

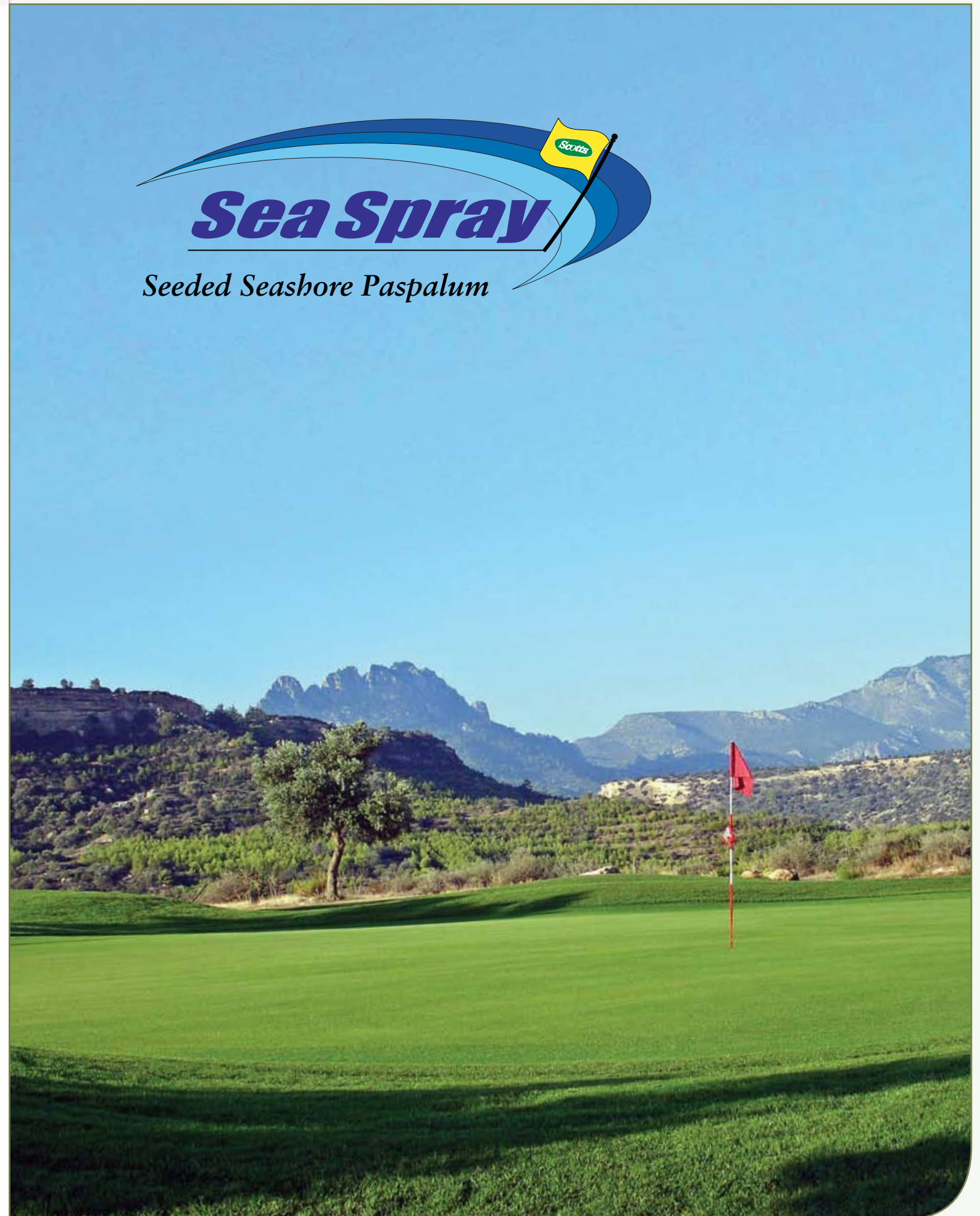


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Seeded Seashore Paspalum



History of Seashore Paspalum

Seashore paspalum (*Paspalum vaginatum*) is a littoral, warm-season perennial grass suited to aquatic, semi-aquatic, and moist environments. It is native to tropical and sub-tropical regions all over the world. Useful for erosion control on salinity-sensitive areas that are subject to tidal influences, paspalum grows wild on the seacoasts of both hemispheres. This species is known by several names across the continents, but many turf experts believe it originated in western Africa.

O.J. Noer began distributing paspalum in the southeastern United States around 1925, deriving his source materials from the #13 fairway on the marsh course at Sea Island Golf Club, where it had already

established itself when the club was built. Noer sent initial materials to Vero Beach, Florida, as well as the Ornamental Horticulture Department at the University of Florida at Gainesville. He also took paspalum to Hawaii, where he established it on the Mauna Kea Country Club while serving as a consultant for Robert Trent Jones, Inc. However, it would be another half-century before rising environmental concerns would drive the aggressive development of paspalum for regular use on golf courses.

Did You Know...

Sea Spray was introduced into the golf course industry in 2005, after many years of experimental trials with viable seed head development, planting timing, grass seed yields, and germination techniques.



Sea Spray utilizes extensive stolons and rhizomes providing a dense stand of turf.



Korineum Golf & Country Club, North Cyprus

Sea Spray Research & Development

During the 1980s, the University of Georgia-Griffin began to conduct research on the salt tolerance of seashore paspalum. They examined how the species was able to thrive under saline conditions that no other species could even survive in. Previous work helped establish seashore paspalum as a viable option for turfgrass areas that were constantly under stress from high salt levels.

The first breeding program was initiated in 1993 and was funded by the United States Golf Association. Before long, the golf industry became the foremost advocate of the species and continues to be so to this day. This early breeding work directly led to the development of the first successful sprigged turfgrass varieties.

In 1998, Pure-Seed Testing, Inc., in cooperation with the University of Georgia, started work on developing an improved, seeded variety of seashore paspalum. For many years Pure-Seed Testing, Inc., evaluated seashore paspalum clones to determine the parents of *Sea Spray* which would produce viable seed. Turf-Seed, Inc., licensed *Sea Spray* in 2003 and continued research in seed production techniques while increasing production of the variety. *Sea Spray* was introduced into the golf course industry in 2005.

Currently, there are several completed golf course projects that have used *Sea Spray* as their seashore paspalum selection, and the success with this new revolutionary advancement will change the course of development in the turf industry.

Why is Sea Spray Right for Your Course?

Sea Spray is the first release of an improved, seeded seashore paspalum. An extremely salt tolerant turfgrass, it provides outstanding turf quality, a bright blue-green color, and a beautiful, uniform appearance. *Sea Spray* is ideal for temperate-to-hot, humid coastal climates and affords excellent drought tolerance due to its deep and extensive root system. *Sea Spray* is excellent for use on turfgrass areas irrigated with effluent water or subject to naturally high saline conditions, as it is capable of germinating with water containing less than 2,000 ppm salt (although fresh water is recommended) and tolerating soil with a pH range of 4.5-9.0. It has also been found that seashore paspalum transitions out of overseeding better and more smoothly than bermudagrass.

Sea Spray, like all paspalum, is an excellent environmental turfgrass. Along with salinity, *Sea Spray* tolerates drought, water logging/low oxygen, low-light intensity, and traffic. It needs less nitrogen, due to rapid nutrient uptake

and use characteristics. It also requires less water than other grasses and has bioremediation/land reclamation benefits, as it is capable of actually removing salt from the soil.

From a player's point of view, seashore paspalum is often considered an improvement upon bermudagrass and other varieties typically found on southern golf courses. Many players find an improved lie on tees and fairways, due to its dense and upright growth characteristics, but the species also offers better striping, a vibrant green color and increased cool-weather color retention. Add the ease of use through the seeded variety and *Sea Spray* becomes a clear and natural choice.



Sea Spray contains approximately 800,000 seeds per pound.

Seed Versus Sprigs

Traditionally, seashore paspalum spreads through stolons and rhizomes, rather than through seeding. This presents a potential problem for superintendents who wish to propagate the species through sprigging on their golf courses: How much is enough? If one orders a bushel of sprigs, it's difficult to know how much plant material will be sent. Has the bushel of sprigs been compacted or is it filled loosely, or something in between? The advantage of seeded seashore paspalum lies in the consistency of volume in the seed—approximately 800,000 per pound. Given this dependable measure, there's no guesswork in determining the amount needed to establish coverage over any given area. Obviously, working with a known quantity is easier and ultimately more economical than working with an unknown quantity.

Again, working with a known quantity allows for more consistent application, even when numerous workers, or varying experience levels, are spreading new plant materials.

Finally, seeding provides a smoother, more even growing surface than sprigging, where concentrations of stolons and rhizomes within the sprigs may result in disparate patches of growth, and the sprigs themselves may create excess bio-matter in some areas but thinner spots in others.

Did You Know...

Seeding allows for thicker, more even coverage than sprigging. By adjusting seed rates, the superintendent exercises greater control over the density of the turf.



Punta Blanca Golf Club, Dominican Republic

When to Plant Sea Spray

Warm-season turfgrasses grow best in a temperature range of 80° to 95°F (27°-35°C). A light topdressing of sand or dark mulch may help if temperatures are less than optimum.

Where to Plant Sea Spray

Seashore paspalum is, of course, a warm-season grass, so *Sea Spray* is best for courses no farther north than 30–35° of latitude. Within its “comfort zone,” it displays excellent resistance to dollar spot in addition to its primary characteristic of salt tolerance. *Sea Spray* is an excellent choice for environmentally conscious superintendents, especially those with water quality issues such as a need to use effluent water for irrigation. Certainly in areas where water shortages occur, or where saline conditions are unusually high, or where water reclamation projects are undertaken, *Sea Spray* provides an attractive option for beautiful turf despite these conditions.

A number of prestigious golf courses have already embraced *Sea Spray* for their turf of choice. Early adopters Korineum Golf & Country Club on Cyprus, island in the Mediterranean Sea, Moody Gardens Golf Course located in Galveston, TX, and Loreto Bay Golf Club in Loreto, Mexico have all discovered the advantages of seeded seashore paspalum and put it to good use as their turf throughout the entire course.



How to establish Sea Spray

Storage

First, it is important to keep storage considerations in mind, as proper storage is the first step in successful establishment. Seed is perishable, so it needs to be stored in an area with low humidity and cool temperatures—for best results, store in an air conditioned environment. Furthermore, the seed should be used within 45-60 days of receipt.

Surface Preparation

Whether establishing a new seedbed or renovating existing turf, it is important to begin with a firm and smooth soil surface, relatively free of debris. If renovating existing turf, apply a non-selective herbicide in order to kill all existing turf, then rake the soil to remove excess matter and create a smooth surface. Fumigation is the most effective alternative in removing undesirable grasses as well. Bermudagrass is best removed with fumigation, since non-selective herbicides may not completely kill all of the vegetative tissue. Note that seashore paspalum is sensitive to some herbicides, so check the herbicide label before applying.

Good soil-to-seed contact is very important to successful establishment, so the surface should be lightly raked and then gently rolled after seeding. For best performance, the soil needs to be tilled to a depth of 2 to 3 inches, which provides a lodging place for the seed and affords good soil-to-seed contact. Utilizing a “drill seeder” (like a Brillion Seeder) provides the best method of incorporating the seeding into the soil. Another alternative is using mulch or turf blankets to providing a good cover for establishing *Sea Spray*.

For Best Results...

Sea Spray seed should be stored in an air-conditioned environment with low humidity in order to extend shelf life of seed. Seed may begin to lose germination within 45-60 days if exposed to high humidity and temperatures.





Fuerteventura Golf Club, Canary Islands

Sea Spray Establishment, cont.

Seeding Rates

The recommended seeding rate is 0.75 to 1.25 lbs per 1,000 sq ft (3.7-6.1 g/m²) for uncoated seed, and 1 to 2 lbs per 1,000 sq ft (4.9-9.8 g/m²) for Zeba-coated seed. The best time to seed is late spring through mid-summer; fall plantings are not recommended except in warm climates, where seeding can be done year-round. The ideal germination temperatures are 80° to 95°F (27°-35°C). The use of mulch or seed blanket can be used for improving the moisture retention of the seedbed.

Watering During Establishment

Although seashore paspalum is well known for its tolerance to salt, it is essential to establish the variety with fresh, potable water. Water that is < 2000 ppm total TDS is strongly recommended. Keep the seedbed continually moist with fresh water by irrigating frequently throughout the day during germination, which should occur on an average of 21 days or sooner with optimum soil temperatures 80° to 95°F (27°-35°C). It is critical to maintain constant surface moisture through light and frequent irrigations during the first 14 days after planting. This may include a range of six to seven 5-minute events per day in order to maintain proper soil-surface moisture, depending upon weather factors such as temperature, wind, and cloud cover.

Did You Know...

Similar to sprigged varieties, it is essential to establish Sea Spray seashore paspalum with fresh potable water (<2000 ppm total TSD)

Sea Spray Establishment, cont.

Pre-Plant Fertilizer Levels

The success of any turfgrass establishment is not only based on an excellent turfgrass selection (like *Sea Spray*), but also on good nutrient. We strongly recommend soil testing (and water analysis) for recommending the correct nutrition. Fertilizer applications should be strongly considered in both pre-plant and during establishment. Scotts Poly-S 16-25-12 can provide an initial nutrient base during pre-plant and early establishment.

Mowing/Topdressing/Verticutting

The first mowing will depend on if it's for the establishment of a green, or other higher mowed turf. For green establishment, the first mowing should be at 0.25 inches (6 mm), then bringing the mowing height down slowly, while maintaining canopy and coverage. The first few mowing are critical, since the plant reacts very aggressively to its first cut. The plant will grow laterally much more aggressively, and establishment is greatly enhanced by this activity. Light topdressing should take place with the same topdressing mix used for greens mix. This should take place about 4-6 weeks after germination, and

should be done every 10-21 days.

Light verticutting or spiking is recommended 5-6 weeks of age, or when stolons start rapidly growing. Removal of too much leaf tissue may be detrimental to establishment, and cutting the stolons should be your primary goal. Topdressing after verticutting or spiking is recommended, and this will provide more uniformity to the putting surface.

For other turf areas, like tees, fairways, roughs and other higher cut turfgrass, the first mowing is recommended when it reaches approximately 1 inch (2.5 cm) in height. This will reduce the incidence of scalping that could occur if allowed to grow higher than 1 inch in height. Once again, regular mowing will strongly encourage lateral growth and better turf coverage. Efforts to prevent scalping are strongly encouraged, since scalping can set back the grow-in by several weeks.



Korineum Golf & Country Club, North Cyprus

How to Maintain Sea Spray

Fertilizer applications should emphasize potassium and phosphorus over nitrogen—the recommended ratio for the first month is 1:2:3 or 1:3:4. Apply 0.3-0.5 lbs of nitrogen per 1,000 sq ft (1.5-2.4 g/m²) in the nitrate (NO₃) form weekly until uniform turf coverage is achieved.

This can be applied either in granular, liquid form or through the use of fertigation. Then, fertilize annually at a rate of 2 to 3 lbs of nitrogen per 1,000 sq ft (9.8-14.7 g/m²) during early fall or spring, and do not exceed 4 lbs (1.8 g) per year.

Fertilizer Levels

As mentioned, fertilize annually at a rate of 2 to 3 lbs of nitrogen per 1,000 sq ft during early fall or spring, and do not exceed 4 lbs per year. Also, avoid applications of more than 0.5 lbs of fast-release, water-soluble nitrogen per 1,000 sq ft (2.4 g/m²)—high-index salt fertilizers work very well with *Sea Spray*. High levels of phosphorus should always be available to the plant. In salt-affected environments, calcium, magnesium, manganese, and iron should be monitored for deficiencies.

Watering

Deep, infrequent irrigations—about 1 inch every week or two—are best throughout the growing season.



Punta Blanca Golf Club, Dominion Republic



Moody Gardens Golf Course, Galveston, TX

Sea Spray Maintenance, cont.

Mowing

Able to tolerate cutting heights as low as 1/10 inch (0.25 cm), *Sea Spray* is an excellent choice for greens, but it serves equally well on tees, fairways, and, roughs as well as sports and recreational turf. The recommended mowing height is 0.5 to 1.5 inches (1.3-3.8 cm) with a reel mower. To minimize the possibility of scalping, especially during the summer season, gradually reduce the mowing height during peak growing conditions.

Additional Care

For the best turf quality as well as improved winter color in mild climates, annual light renovation, aeration, and topdressing are strongly recommended in early to mid-September, but allow time for full recovery prior to the onset of cooler

temperatures. In areas where *Sea Spray* seashore paspalum would go off color due to cool temperatures, overseeding can be performed to maintain optimal turf color. Overseed after renovation and aeration programs with salt-tolerant Brightstar SLT or Salinas perennial ryegrasses at 10 to 15 lbs per 1,000 sq ft (48-73 g/m²) for conventional turf.

Did You Know...

Sea Spray seashore paspalum can be used on greens, tees, fairways, roughs or sports and recreation fields.