

## ALTERNATIVES TO THE GREAT AMERICAN LAWN



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S A S A K I

## **I. INTRODUCTION**

The topic of alternatives to conventional lawns is a recurring theme among Sasaki's landscape architects interested in sustainability. Traditional, high-input turfgrass has long been recognized as having the potential for negative environmental impacts. These impacts come largely from excessive water consumption, nutrient runoff, pesticide and herbicide use, and equipment emissions.

Increasingly, there is a need for an alternative to traditional turfgrass that requires reduced inputs of resources and labor. This report summarizes current developments in low-input, low-maintenance turfgrass and turfgrass alternatives to support for Sasaki's designers attempting to incorporate these concepts into their work. Details of species composition, cultural requirements, maintenance regimes, and appearance of turf blends and meadow mixes are the focus of this report.

## **II. LOW-INPUT LAWNS**

### **A. Fine Fescues**

The fine fescues are a common component in many traditional turf grass mixtures. Despite a long history of use, only recently have 100% fine fescue blends received attention as low-input, low-maintenance alternatives. The results of these blends are a fine textured bladed turf that prefers low nitrogen fertility and reduced water requirements.

All research trials and commercial blend developments have focused on five types of fine fescue: hard fescue, Chewing's fescue, sheep fescue, creeping red fescue and slender creeping red fescue. These fescues vary in growth form and best applications (Appendix).

#### ***Cultural Requirements***

Fine fescues are cool-season grasses. Cool season grasses grow primarily during the spring and fall months, becoming dormant during the summer heat without supplemental irrigation. During periods of prolonged summer drought, fine fescues will become brown. Browning plants will regreen and growth will resume once the temperatures cool and/or water availability increases. Cool season grasses remain green during the winter months. The fine fescues grow well in full sun to shaded conditions. They prefer infertile soil and therefore do not perform well with typical lawn fertilization regimes. Many fescue blend manufacturers recommend not fertilizing the fine fescues at all, while others suggest 1lb of nitrogen a year maximum. Fine fescue blends should be watered as you would any establishing lawn but require little to no irrigation once established (after the first year). During periods of extended heat and drought (~2 weeks at 90-100°), fine fescues will go dormant without supplemental irrigation but regreen when the weather cools and rain falls.

Seeding is best accomplished on a clean seed bed in the fall at a rate of ~5lbs per 1000 sq. ft. or 220lbs per acre. Spring time seeding is also acceptable but will require regular summer watering as the plants develop deeper root systems.

Mowing is not needed. Fine fescue turf can be mowed to a desired height or left uncut to reach a height of 7-9 inches during the growing season. Uncut fine fescues produce a flowing, carpet-like appearance of dark green. If desired, mowing once a month will maintain a cropped lawn look due to the plants slow growth. Fine fescue mixes are commonly mowed once in midsummer to remove the developing seed heads and once again in late fall to ensure an early spring green up.

Fine fescues are noted for few pest and disease problems. These minimal input and maintenance requirements are what make fine fescue mixes ideal as a sustainable alternative to traditional turfgrass mixes.

The relative advantages and disadvantages of using the fine fescues for turf are as follows:

<u>Advantages</u>	<u>Disadvantages</u>
<ul style="list-style-type: none"> <li>+ quick germination (but may establish slowly)</li> <li>+ fine leaf texture</li> <li>+ high leaf density</li> <li>+ prefers low nitrogen fertility</li> <li>+ tolerates poor (rocky, sandy, clay) soil conditions</li> <li>+ drought resistant (but will go dormant in midsummer drought)</li> <li>+ moderate to very good salt tolerance (6-10 mmhos/cm)</li> <li>+ good to very good shade tolerance</li> <li>+ very cold tolerant</li> <li>+ excellent high elevation/mountain grass</li> </ul>	<ul style="list-style-type: none"> <li>- moderate wear tolerance (not for constant high traffic areas)</li> <li>- slower to recuperate from traffic injury</li> <li>- can become thatchy</li> <li>- may go dormant during extended (1-2 weeks) heat (90s +)</li> <li>- some are susceptible to red thread, leafspot, dollarspot</li> </ul>

**Commercially Available Blends**

Many seed suppliers have versions of fine fescue blends. Examples of available blends are listed below. These blends are a combination of the best properties of the group's species. Commercial blends vary in composition and percentage formula but yield similar results. They are noted as slow growing turfs with a fine textured, dense, low-growing habit that require low amounts of irrigation and fertilizer once established. Fine fescue blends tolerate full sun to partially shaded conditions and form a dense stand that will grow to a length of 7-10" long, but tends to lay down on itself to a height of 4-5 inches. This habit gives uncut fine fescues a dynamic, flowing appearance. This look makes them the ideal planting mix for areas being considered for "meadow-like" plantings where the client desires an area of reduced maintenance and resource inputs. Ideal uses would include institutional greens that receive moderate foot traffic with hardscape designed around the greens as the primary walking surface.

Old's Seed Solutions Care-Free Fine Fescue Mix  
(800-356-7333)

This fine fescue mix is available from Old's Seed Solutions in Madison, WI. It contains a blend of 7 fine fescues: 15% Azay sheeps, 20% Dawson slender, 20% Maxie creeping, 15% SR5100 Chewings, 10% Victory Chewings, 10% Scaldis hard, and 10% SR3100 hard fescue. This seed is available in 2, 5, and 50lb bags. Call for pricing.

Eco-Lawn

(www.wildflowerfarm.com)

Eco-Lawn is a fine fescue blend marketed and sold by Wildflower Farm in Ontario, Canada. The mix contains the following seven fine fescues: Sheeps Fescue, Dawson Slender Red Fescue, SR5210 Creeping Red Fescue, SR 5100 Chewings Fescue, Jasper Creeping Red Fescue, Scaldis

Hard Fescue, and SR 3150 Hard Fescue. The percentage formula is proprietary. It is available in 5 and 50lb bags for \$29.95 and \$272.50.



Eco-Lawn

### No-mow Mix

([www.prairienursery.com](http://www.prairienursery.com))

No-Mow grass is a fine fescue blend sold by Prairie Nursery in Wisconsin. It is a combination of six different fescue varieties. One source states composition is 25% SR100 chewing fescue; 25% sheep fescue; 12.5% Dawson red fescue; 12.5% SR3100 hard fescue; 12.5% Scaldis hard fescue; 12.5% creeping red fescue. It is available in any quantity above 5lbs. Prices start at \$5.50lb and decrease with weight ordered. See website for pricing details.



No-mow Mix

### Bonny Dunes

([www.fescue.com](http://www.fescue.com))

Bonny Dunes is a fine fescue blend sold by an online seed source based in Florida. It is a blend of 40% Florentine Creeping Red Fescue, 35% Tiffany Chewings Fescue, and 25% Little Bighorn Blue Hard Fescue. It is marketed for the golfing industry and sold in 10 and 50lb bags for \$36 and \$147.25, respectively.



### Legacy Fine Fescue #17706

([www.outsidepride.com](http://www.outsidepride.com))

Legacy Fine Fescue blend is sold by an online seed source located in Oregon. It is a blend of 20% hard fescue, 40% Chewings fescue, and 40% creeping fescue. It is sold in 5, 10, 25, and 50lb bags for \$14.99, \$27.99, \$49.99, and \$79.99.



Legacy Fine Fescue

### DOT Fine Fescue Blend

([www.ampacseed.com/finefescue.htm](http://www.ampacseed.com/finefescue.htm))

DOT blend is manufactured by Ampac Seed out of Oregon and available for purchase through a dealer network. It is a blend of Stonehenge hard fescue, Silhouette Chewings fescue, and Claudia creeping fescue. While it lacks some of the marketing glitz, it provides the function and appearance as many of the others on the market. Contact for prices.

## **B. Low-Maintenance Turfgrass with Broadleaf Components (Meadow-like)**

Recognizing the potential benefits and market for the fine fescue lawn mixes, some seed suppliers have taken the idea one step further and developed mixes that contain a low maintenance turf grass combined with low growing and flowering perennial components. This has several benefits. It enables a designer interested in a "meadowish" appearance to achieve this goal while still maintaining an area of low vegetation that could receive typical lawn uses. In addition, the idea of a 7-9 inch high meadow is more inviting to many clients compared to 3-6 foot high native grass meadow or prairie. The broad leafed component also covers up the faults of many cool-season grass species by containing plant material that looks best and flowers in the heat of summer when the low-input grasses are typically at their worst. Lastly, it allows grass species with only moderate foot traffic recovery to tolerate larger volumes of use. Commercially available blends are listed below:

### ***Commercially Available Blends***

#### Fleur de Lawn

(503-239-7518, [www.protimelawnseed.com](http://www.protimelawnseed.com))

Fleur de Lawn is produced by Hobbs and Hopkins of Portland, Oregon. This mix was developed in conjunction with Oregon State University. It is a blend of a dwarf perennial ryegrass (77.28%), a variety of broad leafed species (16%, such as english daisies, or low-growing yarrow), and 3.9%

salina strawberry clover. In areas outside of the Pacific Northwest, fine fescues are used in place of perennial ryegrass. This mix has received considerable attention. One pound is priced at \$29.95 and is stated to cover 1000 sq ft.



Fleur de lawn



Fleur de lawn

### Ecology Lawn Mix

(800-422-3985, [www.nicholsgardennursery.com](http://www.nicholsgardennursery.com))

Ecology Lawn Mixes are produced by Nichols Garden Nursery in Oregon. They produce 5 different mixes for distinct regions within the US. The "Dryland Ecology Lawn Mix" contains 67.57% perennial ryegrass (*Lolium perenne*), 30.62 red fescue (*Festuca rubra*), and a 3 ounce packet of "strawberry and dutch white clover, wild English daisies, roman Chamomile, yarrow and baby blue eyes". Other mixes contain various turfgrasses and broadleaf components reported to perform well in the region it is designed for. The recommend planting rate is 2 lbs per 1000 sq ft. The Dryland mix is priced at \$23.99 per pound.

### **C. Buffalo Grass**

Buffalo grass is a perennial warm-season grass native to the Great Plains from Montana to Mexico. It grows during the warmest months of summer, browns after the fall frost, and remains dormant until spring. Buffalo grass gets its name from the days when it helped support massive herds of buffalo that roamed the expansive grasslands of the Great Plains. It is noted for its tolerance to prolonged drought and high temperatures. In recent years, buffalo grass has attracted attention as a native turfgrass due to its ability to perform under difficult situations with little additional resource inputs. This grass performs well within its native range, but is not suited for areas of high precipitation.

Buffalo grass is low growing and will reach a total height of 8-10 inches when not maintained. It can be mowed to a desired height for a manicured look. Buffalo grass spreads by above ground runners called stolons. Because of this growth habit, it does not tolerate heavy foot traffic. It is considered fine textured and often has a soft blue-green color.

### **Cultural Requirements**

Buffalo grass grows in full sun and while it is tolerant of a variety of soil types, it prefers a clay soil that receives little annual precipitation. It is only recommended for low maintenance, low use turfgrass areas. Buffalo grass does not perform adequately in areas under intensive management including excessive irrigation and heavy fertilizers.

Supplemental irrigation is not needed to support Buffalo grass following the establishment period. The grass performs best in areas that receive 10 to 25 inches of rainfall per year.

Fertilization is not necessary, but should be limited to 2lbs of nitrogen per 1,000 sq. ft. per year. Reducing supplemental water and fertilization will help reduce common weeds such as Bermuda grass that typically out-compete Buffalo grass.

Mowing can be done to a minimum of 1". This height is common only on golf courses with specialized equipment and a high level of management. Heights of 3" would be a more typical mowing height for general use. Buffalo grass can be established from seeding, plugs, or small patches of sod. Following are selections and suppliers of the grass.

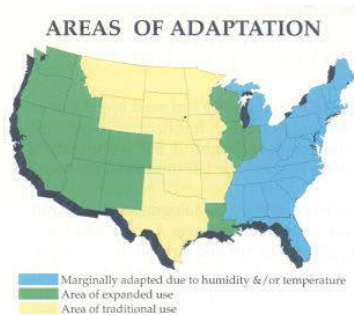
#### ***Commercially Available Blends***

Selections of Buffalo grass suited for turf use are being developed rapidly. Currently the most widely used selections are Cody, Bison, and Bowie. Texoka is more suited for pasture development. A quick on-line search reveals several others currently being marketed as more tolerant of traffic and having wider geographic ranges such as Legacy and Sharp's Improved. Blends of these selections are creeping onto the market.

#### Cody, Bison, Bowie, Texoka Selections

([www.stockseed.com](http://www.stockseed.com), [www.seedland.com](http://www.seedland.com))

Stockseed.com carries all four of the most popular selections as well as general information regarding the highlights of each. Prices from stockseed average around \$9.50 per pound of seed.



#### Imperial Blend Buffalo Grass Seed

([www.seedland.com](http://www.seedland.com))

Imperial blend contains 50% Bison, 25% Cody, and 25% Bowie, though exact percent formula is subject to change. The blend is priced at \$13.50 per pound. This blend should be seeded at a rate of 2-3 pounds per 1000 sq. ft. or 60-80 pounds per acre. You can reduce to 40 lbs. / acre for pasture type planting.

#### Buffalo Pals

([www.seedland.com](http://www.seedland.com))

Buffalo Pals is a blend of Bison and Cody seed. The percentage formula varies seasonally. It is drought and cold tolerant, extremely fertilizer efficient and requires less mowing. Maximum plant

heights will reach 6 inches uncut. Price is approximately \$15.00 per pound. The recommended seeding rate for Buffalo Pals is 1-3 pounds per 1000 sq. ft.



Buffalo Pals

#### **D. Native Grasses – Prairie-like Creation**

While perhaps applicable on fewer Sasaki projects, the use of native grasses combined with native broadleaf herbaceous plants has received attention as an alternative to traditional lawn spaces. They produce a ground plane that is much more pastoral and agricultural in appearance than the fine fescues and are often used to aid a specific ecological restoration goal such as establishing an insect or plant population.

In contrast to the fine fescues that consist of a relatively small group of plants, using native grasses and herbs for a lawn alternative introduces a greater diversity of plant materials to choose from based on project location and microclimate. The most common native grasses top out at 3-6' during a single growing season. They are typically mowed or burned in the late fall or early spring and do not serve a manicured lawn function. Seed suppliers typically sell native prairie mixes for specific parts of the countries and supply seeds taken from plants growing in specific regions (ecotype). The native grass mixtures are appreciated because they generally provide excellent habitat for insect and wildlife species. Following are descriptions of the commonly used native grasses and commercially available mixes.

#### Commonly Used Native Grass Species for Prairie and Meadow-like Spaces

<b>Scientific Name</b>	<b>Common Name</b>	<b>Height</b>
Panicum virgatum	Switchgrass	4-6'
Andropogon scoparius	Little bluestem	2-3'
Andropogon gerardi	Big bluestem	5-7'
Sorghastrum nutans	Indian grass	4-6'
Panicum clandestinum	Deertongue	1-3'
Elymus canadensis	Canadian wild rye	3-6'



<i>Elymus hystrix</i>	Bottlebrush grass	2-5'
<i>Elymus riparius</i>	Riverbank wild rye	3-6'
<i>Elymus villosus</i>	Silky wild rye	3-5'
<i>Elymus virginicus</i>	Virginia wild rye	3-6'
<i>Bouteloua curtipendula</i>	Side oats grama	2'-3
<i>Bouteloua gracilis</i>	Blue grama	2'-3
<i>Eragrostis trichodes</i>	Sand lovegrass	2-3'
<i>Panicum amarum</i>	Atlantic coastal panicgrass	3-6'
<i>Tridens flavus</i>	Purple top	4-5'
<i>Tripsacum dactyloides</i>	Eastern gamma grass	10'
<i>Buchloe dactyloides</i>	Buffalo grass	1'

**Commercially Available Blends**

There are numerous sources of native grass blends available. Many seed dealers have online catalogs that feature these products. There are also numerous types of native prairie and meadow-like mixes available. Often mixes will vary in either the ultimate height of the plants or the amount of floral display that is included in the mix. Often mixes from different companies are very similar in composition and simply have different names. Note that it is important for the chosen mix to have a strong grass base and lesser percentages of perennial flowers if the design intent is to maintain a lawn or pasture like state rather than a perennial border. Following are seed mix sources that contain a large percentage of native grasses with varying percentages of native wildflowers.

Ernst Seed

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(800-873-3321, ernstsales@ernstseed.com)

Ernstseed.com of Pennsylvania has a wide variety of good seed mixes. They are separated by purpose and habitat type. Following are brief descriptions of the mixes with the most application to Sasaki's work in the eastern and northeastern US.

Eastern Native Habitat Mix: ERNMX-173

This mix will produce a meadow with the tallest plants in the 5-7' range. The mix is 75% grass species and 25% mixed perennials. It is seeded at 9 lbs per acre and priced at 10.94 per pound bulk.

25.0%	<i>Andropogon gerardii</i> , <i>Bison</i>	Bison Big Bluestem
25.0%	<i>Elymus canadensis</i>	Canada Wild Rye
20.0%	<i>Sorghastrum nutans</i> , <i>Nebraska 54</i>	Nebraska 54 Indian Grass
10.0%	<i>Chamaecrista fasciculata</i>	Partridge Pea
5.0%	<i>Heliopsis helianthoides</i>	Ox Eye Sunflower
5.0%	<i>Panicum virgatum</i> , <i>Shelter</i>	Shelter Switch Grass
4.0%	<i>Asclepias syriaca</i>	Common Milkweed
4.0%	<i>Desmodium canadense</i>	Showy Tick Trefoil
2.0%	<i>Rudbeckia hirta</i>	Black Eyed Susan

Low-growing Wildflower/Grass Mix: ERNMX: 156

This seed mix is low-growing meadow mix with a 65% grass base. It is applied at the rate of 20 pounds per acre. The current price is \$8.35 per pound.

35.0%	<i>Festuca ovina</i>	Sheep Fescue
30.0%	<i>Lolium multiflorum</i>	Annual Ryegrass
8.0%	<i>Agrostis perennans</i>	Autumn Bentgrass
8.0%	<i>Coreopsis lanceolata</i>	Lance Leaved Coreopsis
4.5%	<i>Chrysanthemum leucanthemum</i>	Ox Eye Daisy
4.0%	<i>Achillea millefolium</i>	White Yarrow
3.5%	<i>Chamaecrista fasciculata</i>	Partridge Pea
3.5%	<i>Rudbeckia hirta</i>	Black Eyed Susan
1.5%	<i>Coreopsis tinctoria</i>	Plains Coreopsis
0.5%	<i>Asclepias tuberosa</i>	Butterfly Milkweed
0.5%	<i>Cichorium intybus</i>	Blue Chicory
0.5%	<i>Liatis spicata</i>	Blazing Star (Spiked Gayfeather)
0.5%	<i>Tradescantia virginiana</i>	Virginia Spiderwort

Showy Northeast Native Wildflower Mix: ERNMX-153

This Ernst mix has a high percentage of flowering plants and produces an abundant floral display. It is seeded at a rate of 15 pounds per acre and is currently priced at \$37.27.

15.0%	<i>Andropogon scoparius</i>	Little Bluestem
10.0%	<i>Bouteloua curtipendula</i>	Side Oats Grama
10.0%	<i>Elymus villosus</i>	Silky Wild Rye
10.0%	<i>Sorghastrum nutans, PA Ecotype</i>	Indian Grass, PA Ecotype
5.5%	<i>Chamaecrista fasciculata</i>	Partridge Pea
5.0%	<i>Andropogon gerardii, Niagara</i>	Niagara Big Bluestem
5.0%	<i>Heliopsis helianthoides</i>	Ox Eye Sunflower
5.0%	<i>Penstemon digitalis</i>	Tall White Beard Tongue
5.0%	<i>Rudbeckia hirta</i>	Black Eyed Susan
5.0%	<i>Senna hebecarpa</i>	Wild Senna
4.0%	<i>Rudbeckia triloba</i>	Brown Eyed Susan
3.0%	<i>Hypericum pyramidatum</i>	Great St. John's Wort
3.0%	<i>Monarda fistulosa</i>	Wild Bergamot
2.5%	<i>Zizia aurea</i>	Golden Alexanders
2.0%	<i>Asclepias syriaca</i>	Common Milkweed
2.0%	<i>Asclepias tuberosa</i>	Butterfly Milkweed
2.0%	<i>Aster novae-angliae</i>	New England Aster
2.0%	<i>Tradescantia ohioensis</i>	Ohio Spiderwort
1.5%	<i>Baptisia australis</i>	Blue False Indigo
1.5%	<i>Lupinus perennis</i>	Wild Blue Lupine
1.0%	<i>Silphium trifoliatum</i>	Whorled Rosinweed

Prairie Moon Nursery

(866-417-8156, [www.prairiemoonnursery.com](http://www.prairiemoonnursery.com))

They are a native plant nursery based in Minnesota specializing in short and long-grass prairie mixes for varying soil types in the mid-western US. In addition, they have specialty seed mixes such

as a detention basin seed mix, Most of their mixes tend to be around 45% grasses and the remainder various forbs. They are designed to be ecologically appropriate to the prairie types of the mid-west but could be used or compositionally altered for use elsewhere. Advice from the nursery would be prudent when using one of their mixes on a large scale. Be prepared to give them an indication of the USDA botanical zone and the basic soil type you are working in. The following is an example of a Prairie Moon mix.

Short Grass Prairie Mix - #SDM

This mix has a 47.90% grass base and 52.10% forbs. It is designed to achieve a top height of approximately 2-3'. It contains species that serve as host plants for specific insects such as butterflies.

<b>Percent</b>	<b>Common Name</b>
<b>52.10%</b>	<b>Forbs</b>
2.34%	Lead plant
.7%	Columbine
3.5%	Butterfly weed
1.17%	Sky blue aster
2.34%	White wild indigo
1.17%	New Jersey tea
2.34%	Prairie coreopsis
11.68%	Pale purple coneflower
3.50%	Rattlesnake master
2.34%	Flowering spurge
.7%	Stiff gentian
3.74%	Button blazing star
2.34%	Wild quinine
1.17%	Wood betony
.93%	Foxglove beardtongue
2.34%	White prairie clover
2.34%	Purple prairie clover
1.17%	Black-eyed susan
.47%	Old field goldenrod
3.50%	Ohio spiderwort
1.17%	Prairie violet
1.17%	Heart-leaf golden Alexanders
<b>47.90%</b>	<b>Grasses</b>
15.19%	Little bluestem
18.69%	Side-oats grama
8.18%	Prairie brome
4.67%	Plains oval sedge
1.17%	June grass

### III. CONCLUSIONS

Several alternatives exist as alternatives to the traditional lawns. Low-input lawns appropriate for use on Sasaki projects can be classified into three main categories: fine fescues, meadow-like turfgrass with broadleaf components, Buffalo grass, and native tall grasses or meadows.

- Fine fescues are best for conditions where low-maintenance and low-input lawns are desired. Fescues prefer low or no levels of fertilization and can handle shade conditions. The major disadvantage is the moderate wear tolerance and possibility of dormancy during summer months with high temperatures.
- Meadow-like turfgrass mixes are combinations of a turfgrass mix with perennial and flowering components. These mixes have a "meadow-like" appearance at 7-9 inches high that is often more appropriate than a 3-6 foot native grass meadow or prairie. The broad leafed component also covers up the faults of many cool-season grass species by containing plant material that looks best and flowers in the heat of summer when low-input fescues are at their worst. As shown, these mixes don't look like typical lawns and client expectations must be managed.
- Buffalo grass is best for dry, hot climates where water and fertilization are not available or desired. As a warm-season grass it grows during the warmest months of summer, browns out after the fall frost and remains dormant until spring. This aesthetic is different from cool-season grasses that remain green for most of the year. Buffalo is best used for naturalization and stabilization and is not suited for heavy foot-traffic or areas of high precipitation.
- Native tall grass meadows produce a ground plane that is more pastoral and agricultural in appearance. Meadows are excellent for ecological restoration where a high 3-6' grass meadow appearance is appropriate. Meadows need to be mowed or burned in the late fall or early spring and do not serve a manicured lawn function.

Traditional, high-input turfgrass has long been recognized as having the potential for negative environmental impacts. These impacts come largely from excessive water consumption, nutrient runoff, pesticide and herbicide use, and equipment emissions. Increasingly, there is a need for design alternatives to traditional turfgrass that require reduced inputs of resources and labor. Yet the basic function and appearance of lawns is a key component of many of our projects.

## APPENDIX

### *Species and Subspecies*

All research trials and commercial blend developments have focused on the following five types of fine fescue: hard fescue, Chewing's fescue, sheep fescue, creeping red fescue and slender creeping red fescue. These fescues vary in growth form and best applications. Following is a brief summary of the five types.

#### Hard fescue (*Festuca longifolia* or *duriuscula* or *brevipila*)

This fescue is gaining wider use due to its better heat tolerance, relative to the other fine fescues. As with the other fine fescues, hard fescue performs best with minimal nitrogen fertilization and when soil is kept on the drier side. Hard fescue is a bunch grass and each seed develops into a distinct plant rather than spreading by rhizomes. Bunch grasses require uniform seeding at establishment to obtain a good quality lawn. Some cultivars include: Spartan II, Discovery, Aurora Gold, Aurora II, SR3000, SR3100, Osprey, Reliant II, Brigade, and Berkshire.

#### Chewings fescue (*Festuca rubra* subsp. *commutata*)

This subspecies is named after George Chewings of New Zealand (who discovered and first sold the seed of this species in the late 1800s), is typical of the fine fescues in that it possesses excellent shade tolerance. It has a darker green color and very fine texture, resulting in a very good quality turf. This species does not creep, so uniform seeding is essential. Cultivars include: Tiffany, Shadow II, Treasure, Victory II, Sandpiper, SR 5100 and Windward.

#### Creeping red fescue (*Festuca rubra* subsp. *Rubra*)

This is a US native creeping fine fescue (has rhizomes) that has been used in shady lawn seed mixtures for years ('Pennlawn' was commonly used a number of years ago). A "common type" (possessing lesser turf qualities), grown in large amounts in Canada is sold in lower quality, less expensive seed mixes (sometimes called 'Boreal' in these mixes). Improved cultivars, sometimes referred to as "strong creeping red fescue", are produced in the Pacific Northwest, with a few being imported from Europe.

#### Slender creeping red fescue (*Festuca rubra* subsp. *Litoralis*)

This fescue produces rhizomes, but is not as vigorous a grower as (strong) creeping red fescue. These fescues are tolerant of lower mowing heights, which can allow their use in golf course fairways. However, the biggest advantage of fine fescues in this grouping lies in their generally good to excellent salinity tolerance. This makes them attractive for use where deicing salts are aggressively used; their fine texture and compatible color allow them to be mixed with alkaligrass (*Puccinellia distans*; 'Fults' is the most commonly planted alkaligrass variety) for use on salty soils. Cultivars include Seabreeze, Sealink and Lowgro.

#### Sheep fescue (*Festuca ovina*)

Sheep fescue is sometimes called "blue sheep fescue" is generally used in lower maintenance lawns, performing especially well in infrequently- or un-mowed, naturalized lawn areas. They are long-lived bunch grasses that mix well with wildflowers, without dominating them. Some sheep fescues have been developed to produce a blue-green or glaucous green color (Azay Blue, SR3200), while others are more powder blue or "flat" blue in color (Azay, Quatro). Others are dark green.