sands are doing one thing for you, while the finer sands are doing something else.

Remember, water quality plays a very important role in one's success. So, pay attention to your water. It is an important criterion to managing these two grasses with the correct sand.

For example, someone with acid water may be able to stretch out their aerifications compared to someone with alkali water. Acid water helps keep calcium and magnesium more available in the soil by improving soil flocculation by neutralizing the carbonates. Alkali water slows down solubility of calcium and magnesium and can plug up pore space faster. So, soil testing your top-dressing sand as well as testing your water is a good idea. This may provide a lot of valuable information as to how certain sands may change the substrate. I look forward to continuing this segment on managing TifEagle and Champion in the next edition of the Carolinas.

