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## GUIDE TO PLATINUM TE™ PASPALUM MANAGEMENT

Where does Platinum TE rank with other paspalum cultivars,  
based on golf course performance standards?

### SPECIFIC SEASHORE PASPALUM CULTIVAR COMPARISONS FOR TURFGRASS TRAITS\*

<u>Cultivar</u>	<u>Salt Tolerance</u>	<u>Leaf Texture</u>	<u>Color</u>	<u>Disease Resistance</u>	<u>Seed Heads</u>	<u>Cold Tolerance</u>	<u>Low Light</u>	<u>Total</u>
Platinum TE	8.5	8.0	9.0	7.0	9.0	8.5	9.0	59.0
Supreme	9.0	7.5	6.5	7.0	9.0	9.0	8.0	56.0
SeaIsle 2000	7.0	7.0	9.0	6.5	8.0	7.0	6.0	50.5
SeaIsle 1	7.5	6.0	8.0	6.5	7.0	8.0	9.0	52.0
Seaspray	7.5	6.0	8.0	6.5	7.0	8.0	7.0	50.0

<b>Seadwarf</b>	<b>6.0</b>	<b>8.0</b>	<b>7.5</b>	<b>5.0</b>	<b>6.0</b>	<b>6.0</b>	<b>6.0</b>	<b>44.5</b>
<b>Salam</b>	<b>5.0</b>	<b>5.0</b>	<b>6.0</b>	<b>4.0</b>	<b>2.5</b>	<b>5.0</b>	<b>3.0</b>	<b>30.5</b>
<b>Velvetene</b>	<b>7.5</b>	<b>6.5</b>	<b>7.5</b>	<b>6.5</b>	<b>6.5</b>	<b>7.0</b>	<b>7.0</b>	<b>48.5</b>
<b>Aloha</b>	<b>4.5</b>	<b>4.0</b>	<b>5.0</b>	<b>3.5</b>	<b>2.0</b>	<b>4.0</b>	<b>3.0</b>	<b>26.0</b>

**\*Rankings based on actual performance on golf courses globally. Correct site-specific management is critical for maximum performance expectations.**

**\*\*Note: these rankings can gradually shift up or down, based on more extensive use and subsequent observations on golf courses**

**Salt Tolerance:** 1=comparable to 419 Hybrid bermudagrass and Adalayd

10=near ocean water salinity tolerance levels

*Note: Paspalum tolerates high salinity levels but does not remediate salt accumulation in soils. Salts must be properly managed.*

**Leaf Texture:** 10=comparable to super-dwarf hybrid bermudagrass cultivars

1=very coarse similar to St. Augustinegrass

*Note: Seashore paspalum undergoes a significant transformation as mowing height is reduced from 0.125 (3.125 mm) to 0.070 (1.75 mm), with leaves becoming smaller and shorter, and internodes becoming shorter.*

**Genetic Color:** 10=shiny very dark green

1=light lime green similar to Zeon zoysia

**Disease Resistance:** 10=Resistant to multiple pathogens

1=Quite susceptible to most pathogens

*Note: With proper site-specific management, especially concerning fertility plus irrigation (deep root management) program adjustments and overall salinity management, persistent disease problems can be minimized.*

**Seed Head Exsertion:** 1=most seed heads

10=very, very few seed heads

*Note: seed head exsertion is caused by an interaction between photoperiod, especially during the longest day of the year and in reaction to abiotic and biotic environmental stresses imposed on the grass. High phosphorus applications will trigger seed head development. Severe drought or salinity or abiotic stresses will trigger a defensive response in the grass, and even though the probability of actual seed set and viable seed production are extremely low, the grass will produce seed head that can be a cosmetic issue.*

**Cold/Chill Tolerance:** 10=very good actual cold temperature tolerance and cool/chill temperature transitioning tolerance. Maintains chlorophyll down to freezing temperatures as long as frost desiccation does not occur. Emerges from cold winter dormancy rapidly in the Spring.  
1=very poor cold temperature/chill hardiness, slow emergence from chilling/cold weather shock, and beginning of transition to colder temperatures at <50° F (10° C).

**Low Light Intensity Tolerance:** Reduced light quality from semi-shade (trees, buildings, step inclines) or prolonged cloudy, foggy, and rainy periods.

10=best tolerance

1=very poor tolerance

## **FOR PLATINUM TE GREENS:**

### **1. Introduction**

>This ‘true excellence’ seashore paspalum turfgrass cultivar can be mowed as low as 0.070 inch (1.75 mm) and as high as 0.125 mm (3.125 mm) for an exceptionally dense putting surface, but can be grown on all areas of the golf course or sports field at higher height of cuts.

>The grass is primarily rhizomatous and secondarily stoloniferous. The aggressive growth habit, the exceptionally dark shiny green cosmetic color, the high salt tolerance, and the superb low light intensity tolerance make this cultivar a premium choice for grassing with or without saline irrigation water use.

>Premium putting surfaces can be achieved with Platinum TE with appropriate management programs that promote green-to-green ‘uniformity’, ‘consistency’ in canopy density that provides ‘smoothness’ and trueness of ball roll, achievable ‘greens speeds’ that meet tournament standards, and unparalleled ‘resiliency’ in quality of the playing surface.

### **2. Site specific preparation**

>All greens mixes and course design for managing salts in the soil profile long term on the site should be developed based on irrigation water quality and subsequent deposition of salts that have the potential of accumulating in the soil profiles at the site.

>No-till planting directly into old bermudagrass greens is not recommended unless previous residual thatch buildup and soil salt accumulation issues have been remedied prior to planting Platinum TE.

**>All old bermudagrass areas should be either fumigated with methyl bromide (400-500 lbs/acre; covered with plastic for 48 hours; remove covers and wait 24 hours before planting) or sprayed at least twice (minimum of 3 weeks apart) with a combination of Roundup® + Fusilade® + ammonium sulfate at maximum rates to kill as much of the old hybrid and common bermudagrass plants as possible plus control any pest problems. Be sure to monitor for any emergence of bermudagrass plantlets from residual rhizomes during Platinum TE establishment and grow-in; promptly remove any contaminated bermudagrass plants before they grow and start competing with the establishing paspalum. All old bermudagrass debris should be removed prior to planting Platinum TE.**

**>Soil samples from all fairways, tees, and roughs should be submitted for normal soil fertility testing plus salinity testing (utilizing the saturated paste extract test (SPE), which utilizes the on-site irrigation water or distilled for extraction).**

### **3. Greens mixes**

**>Proper organic and inorganic amendments that are added to any greens mix should be based on scientifically assessed physical analyses of the mix in conjunction with irrigation water salinity.**

**>The water absorption amendments such as peat moss or porous ceramics or diatomaceous earth products are excellent products that sequester and hold water and water components in micropores <0.10 mm in size. If these products are used in greens mixes, no more than 5% by volume or 3% by weight of any single organic or inorganic amendment product should be used if saline water will be used for irrigation on the site. Then submit that mix with the appropriate volume of the amendment for a complete physical analysis to ascertain if the mix meets USGA specifications.**

**>Note: if higher volumes of these inorganic amendments are added to greens mixes and saline water is used for irrigation, the products are excellent at holding water and soluble salts, and can substantially increase the capillary porosity while decreasing the air porosity components in the greens mix, leading to an increased potential for algae and moss accumulation on the surface.**

**>Zeolite at 5% by volume or 3% by weight can be added as an inorganic sand substitute in greens mixes to increase the cation exchange capacity (CEC) of sand-based greens. Submit the mix with this amendment for a complete physical analysis to ascertain if the mix meets USGA specifications. The primary purpose of zeolite is to stabilize nutrient**

holding capacity in the sand-based mix. Application of zeolite in the top 4 inches of the upper soil profile is recommended in order to position the inorganic amendment in the primary turf rhizosphere zone and to increase the CEC in that zone.

#### **4. Irrigation water quality issues**

>All paspalum juvenile seedlings, including Platinum TE, are sensitive to excessive salt loads in irrigation water because of direct exposure to salt ions that can desiccate root hairs and emerging root caps. Salt acts as a growth regulator via gibberellin inhibition, creates water availability problems in the soil, and causes nutritional imbalances in the young plantlets.

>Irrigation water quality should not exceed 2500 ppm total dissolved salts (TDS) when planting sprigs of Platinum TE. If higher saline water will be used for irrigation, contact R.R. Duncan ([rduncan4612@gmail.com](mailto:rduncan4612@gmail.com)) for proper guidelines to minimize the salinity loading effect on the young emerging plantlets during the planting and establishment phases of planting. Failure to adjust the management program can delay the establishment and significantly extend the subsequent grow-in time.

>Platinum TE normally takes 5-7 weeks from planting to reach full canopy density with proper management.

#### **5. Pre-plant preparation**

>When re-grassing into old bermudagrass or bentgrass greens cavities, assess the soil chemical and physical problems in those older greens before preparing for any re-grassing with Platinum TE.

>Any excessive organic matter accumulation, water-logging micro-sites, standing water, localized dry spots, soft spongy spots, soil profile layering, persistent re-occurring disease problems, nematode-prone areas, poor air movement, excessive traffic/wear areas, hours of exposure to actual tree shade, high salt accumulation zones, contouring problems, inefficient irrigation water distribution and poor uniformity of coverage, and poor functional drainage areas. Remedy those problems before planting Platinum TE to ensure rapid establishment of sprigs and enhanced grow-in to full canopy density. *Do not expect Platinum TE to remediate these physical, chemical, and biological soil conditions once the grass has been planted.*

>Apply a gypsum or lime product, based on salt accumulation in the soil and water quality used for irrigation. These products must be absorbed by the root tip or cap, and due to the immobility within the plant, calcium will

take 3-4 weeks to reach the shoots after root uptake. Depending on location and rainfall, these granular products should be applied every 1-3 months for slow pulse (and not flush) release of the calcium with rainfall and irrigation water applications.

>Supplemental calcium liquid sources (calcium nitrate, calcium chloride, calcium gluconate, calcium citrate, calcium chelated with amino acids or alcohols, or calcium acetate) when foliarly applied, will be foliarly absorbed. These liquid products will require 4-7 days to stabilize nutrition and reduce any yellow discoloration caused by an imbalance between calcium and magnesium in the shoots during transplant shock and recovery to full canopy density.

## **6. Planting**

>Always plant greens by sprigging and not by sodding if at all possible.

>Plant at least 30-40 US bushels (1.24 cu. ft./bushel) in the greens cavity, planting half the volume and cutting or crimping into the surface; then plant the remaining volume and cut or crimp into the surface. The area can be rolled if desired to maximize grass node-to-soil contact.

>Completely bury all sprigs in topdressing sand for maximum survival and eventual emergence of new plantlets.

>If a different paspalum cultivar or different grass species and cultivar (such as ultradwarf hybrid bermudagrass or bentgrass) will be planted outside the greens cavity, extend the Platinum TE planting zone at least 1 meter beyond the edge of the greens cavity. This strategy will ensure that the battle zone between the two cultivars is well off the greens putting surface.

## **7. Irrigation scheduling**

>Platinum TE establishes a comprehensive root system quite rapidly (normally the first two weeks after sprigging are devoted to root system development). Short duration and frequent irrigation cycles are normally utilized during those first two weeks, depending on temperature and evapotranspiration conditions on the site.

>Once the root system is at least 4 inches (100 mm) long, the irrigation schedule should be transitioned to one that involves less frequent cycles, but longer duration.

>By week 4 after planting, the site should be irrigated every other day and eventually extended to every 3-4 days by weeks 7-8 after planting.

>Platinum TE has an excellent root system (approximately twice or more the volume compared to hybrid bermudagrasses) and has exceptional drought tolerance as long as the irrigation scheduling has positioned the roots, and especially the rhizomes) deep into the soil profile.

## **8. Fertilization program**

**>Because Platinum TE builds the root system during the first 2-3 weeks after sprig planting, the initial primary critical nutrients are potassium and phosphorus. A 0-2-2 or comparable NPK ratio fertilizer is essential for the pre-plant application and the rate will be determined by the soil fertility test.**

**>Platinum TE will not start using nitrogen until the stolons are initiated by gibberellin from the new plantlet shoots (normally about week 3 after planting). Platinum TE only absorbs nitrates; therefore, any ammonium-N or urea-N product must be converted by *Nitrosomonas* to nitrates before the grass will absorb the nitrogen. Liquid nitrate sources (such as calcium nitrate or potassium nitrate) are ideal products to apply to the grass for rapid growth response. Frequent nitrate-N applications are required during grow-in, but when 80-85% canopy density is achieved, reduce the amount and frequency of N applications since the grass will store residual N for eventually up to 6 weeks' use. You normally do not want more than 3.0-3.5% N in the Platinum TE tissue at any time. So monitor, collect clippings, and submit for wet chemistry or ICP analysis; otherwise, excess nitrogen can make the leaves more succulent and predispose the grass to excess scalping and disease attack when environmental conditions are ideal for fungus development and subsequent problems.**

**>At full canopy density, only 2-3 lbs actual N/1000 sq. ft./year will be required to maintain Platinum TE on greens in a prescription application program. Supplementing with calcium nitrate or potassium nitrate products are excellent product choices to achieve rapid grass responses. Adjust the nitrogen fertility based on clipping counts when mowing greens.**

**>Remember that any acidified urea products like N-phuric, N-Control, and pHairway, or amino acid-based carriers (such as some of the gluconate/glucoheptonate sources) in fertilizer products will provide extra nitrogen residuals that the plant will store and eventually use. Therefore, minimize the use of these products especially on greens; otherwise, the greens may need mowing a second time during the afternoon.**

**>Thatch accumulation problems in Platinum TE are directly related to excess N applications and lack of regularly scheduled aeration and cultivation. Percent N in Platinum TE tissue should not exceed 3.0-3.5% (sufficiency range is 2.8-3.5%).**

**>Micronutrient fertilizers are especially critical for Platinum TE, and products containing at least 5% Mn, 4-5% Zn, 5% Fe (the grass loves iron and rapidly greens up with each application), and >10% Ca (as the**

nutritional stabilizer) are required to get growth enhancement responses. Mn and Zn are required to activate the salt tolerance mechanisms in paspalum and both nutrients will help to suppress disease problems. Mn activates 35+ enzymes for growth and development in the root system and is therefore considered a 'kick start' nutrient when growth activation or damage recovery are needed.

## **9. Mower and mowing recommendations**

>Platinum TE should be mowed at least 5 days/week with a walk behind mower when greens heights-of-cut are <0.125 inch (3.125 mm).

>All mowers that are used on greens should have a solid and not a Weihle roller installed. The Weihle roller is too aggressive on the grass and will bruise the shoot tissue, predisposing the grass on greens to increased pathogen attack.

>The shoots of Platinum TE are predominately composed of water, with a small amount of lignin and cellulose. Therefore, to minimize scalping, weekly prescription applications of potassium are recommended, since K is essential for maintaining proper turgor pressure and for osmotic adjustments with increasing salinity in irrigation water, plus for sustaining the roots during maintenance or promoting root redevelopment when the grass is injured. Maintain K at 3% on a weekly basis for best performance results.

>Minimize use of triplex mowers on greens mowed <0.110 inches (2.75 mm) due to the extra weight of those mowers and the potential for additional tissue bruising. Use of triplexes during reduced work force weekend days is acceptable, but all other days should be mowed with walk-behind, lighter weight units since this grass bruises easily due to a high concentration of water instead of lignin and cellulose in the leaf tissues. This is especially critical as height-of-cut is reduced on greens.

## **10. Height-of-cut (HOC) strategies on Platinum TE greens**

>After sprigging Platinum TE on the greens, start mowing at approximately 0.250 inch (6.25 mm) and maintain that HOC until at least 95% canopy density.

>Do not start gradual HOC reductions until 100% canopy density has been achieved since this strategy will slow down the completion of the grow-in process. HOC reductions should not exceed 0.005 inch (0.125 mm) per day to avoid scalping and applications of potassium should be made to minimize any potential scalping problems (sufficiency range is 2-4% K in the shoots and maintain 3% K as consistently as possible with regularly



scheduled plant tissue testing). If the grass is scalped, contact R.R. Duncan ([rduncan4612@gmail.com](mailto:rduncan4612@gmail.com)) for proper maintenance protocols to escalate recovery (2-3 weeks) from scalping. Failure to follow proper maintenance procedures for scalping damage could result in a 6 to 8-week recovery period and result in compromising putting quality conditions on the surface.

## **11. Platinum TE Greens speeds**

>Proper management of the greens is essential for achieving acceptable greens speeds with Platinum TE. Achieving those greens speeds is not totally linked to HOC, but absolutely involves proper remediation of the surface canopy (grooming and light verticutting + sand topdressing); use of brushes to vertically position any horizontally positioned leaves and the wax load that creates ball roll friction; grooming to remove broad and long leaf blades; proper irrigation scheduling; periodic rolling; careful use of Primo; proper mowing type; and regularly scheduled aeration frequency.

>Platinum TE has a thick wax layer on the leaves and stolons, and if those leaves are positioned horizontally on the canopy surface, ball roll will be slow due to friction issues.

>Chatter (bumpiness) is removed by verticutting the surface stolons and application of adequate topdressing sand to smooth out the surface.

>The last stages of grow-in involve gibberellin-enhanced stolon growth with leaf emergence and those stolons must be severed and filled in with sand to smooth out the putting surface to remove chatter.

>Achieving proper ball roll and putting speeds on Platinum TE greens takes as much as a month longer to achieve acceptable putting quality compared to the ultra-dwarf hybrid bermudagrasses. Plan accordingly.

## **12. Aerification strategies**

>Core aerification at least twice annually (normally Spring and Fall with temperatures that continue to promote grass growth) and should impact 10-15% of the canopy surface each time in sub-tropical climates and 15-20% in tropical climates.

>Side-eject 0.50-inch (12.5 mm) tines with an aerifier configuration of 1.5 x 1.5 inch (37.5 x 37.5 mm) or 1 x 2 inch (25 x 50 mm) hole spacing is recommended. Remove aerification cores and associated debris plus accumulated soil salts.

>Sufficient topdressing greens mix-compatible sand should be applied and brushed or syringed into the core holes.

>Use variable sized solid needle or pencil tines, star tines and/or Air2G2,

**PlanetAir or Hydroject on a 1-3 week basis as needed to continuously enhance water infiltration, salt management, and oxygen flux into the soil profile. This aeration strategy will promote root growth and redevelopment, will reduce excess surface firmness, will minimize root borne pathogen potential problems, and can potentially minimize localized dry spots.**

### **13. Sand topdressing**

- >Platinum TE sprigs, after planting, should be completely covered with topdressing sand to ensure node survival and rapid emergence of new plantlets.**
- >During the grow-in period when stolons have emerged from the juvenile plantlet, verticutting (never cut a rhizome; depth of verticutter should be half the depth to the primary rhizome zone) and heavy topdressing applications should be made every 7-14 days to escalate grow-in (grow-in time from planting to full canopy density should be 6-7 weeks).**
- >Platinum TE responds rapidly to sand topdressing with shoot hormonal stimulation and escalated growth response.**
- >Any damaged area (from scalping, from excess wear or traffic, or pests) should be topdressed with sand to protect the new emerging plantlets (recovery is predominately via rhizomes) from traffic and from additional pathogen attack.**

### **14. Plant growth regulators**

- >Primo (trinexapac-ethyl, which is a gibberellin inhibitor) should only be used on 100% canopy dense greens to maintain higher Platinum TE quality, to sustain the dark shiny green color, to promote higher shoot density, and improve greens speeds. If tissue N % is within the sufficiency range (2-3.5% N), application rates of 3-6 oz/acre are common. If N concentrations exceed 3.5% in the shoots, rates as high as 10-12 oz/acre may be needed to reduce growth.**
- >A band of Primo at the 5-6 oz/acre rate is recommended for spraying the interface over the grass and bunker sands and for bunker surrounds and tongues to reduce maintenance on those critical grass areas.**
- >For seed head suppression, Trimmit (paclobutrazol, root absorbed) or Proxy (ethephon) are recommended at labeled rates. Neither product will affect Platinum TE growth rates normally, but can suppress seed head exertion.**
- >Cutless (fluprimsol) does not normally suppress Platinum TE growth, but can be used in conjunction with 1/3-1/2x labeled rates of Prograss (ethofumesate) to suppress bermudagrass contamination.**

- >Embark (mefluidide) application rates have not been determined for use on Platinum TE. The grass is quite sensitive to Embark and use of this PGR is not recommended at the present.
- >Retard (maleic hydrazide) applications are not recommended on Platinum TE at the present time until sufficient testing has been completed.

## 15. Pest management

- >All insect, disease, and weed control options for Platinum TE can be obtained by contacting R.R. Duncan ([rduncan4612@gmail.com](mailto:rduncan4612@gmail.com)) or accessing the Platinum TE website ([www.platinumte.com](http://www.platinumte.com)).

### **Nematode Threshold Levels for Seashore Paspalum**

- \*Root-knot = 80-300 Meloidogyne. Moderate to high risk*
- \*Sting = 10-25 Belonolaimus (ecto-parasite: live outside and damage lateral roots; salinity threshold <9600 ppm TDS salinity)*
- \*Lance = 40-120 Hoplolaimus (migratory endo-parasites that enter roots & tunnel through cell walls; high population potential <6400 ppm TDS salinity)*
- \*Stubby-root = 150-300 Paratrichodorus; 40-120 Trichodorus*
- \*Ring = 500-1000 Mesocriconema*
- \*Sheath = 150-300 Hemicycliophora*
- \*Sheathoid = 500-1000 Hemicriconemoides*
- \*Awl = 10-25 Dolichodorus*

#### REFERENCES

William T. Crow. September 2021. Root-knot nematodes on warm-season turf: Chasing the Ghost. Golf Course Management 9:88-93. [www.gcmonline.com](http://www.gcmonline.com)  
W.Pang et al. 2011. Responses of seashore paspalum cultivars to sting and spiral nematodes. Crop Science 51:2864-2867.

## 16. Low light intensity & tree shade issues

- >Platinum TE has excellent low light (light quality: duration, wavelengths) intensity tolerance. The grass generally needs 5-7 hours of full sun each day during the growing season, but the grass has the capability to absorb ultraviolet wavelengths that penetrate clouds, fog or smog. The grass also utilizes reflected or deflected light better than bermudagrasses.
- >Raising HOC and weekly applications of a seaweed or kelp extract are additional strategies to improving performance under tree shade conditions; but if excessive tree shade is the primary limitation, trees need to be removed or branches pruned to improve light quality and duration.

**>A balanced prescription fertilization program with liquid products is recommended when shade issues are limiting on growth.**

## **17. Preparation for winter transition**

**>Platinum TE is a deep rooting cultivar, but irrigation scheduling (less frequent, longer duration of cycles) is critical for training the roots, especially the rhizomes, deep into the soil profile.**

**>The major zone of rhizomes should be positioned at least 1-2 inches (25-50 mm) deep in the upper soil profile with a sandy mat positioned above or including the rhizomes. If soil zones are frozen down below the rhizome layer for Platinum TE, winter kill could result.**

**>Raise the HOC to between 0.110-0.125 inches (2.75-3.125 mm) as cooler temperatures persistently increase in the Fall in order to improve canopy density.**

**>Applications of a seaweed or kelp extract, Primo PGR, and a light foliar application of calcium nitrate is normally beneficial to hardening the grass for gradual transition to chilling or colder temperature conditions.**

**>Platinum TE normally will not lose chlorophyll unless actual frost bursts the cells at temperatures at or below freezing. The cultivar also has the tendency to emerge from winter dormancy earlier than other warm season turf species.**

## **18. Overseeding issues**

**>Do not aggressively verticut or scalp or cut rhizomes in preparation for overseeding Platinum TE.**

**>Raising HOC and use of light to medium grooming are preparation strategies prior to overseeding with cool season cultivars. The seed will often be positioned in the grooves as a result of the grooming event.**

**>Application of a liquid calcium product, a potassium product, and a phosphorus product (a phosphite product containing phosphoric or phosphorous acid and potassium is a good option) should be made prior to frost.**

**>Most cool season grasses can be used for overseeding into paspalum, and if the irrigation water is saline, salt tolerant cool season cultivars should be planted. A calcium amendment should be applied prior to planting the overseeded grass to provide available calcium for the young emerging cool season root system. Application of a silicate product could also be beneficial to germination and establishment of the seeded cool season species in the paspalum canopy.**

## **19. Spring transition**

- >Kerb (pronamide) or 1/3-1/2x labeled rates of Prograss (ethofumesate) can be used to transition out the cool season grass in conjunction with increasing temperatures during the early summer. Lower HOC when hotter weather and course conditions are appropriate for transitioning.**
- >Grooming or verticutting can improve the putting quality while thinning out the overseed canopy. Carefully increase fertility to encourage paspalum growth.**

## **20. Overall salt management challenges**

- >Proactive monitoring of water, soil, and tissue nutrient concentrations are essential for managing Platinum TE with saline irrigation water. Platinum TE tolerates salinity, but does not remediate salt accumulation in soils.**

**Saline water containing elevated levels of salt ions, such as sodium, will foliar-feed directly into shoots to disrupt nutritional balances. Monitoring will provide science-based information that can be used to make informed management decisions on a site-specific basis. Micronutrients are especially vulnerable for uptake due to interactions with saline irrigation water.**

- >Mechanical aerification (deep tine, needle tine, core aeration) coupled with supplemental use of water-jet or dry-jet aerification are the most effective methods for increasing internal drainage and porosity. Internal functional drainage and rootzone porosity (capillary or water-filled porosity, non-capillary or air porosity) that are determined by a complete soil physical test will provide essential information concerning water infiltration rate or saturated hydraulic conductivity. Apply penetrant wetting agents (at least 2 different chemistries) regularly to move salts downward in between the aeration holes.**

- >In conjunction with internal drainage, good surface drainage is extremely important for minimizing water collection in low areas or adjacent to the edges of the greens cavity. Accumulation of water in these areas coupled with salt accumulation can saturate the root zone and dilute the air porosity (capillary porosity increases rapidly in this case), resulting in anaerobic conditions after extended periods of time, and thereby resulting in increased disease incidences (especially the root borne pathogens, but also algae and moss on the surface), or leading to black layer problems when excess sulfates are present. Regularly scheduled aeration will minimize these problems.**

- >Platinum TE has salt tolerance levels that approach ocean level salinity; however, this grass tolerates salinity, but does not remediate salt**

accumulation in the soil. The grass with the right site infrastructure might tolerate the salt load in the irrigation water, but most soils cannot tolerate excess salt ion accumulation.

You must always and constantly manage salt accumulations in the soil profile for maximum grass performance.

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**FOR PLATINUM TE TEES, FAIRWAYS, AND ROUGHS:**

**1. Native soil preparation for planting**

>Pre-plant preparation for planting on a previous hybrid bermudagrass course should involve either fumigation or at the very least, spraying with RoundUp® + Fusilade® + ammonium fertilizer at high rates and a minimum of two applications spaced 3-4 weeks apart. The old residual bermudagrass canopy and thatch layer should be removed prior to additional land preparation for planting.

>The entire area should be deep aerified (deep ripping, vertidrain, soil reliever, drill & fill) or if significant salt accumulation has occurred, a deep ripping and rototilling may be needed followed by flushing excess salts down to the functional drainage lines. All soil areas should be sampled down to 12 inches (300 mm) and the samples submitted to a reputable laboratory for soil fertility testing, saturated paste extract (SPE) salinity testing, and in some cases, for a complete physical analysis.

>Appropriate drainage should be installed where needed to provide the necessary infrastructure to manage excess salts, especially in low topography areas.

>A good granular calcium source (gypsum or lime or dolomite) should be applied after aeration or tillage. A good organic fertilizer should be applied based on soil test data. If the area is to be sodded, a balanced NPK fertilizer should be applied coupled with a good organic fertilizer to stimulate microbial populations to increase under the newly laid sod. If the area will be planted with sprigs, a 1:2:3 ratio fertilizer should be applied, followed by week 3 with a good nitrate fertilizer product application.

>All sprig planting should be done using hydrosprigging to minimize erosion problems and maximize water conservation. If slit or row planting is employed, a good hydromulch application would be recommended, especially on slopes, mounds, and bunker surrounds.

>If the area is capped with sand (4-12 inches deep or 100-300 mm): after tillage, aerification, drainage installation, and calcium amendment application, additional inorganic amendments may be needed depending on quality of the sand. Contact R.R. Duncan ([rduncan4612@gmail.com](mailto:rduncan4612@gmail.com)) for site-specific recommendations.

## **2. Sod planting slopes, mounds, and bunker surrounds**

**>Tillage and rototilling should be followed by a good deep solid tine aeration and a granular calcium amendment application based on soil test data. Apply the organic fertilizer and a balanced NPK source plus a granular 5% Mn + 4-5% Zn product; then lay the sod. Spray twice the first week and weekly thereafter for the first month with a seaweed/kelp extract product (>35% actual extract cytokinins) like Promax (Lesco), Panasea (Milliken), AlgaeGreen, or Kelplex to escalate root re-development.**

**>Apply a good micronutrient fertilizer by week 2 after sodding and repeat biweekly for the next 6 weeks.**

**>If highly saline irrigation water is being used, spray a liquid manganese and zinc product weekly to activate salt tolerance mechanisms.**

**>Do not overwater the sod after installation.**

## **3. Functional Drainage Issues**

**>Salt management is only as successful as the distribution uniformity and efficiency of the irrigation system and the ability to move salts to drainage lines in order to minimize the accumulation of excess salts in the soil profile during planting, establishment, and long-term maintenance. This is especially critical with native soils and depends directly on type and quantity of clays in those native soils.**

**>Both surface drainage and subsurface internal drainage determine the success or failure in managing salts on the site. Regular aeration (slicing, solid tine, core removal, spiking) and sand topdressing (0.25-1.0 inches/year or 6-25 mm/year) can enhance the effectiveness in managing salts long term on native soils. Verticutting and core aeration can be used in conjunction with sand topdressing to minimize any organic matter accumulation in the native soils.**

**>Inadequate drainage and accumulation of salts in the native soils can create layers of degraded organic matter, resulting in black layers that are normally high in sulfates, that are low in oxygen flux into the soil due to reduced or non-existent air porosity, that have reduced water infiltration (saturated hydraulic conductivity) due to the high capillary porosity, and that often have persistent root-borne pathogen (*paspalum* decline or take-all, *Curvularia* fading out) problems. Microbial populations are often decreased, and granular fertilizer applications to the soil become less and less effective.**

#### **4. Planting, establishment, and early grow-in**

- >The recommended sprig planting method for Platinum TE is hydrosprigging in order to maximize water conservation and minimize erosion challenges. Tees should be completely covered with topdressing sand after sprig planting.**
- >Recommended Platinum TE sprigging rates are 20-30 bu/1000 sq. ft. (124 cu. ft./bu) for tees, bunker surrounds, slopes, and mounds. Recommended sprigging rates for fairways and roughs are 900-1200 bu/acre. Planting half the sprig rate followed by crimping the sprigs into the soil. Sand-topdress to completely cover the sprigs if at all possible for best sprig survival rates.**

#### **5. Fertilization program**

- >Platinum TE is very efficient in fertilizer nutrient uptake and utilization. The grass only absorbs nitrate-N sources and rapidly responds to liquid nitrate products like calcium nitrate or potassium nitrate.**
- >Nitrogen applications should be initiated by week 3 after planting and continued as needed. Percent N concentrations in tissue should be maintained between 2.8-3.5% N. Total actual N use by Platinum TE should be 3-4 lbs/1000 sq. ft./year.**
- >All sprig planting should have adequate P and K applied pre-plant for root system development. Phosphorus should be applied each Fall and Spring depending on water quality and soil P availability.**
- >Potassium should be applied weekly in prescription amounts to maintain turgor pressure and sustain osmotic adjustments to saline irrigation water. Adequate K is essential to minimize scalping of Platinum TE. Maintain % K at 3% in the shoots if at all possible.**
- >A granular calcium source should be applied every 1-3 months depending on soil test availability of calcium. Platinum TE requires a 2-3 meq/L Ca to 1 meq/L Mg ratio for proper color expression and nutritional stabilization in the plant. Any yellow discoloration in Platinum TE is due to inadequate availability of calcium for uptake. Supplemental calcium products (Ca nitrate, Ca acetate, Ca chloride, Ca citrate, Ca chelated with amino acids or alcohols, or Ca gluconate) can be applied in liquid form for actual foliar uptake.**
- >Micronutrient fertilizers required by Platinum TE include products that contain 4% Mn, 4% Zn, 5% Fe, and 1%+ of Cu, B, and Mo. Apply Mg as needed for proper balance with Ca.**
- >Collect clippings and submit for a wet chemistry/spectrophotometric or ICP testing to determine whether the grass has absorbed nutrients that are within the sufficiency ranges for maximum performance.**



### **Leaf nutrient sufficiency ranges for Platinum TE seashore paspalum:**

**2.8-3.5% N**  
**0.3-0.6% P**  
**2-4% K**  
**0.25-1.50% Ca**  
**0.25-0.60% Mg**  
**0.2-0.6% S**  
**50-500 ppm Fe**  
**20-250 ppm Zn**  
**50-300 ppm Mn**  
**5-50 ppm Cu**  
**5-60 ppm B**  
**0.5-1.0 ppm Mo**

**Note: these values are based on wet chemistry/spectrophotometric analysis of clippings and not near infrared reflectance (NIR) analysis.**

## **6. Irrigation scheduling**

- >With native soils and better water holding capability than pure sands, the irrigation scheduling should take advantage of the hydrosprigging or mulching that provides better water conservation.**
- >By week 3 after sprigging Platinum TE, the schedule should be changed from short duration and frequent events to one that is longer duration and less frequent in order to reset the rhizomes in the 1-2 inch upper profile zone.**
- >By the end of week 4, once daily cycles should be used and gradually start extending the number of days between once daily cycles.**
- >Platinum TE has very good drought tolerance, but the root system must be trained to move deeper in the soil and the rhizome layer should be positioned between 1-2+ inches deep in the upper soil profile. This grass is highly responsive to irrigation scheduling and normal full canopy density irrigation cycles should occur every 3-5 days.**
- >Any drought prone fairways, tees, roughs, bunker surrounds or other drought-prone areas should be amended with lassenite to improve water holding capabilities and zeolite to stabilize nutrition in those weak soil profile areas. Check with R.R. Duncan ([rduncan4612@gmail.com](mailto:rduncan4612@gmail.com)) for site-specific recommendations on amounts to apply.**
- >Any extensively wet areas should have additional drainage installed to better manage the soil moisture flux and excess salt accumulation in those areas.**

## **7. Aerification strategies**

- >The best implement for growing in fairways, roughs, and tees from sprigs is a slicer (Aerway slicer, Wiedenmann, or comparable aerators) or spiking. By week 4 after sprigging, this slicer should be run weekly to escalate grow-in.**
- >Management of roughs at full canopy density must include the slicer on a monthly basis and this frequency becomes critical as the Fall temperatures start decreasing; otherwise, a resetting or 'Witches broom' negative cosmetic effects will appear at mid-winter. Additionally, apply a balanced NPK fertilizer to the roughs during the Fall.**
- >Core aeration should be scheduled twice annually. Solid tine aeration should be scheduled monthly, and if highly saline water is used for irrigation, the schedule should be more frequent to effectively manage the high salt load that can potentially accumulate in the soil. Any sand topdressing of these areas is beneficial long term to grass performance and salt management.**

## **8. Sand topdressing**

- >On native soils that have previous salt accumulation, a good strategy is to apply sand when convenient and with consideration of the budget for the site. Application of 0.25-1.0 inch (6-25 mm) per year will gradually provide a more coarse upper soil profile for managing salts.**
- >A solid or core tine aeration should be scheduled either before or after the sand application to provide channels for water movement of the sand into the holes and a conduit for salt movement to the bottom of the aeration holes.**
- >A wetting agent can be applied prior to irrigation to assist in uniformly moving salts downward between aeration holes.**
- >Sand size and quality are not as critical for application on fairways and roughs compared to greens mixes or tee surfaces.**

## **9. Plant growth regulators**

- >Primo (trinexapac-ethyl) at 0.13 ai/acre is a normal rate. For tissue N concentrations above 3.5%, higher rates may be needed. For the interface between grass edges and bunker sands, a rate of 5-6 oz/acre will suppress stolon growth into bunker cavities. The same rate can be used on bunker surrounds and bunker tongues to minimize maintenance in those areas. Andeuw (prohexadion calcium 27.5%) is an additional PGR that also can be used.**

**>Trimmit (paclobutrazol) and Proxy (ethephon) should be used to suppress any seed head development. Seed head exsertion in paspalum is a defensive response to injury and normally reaches a maximum peak during 2-3 weeks around the longest day of the year. Excess phosphorus will also trigger seed head exsertion.**

**>Cutless (fluprimsol) has little or no effect on growth regulation in paspalum, but will suppress bermudagrass growth that is contaminated in paspalum.**

## **10. Mowers and mowing**

**>Light weight reel mowers are recommended for mowing Platinum TE fairways. Always mow at angles and once monthly, mow in a circular fashion to tighten the canopy density beyond what the angular mowing will accomplish. Recommended HOC for fairways is 0.375-0.500 inches (9-13 cm). Tournament quality fairways can be achieved with fairway mower units that include groomers.**

**>Rotary mowers are recommended for mowing roughs at HOC between 1.25-1.50 inches (31-38 cm). These mowers will pull up the leaf tips better than reel mowers and provide a cleaner cut. HOC above 1.5 inches (38 cm) is not recommended. Higher HOC will open up the canopy and the ball will collapse down in the canopy, creating a definite penalty rough and difficult playing conditions.**

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**Contact R.R. Duncan for any concerns or problems encountered when growing Platinum TE: [rduncan4612@gmail.com](mailto:rduncan4612@gmail.com)**