

## **TURFGRASS SPECIES: A DESCRIPTION OF GRASSES TO GROW IN THE CAPITAL DISTRICT OF NEW YORK STATE**

**Introduction:** Four major species or groups of species of grass plants are recommended for lawns in the Capital District of New York state. These are: Kentucky bluegrass, perennial ryegrass, the fine fescues (a group consisting of hard fescue, chewings fescue, creeping red fescue and others), and tall fescue. Each species has its own good characteristics as well as limitations. Since a lawn is a long-term investment, and since it is difficult to change the type of grass in a lawn once it is established, it is important to select the right mixture of species for the given site conditions. Factors such as the amount of sun and shade, soil texture (sand, silt, or clay), soil drainage, use of the lawn, amount of care to be provided, and the ability to provide irrigation during drought should be examined. Knowing your site and learning more about the characteristics of grasses will enable you to choose the best types of grass for your location.

Grasses are most often planted as mixtures of varieties and species. Since weather and site conditions play a major part in the life of a lawn, this method capitalizes on the strengths of each species through the year, and as time passes. For example, a lawn composed of Kentucky bluegrass, perennial ryegrass and fine fescue will fill in quickly when planted (perennial ryegrass germinates fast), will tolerate drought (strengths of Kentucky bluegrass and fine fescues), and will survive as shade increases (a strength of fine fescues).

Additionally, there are two other grasses which sometimes are grown in our area, but which have serious drawbacks. These are annual ryegrass and zoysiagrass. They are also described below.

### **SPECIES DESCRIPTIONS**

**Kentucky bluegrass** (*Poa pratensis*) forms a lush, handsome lawn in a relatively wide range of growing conditions. Although bright, sunny conditions and one inch of rainfall per week are optimal, some Kentucky bluegrass varieties are adapted to light shade, dry conditions and lower fertility soils. The strong, creeping rhizomes create a dense root network which can produce new grass shoots quickly. This quality makes Kentucky bluegrass a favorite for use on sports fields, in sod production, and for lawns which may routinely sustain damage or injury. Since Kentucky bluegrass is often slow to germinate, it is frequently mixed with quick-germinating perennial ryegrass when a new lawn is seeded. Thatch can sometimes be a problem with Kentucky bluegrass, with certain varieties creating more thatch than others.

Although Kentucky bluegrass is naturally a strong growing species, a little added effort will keep it looking its absolute best. Lawns managed under medium to high maintenance regimes usually receive a moderate level of fertility, ranging from two to three pounds of nitrogen fertilizer per thousand square feet per year. The fertilizer should be applied in three applications made in late spring/early summer, late summer, and late fall. By avoiding an early spring application of fertilizer, the possibility of certain diseases, including leafspot, is reduced. Although Kentucky bluegrass requires a moderate amount of irrigation to remain green during a drought compared to other grasses, it can actually go dormant for several weeks during dry spells, with good recovery when rain returns. Lawns near sources of salt, including winter road salt and ocean flooding, may need repair in spring, since Kentucky bluegrass is salt-intolerant.

Most Kentucky bluegrass varieties are adapted for a full sun exposure. Cultivars such as 'Adelphi,' 'Bonnieblue,' 'Nassau' and 'Ram I' perform well under average home lawn conditions. Where shade is a consideration, a variety able to tolerate partial shade must be chosen. These include 'Chateau,' 'Glade,' and 'Touchdown.' For lawns that are either very sunny or very shady, choose a blend of two or three varieties adapted to those conditions. For lawns with both sun and shade, including both sun-loving and shade tolerant types is ideal. Given damp, shady conditions, a 2:1 mixture of rough bluegrass (*Poa trivialis*) and shade-tolerant Kentucky bluegrass can be used.

**Perennial ryegrass** (*Lolium perenne*), with its fine to medium texture and deep green color, makes an excellent companion to Kentucky bluegrass and most fescues in grass seed mixtures. A primary reason for the popularity of perennial ryegrass in home lawns is its quick germination time, sometimes as short as a few days to a week. This compares favorably to Kentucky bluegrass, which may take two to three weeks to germinate, and allows for the rapid establishment of a lawn. It is widely used to repair damage on athletic fields and golf courses, where it will fill in swiftly. Perennial ryegrass is a bunch type grass, and has no stolons or rhizomes which allow for lateral spreading. Wear resistance is moderate. Full sun is required for perennial ryegrass, as it will perform poorly and disappear if planted in too much shade. Heat and wear tolerance are moderate, and recuperative potential is poor, although these characteristics vary with the individual varieties. If a large percentage of perennial ryegrass is used in a seed mix, it may out-compete other species and take over the entire planting.

When planted with Kentucky bluegrass, perennial ryegrass is usually maintained at a moderate level of fertility, including one to three pounds of nitrogen fertilizer per thousand square feet per year. It generally produces very little thatch. Given an improper balance of fertility, weather and soil conditions, perennial ryegrass can be susceptible to such turfgrass diseases as leaf spot, brown patch and red thread, although some of the newer varieties show resistance (see below). Drought tolerance ranges from fair to excellent, depending upon the variety, and salt tolerance is only fair. Interestingly, some types of perennial ryegrass have an unusual relationship with a fungus named the *Lolium* endophyte, which has been found to live inside their roots. This fungus does not harm the grass plant, but does provide it with some resistance to surfacing feeding insects, including chinch bugs.

Varieties showing at least moderate resistance to the diseases such as leaf spot, brown patch, red thread, and dollar spot include Fiesta II, Manhattan II, Navajo, Saturn, and Precision.

**Fine Fescues:** Turfgrass species which make up the group classified as the “fine fescues” include creeping red fescue, hard fescue, and Chewings fescue. All three of these species are choice turfgrasses for use in almost any of the cooler parts of the country.

**Creeping red fescue** has several strengths which Kentucky bluegrass lacks, and therefore is often part of lawn seed mixes. It has a fine, soft texture due to the narrowness of the leaf blades and a rich, green color. Grows well with little fertilizer and irrigation, making it one of the lower-maintenance type grasses, and is quite tolerant of shade. It does not withstand heavy foot traffic and damage especially well, and is often slow to re-green in the spring. The roots are only somewhat rhizomatous and, if grown alone, it will form a moderately dense but somewhat clumpy-looking lawn. Creeping red fescue can also be left unmowed and grown as a meadow grass.

Creeping red fescue will grow in a wide variety of soils, including those with low fertility and/or a low (acidic) pH level. This grass tolerates drought very well, and is a very good choice for the dry, shady areas found beneath trees. It requires at most one to two pounds of nitrogen fertilizer per thousand square feet per year, and needs less mowing than many other grasses due to its slow growth rate. It has a moderate tendency to develop thatch, which can be managed through proper fertilization and mowing. Leaf diseases, such as leaf spot and red thread, are most troublesome in humid climates and with improper fertilization.

‘Pennlawn’ is widely adapted to many growing conditions, has a dark green color and moderate disease resistance. It is widely used in Kentucky bluegrass mixes. ‘Fortress’ has good disease resistance, dark green foliage and better recovery from damage than most other varieties due to a vigorous root system. ‘Belvedere’ has a medium dark-green color with moderate disease resistance.

**Hard fescue** does well in the shade, and is often combined with Kentucky bluegrass and perennial ryegrass to create blends of grass seed for the typical partly shady, partly sunny home lawn. The fine texture of the leaf blades gives this species a soft, delicate appearance. Hard fescue is somewhat slow to establish from seed, and has moderate resistance to wear. It has a slow growth rate and a bunch-type, non-creeping habit.

Hard fescue is generally a low to moderate maintenance grass species. In fact, it will not grow well if provided with high rates of nitrogen fertilizer. Rates as low as ½ to 2 pounds of nitrogen fertilizer per thousand square feet per year are adequate. Hard fescue is therefore a good choice for soils with low natural fertility, such as sandy soils. Drought tolerance is also very good, although heat tolerance is only moderate. There is a moderate potential for thatch accumulation. Like some of the perennial ryegrasses, certain cultivars of hard fescue have been found to contain endophytic fungi, which give them natural resistance to surface-feeding insects, such as the chinch bug. Cultivars exhibiting disease resistance should also be chosen.

The cultivars 'Waldina,' 'Biljart,' 'Scaldis' and 'Spartan' have been found to have moderate to excellent resistance to leaf spot, red thread, dollar spot and powdery mildew diseases. Endophytic fungi give natural insect resistance to the cultivars 'Aurora,' 'Reliant,' and 'SR3000.' All three of these cultivars also have moderate to excellent resistance to leaf spot, red thread, dollar spot and powdery mildew diseases. If a lawn made of entirely hard fescue is desired, choose the cultivars 'Biljart' or 'Scaldis.'

**Chewings fescue** has many of the same strengths and weaknesses as hard fescue and creeping red fescue, and is also blended with Kentucky bluegrass and perennial ryegrass in many lawn seed mixtures. It grows well in low fertility, dry and shady areas, making it useful for lawns receiving only moderate care. Chewings fescue can become clumpy when grown alone or with less aggressive bluegrass varieties. It does not have rhizomes, but can create a dense turf. Most types have limited ability to withstand damage, although some newer cultivars show more recovery potential. Many newer varieties also have greater resistance to leaf spot, red thread and dollar spot diseases than creeping red fescue.

Like other fescues, Chewings fescue will grow well in many soil types and actually performs best with only moderate fertility levels. One to two pounds of nitrogen per thousand square feet per year will provide adequate nutrition. Relatively slow-growing and requiring less mowing than many other grasses, Chewings fescue has a moderate potential for thatch problems.

Both 'Checkers' and 'Agram' have moderate to good establishment rates and healing potential. 'Atlanta,' 'Victory' and 'Enjoy' all have good to excellent resistance to the diseases red thread, leaf spot, dollar spot and powdery mildew. 'Highlight' and 'Checkers' have a very fine leaf texture.

**Tall fescue** (*Festuca arundinacea*), a very different type of grass than the fine fescues, is gaining wider use in home lawns, sports fields, lawns for commercial businesses and institutions, and low maintenance areas. Historically, tall fescue has sometimes been thought of as a weed, and was sometimes spurned because of its wide leaf blades and coarse habit. The old variety named 'Kentucky 31,' has a light green color, open habit, and wide leaf blades, and is generally unattractive. For these reasons, 'Kentucky 31' should only be used in out-of-the-way places, unless aesthetics are not a consideration. Newer varieties have a darker green color, narrower leaf blades, and are quite attractive, although they will still be coarser than other lawn grasses. Tall fescue will thrive in fertile soil, but will also perform well under droughty conditions and in soils with low fertility and poor structure. In the past, tall fescue has sometimes not been winter hardy on poorly-drained soils in cold regions. However, newer varieties have been bred for hardiness and have much better winter survival characteristics. A true bunch-type grass, tall fescue does not have rhizomes or stolons, and therefore will not repair itself if the lawn is damaged. This limitation is offset by other favorable characteristics, however, such as fairly quick germination and growth when a new lawn is started from seed, and good wear resistance to foot traffic once established. Tall fescue is often used alone or as the predominant species in a mix,

since it does not always mix well with other turfgrass species. Although drought tolerant, tall fescue uses a good deal of water, and has an extensive root system.

A tall fescue lawn will require a low to moderate level of maintenance. Fertilizer may not be needed each year, and no more than two pounds of nitrogen per thousand square feet should be applied in one year. Thatch is usually not a problem. Tall fescue has a low potential for turfgrass diseases. Once established, tall fescue has excellent drought tolerance, enabling the homeowner to reduce irrigation to a minimum and still keep the lawn alive when natural rainfall ceases. This grass will also survive the ravages of road salt and sea salt better than many other cool season species, making it a consideration for use near roads and coastal areas. Tall fescue should be mowed to a height of 3 inches. Lower mowing will compromise the growth, density, and long-term survival of a tall fescue lawn.

Cornell Cooperative Extension of Rensselaer County has demonstration plots of several tall fescue varieties planted at Becker's Farm, Routes 9 and 20, East Greenbush, New York. These plots have performed very well over the past few years with little fertilizer and no watering. Tall fescue varieties in the plots include 'Jaguar 3,' 'Pride,' 'Hounddog,' 'Falcon II,' 'Marksman,' 'Rebel Jr.,' 'Tomahawk,' and 'Kentucky 31.' The plots are open for viewing during Becker's Farm's business hours and a descriptive fact sheet is available from Becker's and Cornell Cooperative Extension of Rensselaer County.

#### **TURFGRASSES NOT RECOMMENDED FOR GENERAL USE**

**Annual ryegrass** (*Lolium multiflorum*), sometimes called Italian ryegrass, is of limited use in much of the United States. Never planted to make a quality lawn by itself, it is sometimes employed where a quick-germinating cover is needed (e.g., around a new house), or used to overseed dormant Bermuda grass in the south, where it is then called a "winter grass." Annual ryegrass has a bunch-type growth habit, with limited spreading via the roots, and forms an open, clumpy lawn. Since it is an annual, it has a short lifespan, and is not cold tolerant. Annual ryegrass tolerates wear fairly well. Its performance in the shade ranges from poor to moderate, at best. Intolerant of dry conditions, ample moisture is required to keep this species healthy. While annual ryegrass may be attacked by some of the same disease problems as perennial ryegrass, disease control is generally not warranted because of its naturally short lifespan. It is very inexpensive to buy, and is sometimes included in cheaper seed mixtures. These mixtures should be avoided since the portion of the new lawn which is annual ryegrass is destined to die.