PASPALUM VAGINATUM SWARTZ AND ENVIRONMENTAL IMPACT

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The invasiveness of the genus Paspalum has been questioned by environmental groups not only in the USA but globally. The following discussion presents some facts about *Paspalum vaginatum* Swartz, the turf-type seashore paspalum.

Science-based facts

The genetics of the grass can be found on pages 25-42 in the Seashore Paspalum book (Duncan and Carrow 1999). There are over 440 species of Paspalum, and the ploidy level can range from 2n=20 to 2n=40 chromosomes (Duncan and Carrow 1999). The more aggressive ecotypes are the 2n=40 types and are generally found in native and wild habitats where sediment accumulates. Seashore paspalum in the wild can often be found adjacent to wetlands, salt marshes, harbor estuaries, and along stream mouths. Any documentation of invasion of the turf-type seashore paspalum cultivars into surrounding ecosystems of similar description in biological assessment documents have not specifically verified that *Paspalum vaginatum* Swartz 2n=20 chromosome ecotypes have been invasive. This particular species has been in California, Florida, Texas, and Hawaii since the 1970s, with no history of invasiveness.

Not a single *P. vaginatum* Swartz turf-ecotype has been documented as invasive of surrounding ecosystems, even in numerous very environmentally sensitive and ideal environmental sites where constant monitoring by EPA, federal/state/local environmentalists, and local agencies with monthly reporting have been

documented. The global dispersion of *P. vaginatum* turf-types in the book (Seashore paspalum; pages 21-24) has been outlined. The turf-type *P. vaginatum* types have been on the eastern coast of the USA since colonial days, and those ecotypes can be located from Virginia to Georgia along coastal venues throughout the Caribbean region and in Argentina as well as Australia. Ecotypes have been collected throughout that regions, and no invasive *Paspalum vaginatum* has been found in any ecosystem wetland or saline site of these turf-type morphological ecotypes in any of the environmentally sensitive waterways in those regions, nor has any information of that potential problem been genetically documented.

The first *P. vaginatum* cultivar was introduced into California in 1972 from Australia. The first golf course in California that planted the Australian turf Adelayd cultivar was Fairbanks Ranch Country Club at Rancho Santa Fe, California, on land previously owned by Douglass Fairbanks during the 1980s. This golf course and adjacent polo fields have not displayed any actual documentation of the grass invading into that lowland waterway area that opens to the Pacific Ocean. Additional golf courses were planted during the 1980s with the Australian turf ecotype at Pine Island, North Ft. Myers, Florida (Alden Pines golf course) and Kings Crossing Country Club in Corpus Christi, Texas. There has not been an invasion of the grass into the environmentally sensitive surrounding wet saline ecosystems surrounding those golf courses or any other adjacent sites. Other sites that were planted in seashore paspalum included Honolulu International Country Club on Oahu, Sea Island Golf Club and on St. Simons Island, Georgia and Mauna Lani Bay Resort, Big Island, Hawaii (Kona side) (Duncan and Carrow 1999).

P. vaginatum turf ecotypes have been in the Hawaiian Islands since the 1980s, and extensive collection trips for the grass on five of the Hawaiian Islands have revealed no invasion of waterways or saline estuaries by the turf types in an environment that grows grass 365 days a year with no winter dormancy. Numerous coastal golf courses that were planted in the grass have not revealed any invasion of those pristine environmentally sensitive sites by the turf types into unwanted adjacent sites.

Golf courses are constructed on specific sites with accompanying appropriate buffer zones and with the idea of minimizing significant negative impacts that could possibly lead to changes in invertebrate or natural habitats while being

stewards of the total surrounding ecosystems. *P. vaginatum* Swartz turf ecotypes are the morphological grass cultivars that are normally planted on very sensitive ecological and environmental sites where regimented monitoring is required regarding any potential negative impacts to the entire ecosystem long term.

Several plant growth regulators are quite effective in controlling growth rates in *P. vaginatum* cultivars in cases where there is any possibility of the grass moving into unwanted wet and/or saline eco sites.

Any plant species that has invasive tendencies and subsequent potential impact on tidal marsh or wetland habitats are a definite concern. Highly salinity tolerant *Spartina* spp. are much more invasive and aggressive than *P. vaginatum* Swartz turf types in brackish, saline sites. The most invasive grass species and the number one noxious weed in the world is bermudagrass--*Cynodon* spp., and numerous golf courses, as well as recreational sports facilities throughout the world, are planted in that warm season turfgrass.

Additional Information

P. vaginatum Swartz, the turf-type seashore paspalum, has been researched since 1993 in the USA, and over 100 publications, as well as the only book dealing with this environmentally friendly turfgrass (Seashore Paspalum: The Environmental Turfgrass. R.R. Duncan & R.N Carrow. 1999. John Wiley & Sons, Hoboken, NJ.), have been written about the turfgrass. Hundreds of globally planted seashore paspalum golf courses and recreational turfgrass facilities have been planted in improved seashore paspalum cultivars since 1994. Various ecotypes of this grass have been collected from many parts of the world, and a collection of 300 ecotypes has been assembled at the University of Georgia-Griffin.

The Platinum TE™ cultivar was selected for Collier Enterprises/Investments/Turf Ecosystems, LLC. of Naples, Florida, and the turf-type grass was patented and released in 2005. Currently, Platinum TE is owned by Emerald Green Holdings in Lagrange, Georgia. This specific cultivar has been planted on approximately 100+ golf courses worldwide (www.platinumte.com). The cultivar is a 2n=20 diploid chromosome ecotype and was totally developed for turfgrass/recreational sports ecosystems. Platinum TE has a strong service commitment to deal with specific agronomic and water quality issues on a per-site basis, and environmental stewardship is a number one priority for this cultivar.