

Factors to Consider when Selecting a Turf Grass

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One of the most critical decisions a turf manager can make is selecting the best grass for the customer. As with most decisions, research and background information is the most important portion of the selection process. If the grass species chosen turns out to be inappropriate, changing to another can be costly, labor intensive and possibly damaging to your professional reputation.

Therefore, it pays to consider the choice carefully. Many turfgrass problems are a direct result of the use of poor performing varieties or turfgrass containing undesirable grass seed (UGS). For instance, Blue Tag Certified Seed will guarantee the variety and a standard level of cleanliness but allows contamination from *Poa annua* and/or noxious weeds. Higher standards can be found with Tournament Quality™ perennial ryegrass which diminishes the possibility of planting *Poa annua* and/or noxious weeds with your perennial ryegrass. Successful grass selection begins with good landscape design, and selecting the right species for the right site is crucial

First, ask the client direct questions such as "How much traffic do you expect on the turf?" "Is dark green color important, or will light green be acceptable?" and "What is your budget for watering, fertilizing, mowing and pest control?"

During this discussion be sure to provide a long-term general perspective for the client on each of the species they show interest in planting. The cost of seed and the time for establishment are small compared to the inputs required for maintenance over the coming years. This may include the use of a landscaping company for routine maintenance.

Persuade the client away from the misconception that the cost of installation and establishment time is the major reason for choosing a grass. A photo library consisting of color pictures of the various species adapted to your local area to show clients would be a wise investment to provide customers relocating from another climatic zone to visualize the final results. This library can be compiled from successful job sites of the past or from a publisher such as Ann Arbor Press, www.sleepingbearpress.com.

Walk through the landscape, gathering information, identify opportunities and constraints of the area. Note wind patterns, existing trees and shrubs, existing turf, the condition of the turf, slope of the land, and shade/sun exposure. The use of a camera to note conditions, such as a tree that may create questionable sunlight reaching the turfgrass, may prove to be very useful in the future. For example, the removal/pruning of a tree is advised for turfgrass survival, a picture can be worth a thousand words when called back to the site for turf non-performance.

Take a soil probe to the site and extract a few soil cores. Squeeze the soil to get a feel for clay, silt and sand content. Confirm your initial observations with a soil test. Virtually half of the turf plant grows out of sight below the surface, so it is critical to determine if the soil is suitable to encourage root growth. In general, most grasses prefer a pH of 6.5 to 7.5, an organic matter content of 3 to 5 percent, and enough pore space to permit drainage and air exchange. The rule of thumb is 1/3 soil, 1/3 pore space for air movement, & 1/3 pore space for water retention.

Maintenance Needs- Combine the information gathered in the interview and the notes/observations obtained during the site walk through to establish a target level of maintenance. In general, it will fall into one of several categories:

Very Low Maintenance- These are turf areas that receive no watering other than natural precipitation, no fertilization and are mowed at a fairly high height of cut. These turf areas are not much to look at, but serve their purpose. Airstrips, median strips, roadsides, slopes, and meadows are typical uses for these low-maintenance turfs. Common bermudagrass, common bluegrass, buffalo grass, forage-type tall fescues, and native grasses are good choices for very low-maintenance turfs.

Low Maintenance- This is an area that receives little to no watering, but enough to prevent drought stress. Mowing height is fairly high, towards the high end in the desired range of each species. These turf areas typically are fertilized once a year. Industrial grounds, some home lawns, cemeteries, golf course roughs and picnic grounds are common sites for low-maintenance turfs. Common bermudagrass, Zoysia grass, common bluegrass, buffalo grass, centipede grass, Bahia grass, forage-type tall fescues, fine fescues, and native grasses are good choices for low maintenance turfs.

Medium Maintenance- These areas receive a moderate level of input, including regular watering and frequent mowing, usually in the 2 to 3-inch range. These areas are fertilized two to three times per year to encourage retention of green color, shoot, root and lateral growth. Golf course fairways, apartment buildings, office parks, athletic fields and most home

lawns fall into this level of maintenance. Improved seeded bermudagrass, improved Zoysia grass, premium bluegrass, bluegrass/perennial ryegrass mixtures, and turf-type tall fescue are good choices for medium maintenance lawns.

High Maintenance- These are areas that receive regular, high intensity inputs and require the greatest cost to maintain. They are frequently irrigated, and mowed at the lower end of the desired range in each species to produce a quality appearance. Fertilizer is applied frequently to these turfs, usually three to five times per year. In some situations, a "spoon feeding" regime is used, where fertilizer is applied every three weeks or so. Golf greens, estate grounds, upscale hotels, theme parks, some home lawns and certain office complexes are sites maintained at this level. Turf-type perennial ryegrass, premium bluegrass, hybrid bermudagrass and creeping bentgrass are good high maintenance turf choices.

Significant Qualities- All of the factors in selection are interrelated to an extent. This is especially true if a turf species is maintained at a higher or lower level than is reasonable for the grass. For example, fertilization and irrigation affect mowing in that if you fertilize and irrigate a turf area heavily, the grass will require more frequent mowing. On the other hand, turf varieties that prefer moderate maintenance will generally become thin and open if fertilized and irrigated sparingly. In the latter scenario, drought stress and weed invasion due to an open stand will likely result.

Each species of grass is unique and expresses distinctive attributes. More specifically, cultivars within a species express quite a range of growth and environmental tolerances as well. The National Turfgrass Evaluation Program (NTEP) evaluates cultivars of turf in multiple sites in different parts of the nation to determine what grasses are best suited for the selected climatic condition and management style. These research studies are available through NTEP at www.ntep.org.

The scientists at NTEP use various factors and descriptions to guide their evaluation efforts such as:

Genetic Color- Shades of color range from light green to dark green.

Leaf Texture- Describes the width of the leaves. Coarser-textured grasses, such as Centipede grass, have a tougher "feel" and are not as thin or fine as Perennial Ryegrass or Fine Fescues.

Density- This measures the amount of grass plants in an area. The larger number of plants per unit area, the greater the density.

Disease/Insect Resistance- This relates to the turfgrass' ability to resist disease and insect attacks. Some plants are more resistant to these pests because of their genetic makeup due to naturally occurring fungi known as Endophytes. They live within certain Tall Fescue, Fine Fescue and Perennial Ryegrass varieties, helping these grasses ward off insects. Some of these Endophytes can be harmful to grazing animals, therefore inquire as to the use of open areas.

Drought Resistance- This is the ability of a turfgrass to survive and/or thrive during drought conditions. The most desirable grass will maintain its green color and good quality during prolonged drought. However, for basic survival during drought, grasses often lose their green color and go dormant.

Heat & Cold Tolerance - Is the observation of the turfgrass ability to survive extreme winter and summer temperatures. Cold tolerance ratings can be misleading for it is often the sudden change in temperature that causes winter kill not the actual temperature.

Rate of Establishment- Is the evaluation of how quickly the turfgrass produces 100 percent ground cover. This is especially important in resisting weed invasion, controlling erosion and recovering from disease or insect damage.

Shade Tolerance- Trees in the landscape are inevitable, subsequently we need species that can survive and thrive in shaded areas.

Traffic & Wear Tolerance- This characteristic is important in parks, athletic fields, golf courses, playgrounds and home lawns.

Thatch Production- Some grass types produce thatch, or dead roots and stems (not from leaf clippings), faster than soil microorganisms can decompose the thatch. Thatch is a place for diseases and insects to thrive and it prevents water from reaching the turfgrass' roots.

Grasses are divided into warm- and cool-season species. Cool-season grasses are generally grown in areas where frosts and freezing temperatures are routine portion of the year, while warm-season grasses are grown in regions where mild to

hot weather predominates. Buffalo grass, Zoysia grass and Creeping bentgrass are exceptions in that they are often grown successfully beyond traditional boundaries.

Cool Season Species-

Kentucky Bluegrass is the most popular cool season grass with its medium-textured, green to dark green turf of good density. The aggressive sod forming habit of bluegrass is attributable to its strong rhizome development, lateral spreading potential and excellent recovery potential. It has fair high temperature tolerance and good to excellent cold temperature tolerance. Some cultivars are pest susceptible.

Turf Type Tall Fescue has the coarsest texture of any cool-season grass. The recuperative potential is quite low, as it is a bunch grass and does not spread laterally. Tall Fescue has a very extensive root system that is used to draw on soil moisture reserves and resist insect feeding damage. Thus, it is considered pest resistant and drought tolerant. It has fair cold temperature tolerance and good to excellent heat tolerance.

Fine leaf Fescue is made up of the species Hard Fescue, Sheep Fescue, Creeping Red Fescue and Chewings Fescue. Although there are minor differences, they are grouped together for practicality. Except for Creeping Red Fescue, these are bunch grasses and do not spread significantly. They are medium to dark green and exhibit good to excellent shade tolerance, and are predominantly mixed with shade tolerant cultivars of bluegrass for use in turf areas that receive three to six hours of sun per day.

Perennial ryegrasses are also commonly mixed with Kentucky bluegrass with wear tolerance and quick establishment as the desired results. Ryegrasses are shiny, medium to dark green and fine to medium in texture. They germinate rapidly, making them useful in sports turfs. They have fair cold and warm temperature tolerance. Like the fescues, they are bunchgrasses and do not spread laterally.

Creeping bentgrass is a very low, very fine textured grass. It has good cold temperature tolerance and fair heat tolerance. It spreads readily through rhizomes. Bent grasses are susceptible to a wide range of fungal diseases, and, along with a requirement for very frequent mowing; it is considered a high maintenance grass.

Warm Season Species-

Bermuda grass is one of the most widely used warm-season species, due to its many uses. Common bermudagrass is a bit coarse, having medium texture, while improved seeded types of Bermudagrass are medium-fine. Cold temperature tolerance is poor to moderate, while heat tolerance is good. All Bermuda grasses are aggressive spreaders, giving it excellent recuperative potential and rapid establishment.

Zoysia grass is similar to Bermudagrass in that it has rhizomes and stolons, but differs with regards to cold tolerance, stiffness and growth rate. Some Zoysia species have good cold temperature tolerance, and all have good to excellent heat tolerance. The growth rate is slower, and is quite stiff and tough compared to other grasses. The texture is medium, and the color is medium green color. Zoysia grass has a deep root system, allowing it to avoid drought stress in many situations. Zoysia grass is low growing and tolerates a low mowing height.

Centipede grass is a low maintenance, medium coarse grass, which spreads by short, leafy stolons and forms a mat of low-growing stems and leaves. Centipede grass is light to medium green in color. The cold temperature hardiness is quite poor, while heat tolerance is good. The shade tolerance is intermediate but better than Bermuda and Zoysia grass. The recuperative potential is poor, due to its slow growth rate and spreading ability.

Buffalo grass is one of the few turf grasses native to the United States; it is the low maintenance warm-season turf. Adapted to the central part of the U.S. from Texas to Minnesota, and Colorado to Illinois, it is grey-green in color and possesses a medium to fine texture. Improved cultivars provide a turf-type medium density. The cold and heat tolerance is good to excellent, while pest resistance is excellent. It requires no irrigation once established, and has a very low fertility requirement. It is slow growing and slow to establish, which limits its ability to recuperate from stress or injury.

***An important fact to remember in the selection of a turf grass is that there is NO "silver bullet in grasses" that that uses no water, needs mowing infrequently, withstands wear & tear while under shaded conditions and provides the desired turf. The challenge for the turf manager is to use information to match the attributes and features of potential grass species with the needs and desires of the customer.