

Establishing and Maintaining a Lawn in Southcentral and Interior Alaska

by Stephen C. Brown

Why a lawn?

Establishing and maintaining a healthy lawn is one of the least expensive things you can do to improve the value of your home. Besides creating a beautiful landscape, it creates a safer and more pleasing recreational area. If managed correctly, lawns can be very environmentally beneficial. Lawns bind up atmospheric carbon that could contribute to climate change and absorb contaminants in runoff water that might otherwise pollute lakes and streams.

Grass Selection

Choosing the right grass variety for your location is one of the most important decisions you'll make when establishing a new lawn. The big considerations in selecting the proper grass are cold tolerance, drought tolerance, rate of establishment, spring green-up and the amount of sunlight your site will receive.

The two most commonly grown lawn grasses in Alaska are Kentucky bluegrass and red fescue. Kentucky bluegrass is considered the prettier of the two grasses by many. It can also handle high traffic. For this reason it is the grass of choice for baseball, soccer and football fields in Alaska. However, it does have a high fertility requirement and needs sunny locations.

There are many Kentucky bluegrass varieties to choose from, but it is important to select a very cold-tolerant cultivar. The most highly recommended variety for Alaska is Nugget. Unfortunately, the demand for this variety often outstrips the seed supply. Other suitable varieties include Merion, Park and Fylking.

Red fescue is more tolerant of shade, but consider using ground-cover plants instead of grass if shading exceeds 50 percent. Red fescue is extremely cold-tolerant. This grass requires less fertilization than Kentucky bluegrass and is moderately drought resistant. Red fescue is a very good conservation grass for stabilizing slopes, and it is relatively inexpensive compared to Kentucky bluegrass. The drawback of growing red fescue is that it develops thatch easily and is less resistant to high traffic.

Red fescue needs well-drained soils; it can be grown in some gravelly situations without applying topsoil. For more information on growing red fescue in gravel, see Extension Service publication HGA-00340, *Planting Grass on Gravel Runways in Alaska*.

The two best varieties of red fescue for Alaska are Arctared and Boreal. Arctared is the most cold-tolerant and can be used throughout the state. Boreal is slightly less cold-tolerant and should not be used north of the Alaska Range.



CHARACTERISTICS OF SOME TURFGRASSES IN ALASKA

Common Name Variety	Establishment Rate			Winter Hardiness		Shade Tolerance		Drought Resistance			Spring Green-up Rate		
	Fast	Med	Slow	Good	Poor	Good	Poor	Good	Med	Poor	Fast	Med	Slow
Kentucky Bluegrass													
Common			•	•				•		•		•	
Fylking			•		•			•		•			•
Merion			•	•				•		•			•
Nugget			•	•				•					•
Park		•		•				•		•			•
Red Fescue													
Arctared	•			•		•		•		•		•	
Boreal	•			•		•			•				•
Common		•			•	•		•				•	
Pennlawn		•			•	•		•				•	
Annual Ryegrass* (<i>Lolium multiflorum</i>)	• (very fast)				•	•				•			

*Useful on erodible sites where rapid establishment is necessary.

Grass Mixes

In Alaska, grass seed is usually sold as a mixture of Kentucky bluegrass varieties and red fescue varieties. Since a typical lawn will have sunny as well as shady areas, a mix of sun-loving Kentucky bluegrass and shade-tolerant red fescue enhances the chances of a successful lawn under a variety of conditions. Seed mixes that are predominately red fescue are considered shade-tolerant.

For people establishing lawns greater than 2,000 square feet, it will likely be considerably cheaper to buy Kentucky bluegrass or red fescue in bulk and create their own mix. A mix of 60 percent Kentucky bluegrass and 40 percent red fescue is suitable for sunnier lawns. A mix of 40 percent Kentucky bluegrass and 60 percent red fescue is suitable for shadier lawns.

Annual/perennial ryegrass is often blended with commercial lawn seed mixes in Alaska to act as a “nurse grass” for the slower-growing Kentucky bluegrass and red fescue. Fast-growing ryegrass can germinate in less than a week and provide moisture retention and erosion control. However, it will not

survive an Alaska winter and is not an appropriate overseeding grass once a lawn has been established. Mix annual/perennial ryegrass at no more than 10 to 20 percent of the total seed blend.

Sod

Sod is grass that is “pregrown” and sold specifically for the establishment or repair of lawns. It comes in squares for smaller areas or in rolls for larger areas. The primary benefit of sod is that it provides almost “instant” lawn and requires much less work to establish. The downside to sod is that it is significantly more expensive than growing grass from seed. To prepare for sodding, follow the instructions for site preparation in this publication or the instructions provided by the sod vendor.

Hydroseeding

Hydroseeding is a technique for establishing a lawn that uses a slurry of water, cellulose (wood fiber), seed and fertilizer. Hydroseeding has the advantage of providing a cellulose mulch that can retain water while the grass germinates and grows. It can be significantly more expensive than growing grass

from just seed, but less expensive than sodding. Hydroseeding is especially suitable for slopes that are too steep to seed conventionally or areas that are inaccessible to irrigation. If you hire the services of a commercial hydroseeder, make sure he is using the varieties of Kentucky bluegrass and/or red fescue recommended for Alaska.

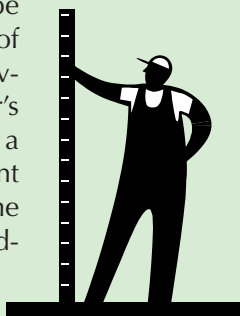
New Lawn Site Preparation

Taking the time to properly prepare your lawn area for planting will alleviate many future headaches. One of the most common of these is lawn mushrooms that grow from dead tree roots left over from clearing the land. Removing as many of the roots as possible will greatly reduce mushroom production during wet periods. This is an important step as there are no approved fungicides that will prevent mushrooms.

It is important that your lawn area be graded so that water will run away from homes and other structures. An ideal slope is 1 to 2 percent or the equivalent of a 1- to 2-foot drop over 100 feet extending away from the structure. Grade the soil to 1 inch below sidewalks or driveways.

Determining Slope

Slope refers to the distance the soil surface drops over a given length. For example, if the soil surface drops 1 foot for every 100 feet that the soil extends away from the structure, the slope is 1/100 or 1 percent. A slope of 10 percent is a 1-foot drop for every 10 feet, or 1/10. A carpenter's level and a straight board, or a string level, should be sufficient for setting up the slope of a home lawn, while more complex landscaping projects may need a laser level.



Unlike vegetable or flower gardens, lawns do not require quality topsoil to flourish. Lawns can grow in any soil texture, from sand to clay. The lighter the soil texture (sandy), the more important it will be to maintain a proper fertilization and irrigation regimen because nutrients and water will easily drain away. Soils with a heavier texture (e.g., clay) will need less fertilization but can experience problems with drainage during wet periods. In general, the ideal soil for Alaska lawns will be a sandy loam.

If the soil in your lawn area holds water but allows for moderate drainage, you may not need additional topsoil. However, if there are many rocks, gravel or a high proportion of sand, topsoil will be needed. Real topsoil is difficult to find in Alaska, so homeowners purchase manufactured topsoil that is usually one-third sand, one-third loam and one-third organic material, such as peat or compost. Manufactured topsoil usually has very poor soil structure and can settle by as much as 50 percent, and it is often very low in necessary soil nutrients.

If you are applying topsoil, a minimum of a 4-inch base layer over well-drained material is necessary. Keep in mind that manufactured topsoils can settle by as much as 50 percent and adjust the depth accordingly. Topsoil is usually sold by the cubic yard, so use the following formula to estimate how much soil is needed:

$$\frac{(\text{Desired depth of topsoil in inches}) \times (\text{Area to cover in square feet})}{324}$$

For example, to figure out how many cubic yards of topsoil are needed for a desired depth of 6 inches on a 25x30-foot section of lawn, your equation would be:

$$= \frac{4,500}{324} = 13.9 \text{ cubic yards}$$



Soil Fertility

It is always a good idea to do a soil test before planting your lawn. A soil test will show the levels of nitrogen (N), phosphorus (P) and potassium (K) and how acidic or alkaline your soil is. For information on collecting a soil sample and where to submit it see Extension publications FGV-00044, *Soil Sampling*, and FGV-00045, *Factors to Consider in Selecting a Soil Testing Lab*.

Although alkaline soils do occur in Alaska, acidic soils are most common. If your test results indicate your soil is too acidic for growing grass, you'll need to add lime to raise the pH. Red fescue is tolerant of pH in the 5 to 8 range. Kentucky bluegrass is much less acid-tolerant and prefers a pH range of 6.5 to 7.5. Adding lime is often referred to as "sweetening" the soil, and lime products are often sold as "soil sweeteners." Many homeowners find commercially available prilled (pelletized) lime the most convenient to apply since it can be done with a lawn fertilizer spreader.

It can potentially take a very large amount of lime to adjust soil pH to the proper level, so it is better to apply lime and mix it in with the soil prior to planting. If the lawn has already been planted, it may be necessary to implement a multiseason strategy. Because it takes up to six months for a lime application to reach full effect, it may be best to begin establishing your lawn in the fall with a lime application. Retest the soil in the spring and determine if it has reached the minimum required pH range for the grass you are growing. If it has, you may begin your final preparations for planting the grass.

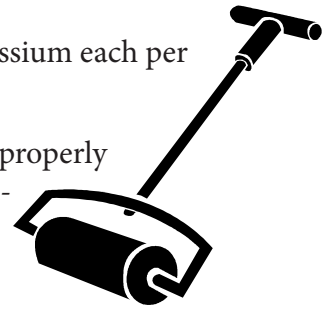
Final Preparation

Apply the recommended types and amounts of fertilizer based upon the results of your soil test. You can get a fertilizer recommendation based upon your test results for free from your local Cooperative Extension Service.

If it was not possible to test your soil before planting, you can assume a worst-case scenario that nitrogen, phosphorus and potassium levels are all very low. In this case, apply and incorporate 10 pounds of 10-20-20 (N-P-K) per 1,000 square feet before planting. This rate provides 1 pound of nitrogen, 2 pounds of

phosphorus and 2 pounds potassium each per 1,000 square feet.

The final step before seeding is properly compacting the soil bed if needed. A properly compacted seed bed should leave footprints about $\frac{1}{4}$ to $\frac{1}{2}$ inch deep when a 160-pound person walks on it. This can be achieved by using a lawn roller (available at most equipment rental stores). Once rolled, finish the soil bed with a light raking to provide small furrows for the seed to fall into. This increases soil-to-seed contact and will increase germination rates.



Seeding

The best time to establish a lawn in Alaska is when the soil temperatures are warm and when there is enough time left in the summer for a root system to become well established. This will usually be from the beginning of June to mid-July. Lawns areas that do not have access to irrigation are sometimes successfully planted in August to take advantage of seasonal moisture patterns, but it is still a gamble against an early winter.

Regardless of the grass variety(s) you choose to use, always buy fresh grass seed for a establishing a new lawn. The germination rate of seed will decline each year. Seed Kentucky bluegrass lawns at a rate of $2\frac{1}{2}$ to 3 pounds of seed per 1,000 square feet. Because red fescue has a larger seed, it needs to be sown at a rate of $3\frac{1}{2}$ to 4 pounds per 1,000 square feet. Kentucky bluegrass and red fescues mixtures are sown based upon the predominant grass. For either variety, it never hurts to apply more than the recommended rate. Up to 50 percent more is acceptable.

To obtain the most uniform seed coverage, sow half the seed in one direction. Then come back and apply the remaining half at a 90-degree angle to the first application. Save a pound of seed to fix any thin areas that may occur. After sowing the seed, lightly rake it into the top $\frac{1}{4}$ inch of soil and then roll with a half-full lawn roller.

It is important to keep the soil moist until the seeds germinate. Several light irrigations per day are ideal. Weed-free straw or open-mesh burlap can be used to help retain surface moisture. If straw is used, be

absolutely sure it comes from a weed-free source or you may be planting weeds in your new lawn. The straw or open burlap does not need to be removed once the seeds germinate.

Red fescue seed will germinate in 7 to 14 days and Kentucky bluegrass can take up to a month. Obviously, for lawns planted in August, red fescue has a greater chance of successfully becoming established before winter than Kentucky bluegrass. Once the grass germinates you can reduce the watering.

Watering

After your grass germinates, watering every two days should be sufficient for lawns in Southcentral Alaska. Lawns in Interior Alaska, where summer days can be much warmer and drier, may need daily watering until the grass reaches 1 inch in height. After you mow for the first time you can cut the watering back to once a week. Most lawns need about 1 inch of water per week. One of the most common problems with lawn care is overwatering. This practice causes the grass to develop a weak, shallow root system. The old adage “water deeply and infrequently” is good advice.

Weed Control on New Lawns

It is not uncommon for new lawns to be plagued with dandelions and other weeds. These can be controlled with broadleaf lawn weed control herbicides. However, do not apply any herbicide until the grass is four to six weeks old.

Mowing

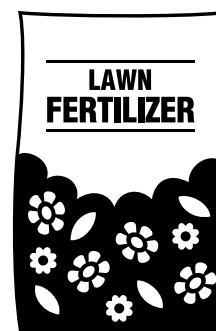
Most lawns in Alaska should be mowed to a height of 3 inches, with no more than one-third of the plant removed during any mowing. This helps maintain the vigor of the grass and can reduce the buildup of thatch. Whatever type of lawn mower you use, it is important to keep the blade(s) sharp, as this will create a more aesthetically pleasing lawn appearance. A dull blade “bludgeons” the grass and results in ragged grass tips. This creates more stress for the grass and can make it more susceptible to disease.

Mulching mowers are recommended for Alaska because they cut the leaf material into finer bits that are more rapidly decomposed. Bagging clippings is usually not necessary unless your lawn is in a cooler,

moister and/or shadier location where the clippings will not readily breakdown.

Fertilization and Liming

Any established lawn will need some fertilization. However, how often you fertilize will affect how often you mow. Highly fertilized “premium” lawns may need to be mowed twice a week, whereas less-fertilized lawns may only need to be cut every week and a half to two weeks.



At a minimum, a homeowner should apply 5 pounds/1,000 square feet of 22-11-11 fertilizer in the spring and again in late summer. For a premium lawn, follow the schedule and recommended fertilizers below:

- **Late May:** 5 pounds 22-11-11 fertilizer/1,000 square feet
- **Late June:** 5 pounds 22-4-4 fertilizer/1,000 square feet
- **Late July:** 5 pounds 22-4-4 fertilizer/1,000 square feet
- **Late August/beginning of September:** 5 pounds 8-32-16 fertilizer/1,000 square feet

A soil test is required to determine the pH level of your soil. Most, though not all, soils will be on the acidic side of the scale. If they are too acidic for the type(s) of grass you are growing, the pH will need to be raised using lime. Contact your local Cooperative Extension Service agent to get a recommendation specific to your soil test results.

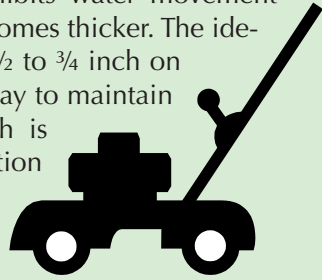
If you need to lime your lawn, prilled (pelletized) lime distributed with a rotary fertilizer spreader is usually more convenient and less messy to apply than powdered lime. Agricultural lime will supply calcium to your lawn while dolomitic lime supplies calcium and magnesium. Don't use hydrated, or “builders,” lime since that material is caustic.

Thatch in Lawns

Thatch is the layer of living and dead grass leaves, roots and stems that occurs at the soil surface. This is where soil bacteria and other organisms break down

Thatch

Thatch is the partially decomposed layer of grass clippings and roots that mixes in with the top layers of soil (below the green part of the lawn). The thatch layer is necessary, as it provides cushioning and protection from some desiccation for the grass crowns, and it is home to a plethora of insects. Unfortunately, thatch also provides a great host for disease and inhibits water movement down to the soil as it becomes thicker. The ideal thickness of thatch is $\frac{1}{2}$ to $\frac{3}{4}$ inch on a home lawn. The best way to maintain a healthy level of thatch is by performing core aeration twice per year. See box on "Aeration" for more information.



the grass and return nutrients to the soil so they can be recycled by the lawn. A little bit of thatch ($\frac{1}{2}$ to $\frac{3}{4}$ inch) is good.

Excessive thatch is a major problem in Alaska lawns. Underfertilization, overfertilization, not mowing often enough, low (acidic) pH levels and wet weather can all contribute to excessive thatch. When thatch becomes excessive, it can prevent water, nutrients and air from penetrating the soil.

You can control or prevent thatch with the following lawn maintenance strategies:

- Mow at proper height (3 inches) and frequently enough so that no more than one-third of the grass blade is removed at any given time.
- Fertilize appropriately. Nitrogen stimulates organisms that break down thatch. Too much nitrogen stimulates excessive plant growth and overwhelms the organisms' capacity to break down material.
- Water deeply and infrequently.
- Aerate the soil in the spring and early fall with a core aerator (see box on "Aeration").
- Have your soil tested to determine pH level.

Excessive thatch can be removed using a power rake. A power rake can be rented and is far more effective at removing thatch than manual rakes or lawn

mower blade attachments. Run the power rake in opposite directions across your lawn to remove about $\frac{1}{4}$ inch of thatch. You should mow your lawn at the appropriate height immediately after power raking.

If you develop more than 2 inches of thatch, it may be best to completely renovate the lawn. Rent a power sod cutter and remove all the grass and thatch. Once removed, cultivate the soil as previously described and reseed the grass.

Core aeration

Aeration is one of the most overlooked, yet beneficial, lawn management techniques. The benefits of aeration are many:

- It allows air and water penetration into the soil.
- It reduces soil compaction.
- It increases fertilizer and lime penetration into the soil.
- It encourages root growth.
- It reduces thatch.

Core aerators will leave plugs of removed material on your lawn. If the plugs consist solely of thatch, they can be mowed and bagged or power-blown off the lawn. If they contain thatch and soil, mow the cores with a mulching lawn mower to break up the soil. The remaining lighter material can now be mowed and bagged.

Aeration

Aeration is very useful for maintaining a healthy level of turf on lawns. It also helps to provide spaces where soil amendments and nutrients can be applied and made readily available for the growing grass, and it aids in maintaining good drainage. One method of aeration involves driving solid spikes through the grass and turf and into the soil, leaving tiny holes in the turf. A more effective and recommended method is renting a core aerator, which actually removes small plugs of turf and soil leaving $\frac{1}{2}$ -inch diameter holes behind in the turf. These holes provide access to the soil below when adding amendments such as sand and nutrients.



Controlling Weeds

Proper fertilization, mowing and watering will go a long way towards controlling weeds in your lawn. If broadleaf weeds (non-grasslike weeds) become an excessive problem in your lawn, there are a variety of selective herbicides that will target the weeds and not harm your grass. These herbicides usually contain chemicals such as 2,4-D, MCPA, MCPP, dicamba and/or triclopyr. They are usually labeled as broadleaf weed control products.

Herbicides can be purchased in both liquid and granulated forms. Fertilizers sold as “feed and weed” products usually contain broadleaf weed-control herbicides. Be extremely careful when using these products around ornamental shrubbery and flower beds.

Nonselective herbicides such as glyphosate (Round-up) will kill all plants. Nonselective herbicides are useful when a total lawn renovation is needed, or they can be spot applied to control weedy grasses such as annual bluegrass.

Weed inhibitors are a special type of herbicide that is applied early in the spring to prevent the germination of weed seeds. To be effective, though, they must be applied at the right time.

When applying herbicides it is critical that you read and follow the label and wear the appropriate protective equipment. Never store unused herbicide in unmarked or improperly marked containers and always store them in places inaccessible to children and pets.

Diseases in Alaska Lawns

Alaska is very fortunate to suffer from relatively few lawn diseases compared to the Lower 48. What diseases we do have are primarily fungal in nature. Some of the more common diseases are:

- Fairy ring — Male dogs are often falsely accused of causing this condition because it looks similar in pattern to a dog’s urination marking. It is actually caused by a fungus that grows on decomposing soil organic material, and affected grass will appear greener than surrounding grass. Fertilizing the surrounding areas will disguise this problem.

Moss Control

Moss is a major problem throughout Southeast Alaska lawns. Moss thrives in moist, cool conditions with little or no presence of soil nutrients and low soil pH. In order to prevent moss from taking over a lawn, it is important to create conditions that favor the grass rather than the moss. Good drainage, proper fertilization, adequate light, proper pH, reduced soil compaction and the proper varieties all contribute to establishing a healthy lawn that resists moss growth. In a situation where moss is already beginning to take over a lawn, it is important to achieve the conditions necessary for promoting a healthy lawn before focusing on moss destruction. Once a healthy lawn environment is established, there are a number of products that are commercially available to kill moss. The only way these moss killers will be effective long-term is by maintaining the prescribed lawn-favoring conditions.

- Red thread — This disease causes what appears to be thousands of tiny red threads in the lawn. It is an indication of low nitrogen levels. Proper fertilization will cure this disease.
- Powdery mildew — White powdery growth is found on leaves. Increasing sunlight and air movement will help.
- Mushrooms — There is no effective fungicide treatment for mushrooms.
- Gray snow mold — This results in dead, bleached areas immediately after snow melt or areas that appear to be covered with white spider webs. Filling in low spots in your yard and not applying high nitrogen fertilizer after September 15 will reduce damage. Cutting the lawn short and bagging leaf clipping during the last fall mowing can also help.

UAF Cooperative Extension Service

Resources

- “Factors to Consider in Selecting a Soil Test Lab,” FGV-00045
- “Managing Alaska Soils,” FGV-00043
- “Planting Grass on Gravel Runways in Alaska,” HGA-00340
- “Soil Sampling,” FGV-00044

To simplify information, trade names of products have been used. No endorsement of named products by the University of Alaska Fairbanks Cooperative Extension Service is intended, nor is criticism implied of similar products that are not mentioned.

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