

The Fine Fescues

Festuca sp.

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Introduction:

The fine fescues are composed of several different *Festuca* species and subspecies. All are fine textured compared to most other commonly planted turfgrasses. Fine fescues have long been used in mixtures with other grasses and are generally considered the standard for shade tolerance in cool season grasses. In recent years, the fine fescues have received attention as low input environmentally sustainable grasses. Most retail lawn mixtures contain at least some fine fescue.

Botanical Characteristics:

Taxonomy of the fine fescues is complicated and often debated in academic circles. Some of the taxonomic confusion can be illustrated by name changes associated with Hard fescue. Once called *Festuca duriuscula*, it was then assigned to *F. ovina* var. *duriuscula* L. Koch, then to *F. longifolia* Thuill., and then *F. brevipila* Tracey before the most recent change to *F. trachyphylla* (Hackel) Krajina (Ruemmele, et al 2003). Fortunately it has always been Hard fescue. Let's hope there are no more name changes between now and the time this is published! Sometimes it seems like we all need to be historians in order to interpret what authors mean when they refer to Hard fescue. Since only breeders can keep up with the seemingly annual changes in taxonomic designations, it is little wonder that many general turf specialists refer to the fine fescues incorrectly in their books and papers. For the most definitive description of fine fescue taxonomy, consult Ruemmele, et al (2003).

For the moment, turf type fine fescues are grouped in two aggregates (also referred to as complexes) with each aggregate containing several species and some of the species being further divided into subspecies (Ruemmele, et al 2003). The aggregates as currently described are outlined below:

<i>Festuca rubra</i> aggregate	Shade fescue	2n ploidy
<i>F. heterophylla</i> Lamark		
<i>F. rubra</i> L.		
ssp. <i>commutata</i> (Thuill.) Nyman	Chewings fescue*	42
ssp. <i>litoralis</i> (G.F.W. Meyer) Auquier	Slender Creeping Red fescue*	42
ssp. <i>rubra</i> Gaudin	Strong Creeping Red fescue*	42 or 56

<i>Festuca ovina</i> aggregate		
<i>F. filiformis</i> Pourret	Hair fescue	14 or 28
<i>F. idahoensis</i> Elmer	Idaho fescue	28
<i>F. ovina</i> L. ssp. <i>hirtula</i> (Hackel ex Travis) M. Wilkinson	Sheep fescue*	28
<i>F. trachyphylla</i> (Hackel) Krajina	Hard fescue*	42
<i>F. valesiaca</i> Schleicher ex Gaudin	False Sheep fescue	14

* These are the fine fescues commonly used for turf.

Historic use in the Pacific Northwest:

Fine fescues have always been planted in the Northwest, usually as components in mixtures with other grasses. The most common mixtures included colonial bentgrass + Chewings or Red fescue, Kentucky bluegrass + one or more fine fescue, and perennial ryegrass + one or more fine fescue. Fine fescues are a standard component of virtually all shade mixes sold throughout the Northwest. Most mixtures contain Chewings fescue and strong creeping red fescue.

Mowing:

In mild climates such as the United Kingdom and coastal areas of Oregon, Chewings fescue and hard fescue can survive very low mowing. One half inch down to putting green heights are common heights on golf courses in these climates. For general turf throughout the PNW, Chewings fescue is more tolerant of low mowing heights than other fine fescues and can persist well at heights as low as 0.75". In general, fine fescues perform well at mowing heights of 1.5" to 2.5" in lawn turf.

As a group, fine fescues tend to develop brown leaf tips when mowed with rotary mowers. This tends to be most noticeable on hard fescues, which may show as much as 1/8th inch of tip browning after mowing; the duller the mower, the more noticeable the browning. Tip browning is even more pronounced when these grasses are mowed during hot dry weather.

Fertilization:

Fine fescues persist fairly well under low nitrogen fertility. They also respond vigorously when they receive regular nitrogen fertilizer applications. This ability to produce functional turf at both low and high nitrogen levels makes them very competitive in mixtures. Since most lawns in the PNW are more likely to be under fertilized than over fertilized, virtually any mix that contains fine fescue will be dominated by the fine fescue within three to five years from planting. This is particularly true in perennial ryegrass/fine fescue mixtures. I consider fine fescue domination in mixtures to be the first stage in development of climax lawns.

While fine fescues tolerate low fertility, they have very poor color under low fertility conditions. This tendency is even more pronounced when the turf ages. A mature fine fescue lawn under low nitrogen will look brown most of the year.

Irrigation:

Young stands of fine fescues demonstrate good drought resistance. This ability to stay green when subjected to chronic drought stress implies that fine fescues should be excellent grasses to use where extended drought is common. Unfortunately, drought resistance in young stands does not equate with drought resistance in mature stands, based on my observations. The problem is that fine fescues tend to develop excessive thatch in just a few years of growth. As thatch depth increases, fewer roots develop in soil and more roots develop in the thatch. Once thatch build up occurs, fine fescues often develop hydrophobic areas and irrigation becomes difficult without consistently over watering.

When planted side by side fine fescues generally rank as follows for drought resistance from most to least:

Sheep fescue > Hard fescue > Strong creeping red fescue = Slender creeping red fescue > Chewings fescue

Under prolonged drought, bunch type fine fescues tend to develop clumps. This is particularly noticeable when Chewings fescue is subjected to prolonged drought stress.

Thatch:

All fine fescues are prone to thatch build up. Fine fescue thatch is very dense and contains a lot of root tissue along with stems. As thatch depth increases, fine fescue lawns become soft and spongy. Thatch buildup is also associated with a buildup of dead leaves and sheaths in the upper canopy which results in a general brownish appearance in the turf.

The rankings for thatch buildup potential from my experience are as follows:

Chewings fescue > Slender creeping red fescue = Strong creeping red fescue > Hard fescue = Sheep fescue

Actual rankings vary also by cultivar. In cultivar trials the cultivars that produce the densest turf and the highest visual quality are often produce the most thatch.

Thatch build up in fine fescues reduces drought tolerance and makes it difficult to irrigate uniformly. Fine fescue thatch is also difficult to remove with mechanical dethatchers because it tends to tear out in chunks. The deeper the thatch, the worse this problem is. Once thatch reaches 2" or more it is practically impossible to dethatch a fine fescue lawn without destroying it. When fine fescue thatch depth is excessive, use coring rather than mechanical dethatching.

Diseases:

Fine fescues tolerate most diseases found in the PNW. The most serious diseases include Red thread, *Laetisaria fusiformis*, Net blotch, *Drechslera dictyoides*, Fusarium patch/Pink snowmold, *Microdochium nivale*, and less commonly Dollarspot, *Sclerotinia homeocarpa*.

Red thread is the disease we see most often and it can cause significant cosmetic damage. Homeowner lawn mixes which often contain common strong creeping red fescue are commonly plagued by ongoing Red thread problems. One of the positive impacts of fine fescue breeding programs is the development of improved red thread resistance. In general red thread resistance of common species of red fescue shakes out as follows:

Hard fescue = Sheep fescue > Chewings fescue > Strong creeping red fescue = Slender creeping red fescue.

Fortunately, within each species there is a gradation of red thread resistance, so it is possible to select resistant cultivars from most species. Table 1 contains red thread ratings for the top performing fine fescues in the 1998 NTEP fine fescue trials.

Net blotch is primarily a problem for fine fescues growing in the shade. In areas west of the Cascade Mountains, net blotch is one of the factors that cause fine fescues to fail. Short of using fungicides there is no effective way to avoid damage from this disease in wet shady sites.

Fusarium patch/Pink Snowmold is most likely to injure turf in areas where long term snow cover is common. In snowy climates, you either have to accept the damage or treat preventively with fungicides.

Dollarspot isn't a major problem on fine fescues at the present time in the PNW. It does occur, however, and I predict that with time it will become more important on low input lawns planted to fine fescue.

Insects:

There are no serious insect pests affecting fine fescues in the PNW. I have seen damage from European crane fly on lawns containing strong creeping red fescue, but this is relatively rare. Since many of the currently available cultivars have high endophyte levels, they should have few problems from chinch bugs, billbugs, or sod webworms.

Shade:

Fine fescues have long been considered as among our most shade tolerant grasses. This appears to be true in areas east of the Cascade Mountains throughout the PNW. West of the Cascades I rarely see fine fescues in shady locations even though they are commonly planted. There appear to be two reasons for the failure of fine fescues to dominate shade west of the Cascades. One is a general inability to compete with annual bluegrass, roughstalk bluegrass, and various bentgrasses in shade. Second, the wet mild winters in western parts of the PNW are conducive to net blotch disease which can be devastating to fine fescue stands.

Stress tolerance and persistence:

Fine fescues tolerate cold as well as other commonly planted cool season grasses. In general, they tolerate heat stress that occurs throughout the PNW region. They are classic cool season grasses and definitely look best at temperatures below 85 F. Compared to other domesticated turfgrasses used in the PNW, fine fescues persist better than all but bentgrass. When planted in mixtures with Ky. Bluegrass or Perennial ryegrass, fine fescues will eventually dominate the turf often in as little as 2-3 years. Many old lawns west of the Cascades will have significant amounts of fine fescues in them but it rarely is the dominant species. East of the Cascades fine fescues will often form highly persistent lawns and will generally dominate when planted in mixtures. I have found 70+ year old lawns in Central Oregon and Washington that were dominated by fine fescue.

Fine fescues have average wear tolerance but only fair recuperative ability. They are not suited for use on athletic fields due to poor wear tolerance and an inability to recover from damage. They also tend to show tire marks when subjected to wheel traffic when under heat and drought stress. They do show some promise for low fertility fairways along the Oregon Coast, but have not held up well on paths and walk off areas where traffic is concentrated.

Overall performance:

Fine fescues are still best suited in mixtures with other cool season grasses. They are not at their best over time when planted by themselves. Thatch build up is always a concern

along with poor color when grown under low nitrogen fertility. They are good shade grasses in areas east of the Cascades but generally do not hold up in shade west of the Cascades. Hard fescues show great promise but are slow to establish and tend to develop brown leaf tips after mowing. Chewing's fescue produces beautiful dense fine textured turf when young but tends to produce too much thatch and has relatively poor drought tolerance. Sheep fescue still produces marginal turf quality. Strong creeping red fescue may have the most potential because it tends to blend better in mixtures and at least some cultivars are not overly aggressive. Its weak link is susceptibility to Red thread.

My ideal fine fescue would be coarse textured on the order of newer perennial ryegrasses, would be rhizomatous, would be medium green, have resistance to Red thread and Leafspot diseases, and produce medium thatch. To my knowledge that cultivar does not exist.

Fine fescue cultivars:

Fine fescues in the 1998 NTEP trial with a minimum combined quality and red thread rating of 11.5.

Cultivar	Species *	Ave Quality **	Red thread ***	Total score ****	% endophyte Infection*****
Longfellow II	CF	5.8	7.3	13.1	60
Viking	HF	5.8	7.5	13.3	76
Jasper II	SCRF	5.8	6.1	11.9	72
Berkshire	HF	5.7	7.6	13.3	69
Cindy Lou	SCRF	5.7	7.3	13	84
Ambassador	CF	5.7	7	12.7	44
Intrigue	CF	5.6	7.1	12.7	72
Aberdeen	SCRF	5.6	5.9	11.5	52
Navigator	SCRF	5.6	7.2	12.8	84
Ambrose	CF	5.5	6.9	12.4	36
Treasure	CF	5.4	7.1	12.5	86
Oxford	HF	5.4	7.2	12.6	44
Chariot	HF	5.4	7.3	12.7	84
Stonehenge	HF	5.3	7.1	12.4	86
Eureka II	HF	5.3	7.5	12.8	82
Minotaur	H/BF	5.3	7.2	12.5	62
Magic	CF	5.3	6.2	11.5	63
Shadow II	CF	5.3	6.2	11.5	69
Hardtop	HF	5.2	7.1	12.3	0
SR 5100	CF	5.2	6.7	11.9	24
Nordic	HF	5.2	7.4	12.6	14

Culombra	CF	5.2	6.5	11.7	0
Discovery	HF	5.2	7.2	12.4	13
Wrigley	CF	5.2	6.7	11.9	72
Rescue 911	HF	5.1	7.2	12.3	48
Heron	HF	5	7.2	12.2	82
Reliant II	HF	5	7.3	12.3	11
Scaldis II	HF	5	6.9	11.9	34
Osprey	HF	5	7.3	12.3	50

* CF = Chewings fescue, HF = Hard fescue, SCRF = Strong creeping red fescue,
H/BF = Hard x Blue fescue

** Average turf quality at 14 sites with plots maintained at medium level of care
1-9, 9 = highest quality possible

*** Average red thread ratings from 9 sites. 1-9, 9 =No disease

**** Total combined score for quality and red thread resistance. Higher totals
indicate top performers

***** Percent of endophyte infection in seed used to establish this trial.

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