

Chapter 12 Lawns

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CHAPTER 12

Lawns

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Producing quality lawns in New Hampshire is a relatively easy task if you follow some basic cultural practices. The climate is conducive for grass production, particularly for cool-season grass species. With proper cultural practices, a good lawn can be established and maintained.

Benefits of Turfgrass

What has a lawn done for you lately?

- Front lawns of just eight average houses have the cooling effect of about 70 tons of air conditioning, while the average home-size central air unit has only a 3 to 4 ton capacity.
- Turfgrasses trap much of an estimated 12 million tons of dust and dirt released annually into the U.S. atmosphere.
- Playing fields covered with dense turf have proven safer, as demonstrated by a simple egg drop test. When a dozen raw eggs were dropped from a height of 11 feet onto a two-inch thick piece of dense turf, none broke; two thirds of them broke on thin turf from that height; and from just 18 inches up, all broke on an all-weather track!
- Healthy, dense lawns absorb rainfall six times more effectively than a wheat field and four times better than a hay field. Sodded lawns can absorb 10 to 12 times more water than seeded lawns, even after two years of growth, thus preventing run-off and erosion.
- Recovery rates among hospitalized patients are often quicker when their rooms view a landscaped area than patients with non-landscaped views. Where vegetation grows, child mortality, suicide and energy consumption are less than in places where there are no plants.
- With up to 90% of the weight of a grass plant in its roots, it makes a very efficient erosion prevention device, also removing soil particles from silty water.
- Turfgrasses help purify water entering underground aquifers by its root mass and soil microbes acting as a filter to capture and break-down many types of pollutants.
- A Gallup survey reported 62% of all U.S. homeowners felt investment in lawns and landscaping was as good or better than other home improvements. The investment recovery rate is 100 to 200% for landscape improvement, compared to a deck or patio that will recover 40 to 70%. Proper and well maintained landscaping adds 15% to a home's value according to buyers.
- Grass areas quickly affect people's moods by creating feelings of serenity, privacy, thoughtfulness or happiness and its yearly cycles of growth and color change lift human spirits and link urban inhabitants with their countryside heritage.
- A turf area just 50 feet by 50 feet absorbs carbon dioxide, ozone, hydrogen fluoride and perosyacetylene nitrate and releases enough oxygen to meet the needs of a family of four. The grass and trees along the U.S. interstate highway system release enough oxygen to support 22 million people.

Starting a New Lawn

The following steps are critical for successful lawn establishment:

Site Investigation

The ground should gently slope (1 to 15%) away from the house to prevent water from entering the basement.

Soil Modification

If the native soil is undesirable (i.e. extremely rocky, droughty, compacted or poorly drained), modification is necessary for turfgrasses to grow vigorously. Drainlines or underground irrigation lines can be installed at this time. In poor soils, adding 4 to 6 inches of loam also will be beneficial.

Soil test

An inexpensive soil test helps measure the soil's pH and fertilizer needs. Obtaining soil test kits and sampling instructions can be obtained from your local UNH Cooperative Extension County Office.

Apply lime (if necessary)

Lime is very immobile in the soil and should be rototilled into the upper 4 to 6 inches of soil before seeding.

Rototill

Rototill, disc, or otherwise loosen (and incorporate lime) in the upper 6 inches of soil.

Rake

Rake and remove any large stones, sticks or other debris visible on the soil surface.

Firm soil surface

Rolling or watering helps settle the loosened soil.

Apply fertilizer

Preferably, a starter-type fertilizer should be applied to deliver 1 pound of actual nitrogen per 1000 square feet and raked into the upper inch.

Seed

Select a seed mixture containing improved varieties well suited for your lawn. Seed should be uniformly broadcast over the area using a drop or rotary spreader. This can easily be obtained by seeding in opposite directions and setting the spreader to deliver at 1/2 of desired rate.

Rake

Using very light pressure, rake the seed into the upper 1/4 inch of soil. While some seeds will remain visible on the surface, (birds don't eat enough seed to ruin a seeding), it's more effective than burying the seed too deeply!

Roll (optional)

Rolling helps pinch the seeds and soil particles together to prevent drying out.

Crabgrass control (spring seedings)

Unless prevented, crabgrass often predominates a spring lawn seeding. Weed killers or herbicides are available on the market that stop crabgrass seeds from germinating. Read the herbicide label carefully before purchasing a herbicide since some products can only be used on mature turf (not new seedings).

Mulch (optional)

A weed-free straw uniformly applied over the new seeding conserves moisture and reduces erosion on sloping ground. Apply approximately 1 bale per 1000 square feet.

Water

Keep the soil surface moist to prevent the seeds from drying out. This often requires light (5 to 10 minute), frequent (twice daily) watering for 2 to 3 weeks after seeding.

Overseeding Home Lawns

Renovation, or overseeding, involves revitalizing an old lawn without removing all the sod. Many old, thin, and weed-infested HOME LAWNS are completely restored using this approach. Renovation is most successful when over 50% of the existing lawn is composed of desirable turfgrass species.

Thatch removal

Power rake the area to be overseeded as often as necessary to remove all thatch and unwanted vegetation. Thoroughness is important. Seeding into thatch results in poor germination.

Clipping removal

Using a mower, collect and remove the displaced thatch. For small areas, a bamboo rake works well.

Reseed

Uniformly scatter seeds over the soil surface using a drop or rotary spreader. Hand sprinkling seeds also works well on small, irregular patches that need overseeding.

Rake

Lightly drag or rake the seed into the upper 1/4 inch of soil.

Roll

Roll the area to ensure firm contact of the seed with the soil.

Mulch (optional)

Sprinkle weed-free straw over the seeded area.

Water

As with new lawns, the seed should be kept moist at all times during the germination and early seeding stages.

Mow

Continue mowing the lawn at approximately 2 inches.

Turfgrasses for Home Lawns

Tips on buying seed:

The grass will likely be greener on your side of the fence if you:

1. Select a lawn seed mixture which performs well where it's sown (i.e. high maintenance, sunny location versus densely shaded, low maintenance location).
2. Select lawn seed mixtures that contain varieties (not generic 'no name' mixtures) tolerant to New Hampshire's diverse climate and soil conditions.

Note: While several good lawn mixtures containing improved varieties exist on the market, *availability* can be limited (especially when you're buying small quantities).

Use	Species/Mix (% by wt.)	Lbs./ 1000 sq. ft.
Sun: Moderate to high maintenance	50% Kentucky bluegrass (or more) 25% perennial ryegrass 25% fine fescue (not more)	3-4
Sun: Low maintenance and/or droughty site	50% fine fescue 20% perennial ryegrass 20% Kentucky bluegrass 10% Dutch white clover or 80% Tall Fescue 20% Kentucky bluegrass	4-5 7-9
Shade: (less than 4 hours full sun)	70% fine fescue 20% perennial ryegrass 10% Kentucky bluegrass (shade tolerant variety)	4-5

Cultural Requirements of

Kentucky Bluegrass

(*Poa pratensis*)

General:

Provides high quality lawn. Spreading growth habit. Slow to germinate in cool weather. The predominate grass found in sod.

Soil:

Prefers moist, well-drained, fertile soils with a pH of 6.0 to 7.0. Has poor tolerance in strongly acidic soils (below 5.0).

Fertilizing:

Requires 0.5 pounds of nitrogen per 1,000 square feet per growing month.

Mowing:

Will tolerate various mowing heights with 2 inches preferred in most home lawns.

Light:

Does best in open, sunny areas; has poor dense shade tolerance. Prefers at least 4 hours of full sun per day.

Watering:

Can tolerate drought periods by becoming semi-dormant. Prefers 1 inch of water per week during the summer.

Varieties (partial listing):

Blacksburg, Trenton, Majestic, Victa, Baron, Gnome, Adelphi

Cultural Requirements of

Perennial Ryegrass

(*Lolium perenne*)

General:

Fast germinating, wear resistant, bunch type growth habit. Effective in over-seeding and in lawn mixtures. Prone to winter injury.

Soil:

Similar to Kentucky bluegrass except can tolerate a more acidic soil pH.

Fertilizing:

Requires 0.5 pounds of nitrogen per 1,000 square feet per growing month.

Mowing:

Can withstand various mowing heights with 2 inches generally recommended. Sharp mower blades required.

Light:

Prefers sunny, open areas but has good partial shade tolerance.

Watering:

Requires supplemental irrigation to insure survival during extended drought periods.

Varieties (partial listing):

Yorktown III, Prelude II, Pinnacle, SR 4200, Palmer II, Affinity

Cultural Requirements of Red Fescue

(*Festuca rubra*)

General:

Low cultural requirements; used primarily in low-maintenance and shaded areas.

Soil:

Well-adapted to dry, sandy, infertile soils having a pH of 5.5 to 6.5. Has poor tolerance to poorly-drained or saline (high salt content) soils.

Fertilizing:

Grows well under low fertilization levels of 0.2 to 0.5 pounds of nitrogen per 1,000 square feet per growing month.

Mowing:

Under most home lawn conditions, red fescue should be cut 2 inches high.

Light:

Has excellent shade tolerance but won't dominate a Kentucky bluegrass or perennial ryegrass stand in open, sunny areas.

Watering:

Requires minimum irrigation. Turf quality declines if irrigated excessively.

Varieties (partial listing):

Reliant, Warwick, Longfellow, SR 3000, Aurora, Jamestown II

Installation and Maintenance of Sod

Sodding your lawn allows you to enjoy instant beauty and maturity without the usual time-consuming hassles of seeding. For best results however, sod needs to be properly installed and maintained.

Advantages of Sod Include:

- Installation of sod is possible anytime the ground isn't frozen.
- More dependable results on hillsides and steep slopes where erosion is a problem.
- Reduced encroachment of weed species, especially crabgrass, when compared to spring seedings.
- Better establishment on high-traffic areas.

Preparing the Soil

1. Rototill or spade the soil to a depth of 4 inches.
2. Remove sticks, stones, roots and other debris.
3. Take soil test samples and ask Cooperative Extension to provide recommendations.
4. In accordance with soil test, mix lime into the upper 4 inches of soil. Incorporate a complete fertilizer into the upper inch of soil.
5. Smooth the soil by raking with a steel rake.
6. Firm the soil by lightly rolling. Fill in any low spots and grade down high points. A smooth, flat surface prevents later scalping by the mower.

NOTE: Avoid shady areas. Sod requires 4 to 5 hours of direct sunlight per day to thrive.

Measuring and Ordering Turf

- Using a tape measure, measure the area (length, width, any unusual features), and put these measurements on a sketch.
- Ideally, take delivery on the day you plan to start laying your sod. Install all the sod delivered that day. However, any sod not installed should be unrolled in a shady area and lightly watered to prevent heating.

Laying Your Quality Turf

1. Start at a straight line such as a driveway or walk.
2. Lay out the sod as you would a rug or tiles.

3. Make sure all joints are butted tightly together—without overlapping or spaces between strips of sod.
4. Stagger the joints in each new row like rows of bricks.
5. Use a large sharp knife for shaping sod around trees, at flower beds, or along borders.
6. Completely soak the sod with at least 1 inch of water. Start watering 20 minutes after first strip is laid.
7. Roll the sod to smooth out small bumps and air pockets. This will assure good contact with the soil.

Sod Maintenance

Watering Schedule

- To gauge watering, simply place an empty can about 6 feet away from the sprinkler.
- When there is one inch of water in the can, it is time to move the sprinkler to the next area. Sod requires roughly one inch of water per week.
- Reflected sun along buildings dries sod quickly, so be sure to water these areas more often.

Mowing

- Your new living carpet generally needs mowing 6-7 days after installation.
- The basic mowing rule is never remove more than 1/3 of the leaf blade during a single mowing.
- Mow when grass height reaches 2 ½ - 3 inches.
- Set your mower at a cutting height of 2 inches.
- For best appearance, be sure to keep your mower blades sharp.

Traffic Caution

- Use your newly sodded lawn sparingly until good root establishment has taken place (2-3 weeks).
- Avoid concentrated play activities or similar rough usage for four weeks.
- There are no restrictions on visually enjoying your beautiful new lawn!

Fertilization

- To maintain its high quality, sod should be fertilized at least 2 times during the year. Spring and fall applications are popular for many lawns. An additional summer fertilization will help insure a season long beauty!
- For more specific information on fertilization and lawn maintenance, see the appropriate sections in this chapter.

Successful Home Lawn Establishment- A Checklist

I seeded a new lawn and it didn't work. Why?

There are a number of reasons why initial seedings fail.

Did you prepare the soil properly? The final surface should be loose and non-compacted to insure a good seed to soil contact. Also, turfgrasses don't perform well in poorly-drained or compacted soils.

Did you have the soil tested? An inexpensive soil test will measure the soil's pH and fertilizer needs. Most New Hampshire soils are acidic, and often require lime. Seedlings fail to root deeply when the pH value drops below 5.0. With time, these grasses also become more susceptible to drought and other problems.

Did you fertilize before seeding? Without fertilization, young seedlings will soon lose their vigor and turn a pale yellow-green color. The net result will often be a lawn predominated by weeds. A starter-type (i.e. 10-20-10) formulation applied prior to seeding provides the nutrients needed for the first 6 to 8 weeks. Another fertilization will likely be necessary for best results.

Did you seed too early or too late in the year? In the cold soils of early spring or late fall it can take up to 3 weeks before some turfgrass seeds emerge. While such seedings can be successful, weed competition and erosion pose serious threats. Ideally, the optimum time to seed is between mid-August and early September (August 15 to September 10). During this period, crabgrass competition is minimal and the warm soil temperatures hasten the germination and establishment of the grass (up to 3 times faster). Seedings throughout the growing season will also succeed with proper care.

Did you choose the right seed mixture? In sunny locations, the grasses most often used are Kentucky bluegrass, perennial ryegrass, and (more recently) the tall fescues. While Kentucky bluegrass performs well in sunny sites, it has poor shade tolerance. Grasses that have excellent shade tolerance are the 'fine-leaf fescues' which include creeping red, chewings and hard fescues. In shady locations, seed mixtures should be comprised of at least 70% of these narrow-bladed grasses. Fine-leaf fescues are also recognized for having good drought tolerance and are capable of surviving in low maintenance areas.

Did you apply the seed uniformly over the surface and rake it lightly (1/4 inch) into the soil? A normal seed rate would be 3 to 4 pounds per 1000 square feet. If seed isn't raked in, but just left on the surface, it often dries out or washes away. Light rolling after the seed is put down also helps insure good seed to soil contact essential for best results.

Did you irrigate frequently? Seeds need to be kept moist for germination to occur. This often requires light (5 minute), frequent (twice a day in hot weather) watering for at least two weeks following seeding.

Did you apply mulch? Mulch, usually straw, helps protect the seeds from drying out and reduces erosion on steep slopes. Warning: Mulches should be weed free! Straw from hayfields often contain tons of weed seeds that will ruin your seeding. To avoid smothering your new grass, apply only 1 bale of straw per 1000 square feet. Roughly 3 weeks after germination, straw can be raked off if desired.

Did you have weeds enter after the seeding? Weeds are often more aggressive and faster to germinate than turfgrass seeds. This is a serious problem especially in the spring when many lawns are seeded. Crabgrass, in particular, will germinate in cool soils of early spring and continue to out compete young turf seedlings throughout the summer. Herbicides are on the market that are effective in preventing and controlling both crabgrass and broadleaf weeds.

Did you see any signs of disease or insects? Both of these pest problems can injure and thin out young turfgrasses. If so, products can be purchased to prevent further damage.

Fertilization of Home Lawns

Fertilization is one of the most important practices in lawn care. A properly fertilized lawn is more dense, darker green and has fewer weeds than one which is under (or never) fertilized! Few of our native soils contain enough of the most important nutrients needed by turfgrasses, nitrogen, phosphorous and potassium. As a result, lawns need supplemental fertilization to maintain vigorous and healthy growth.

An inexpensive soil test will determine the soils pH and overall fertility status. Contact your local UNH Cooperative Extension County office for sampling instructions and other information regarding lawn fertilization.

Fertility Options for Home Lawns

What to buy? When to apply? Fortunately, there are several products on the market (both organic and inorganic) effective in producing desirable results. The calendar and comments below are suggested to serve only as a guideline.

New Hampshire Lawn Fertilization

Maintenance Level	Timing	Comments
None	Never	Crabgrass galore!
Lower (1 x/yr)	Fall	Efficient & economical
Moderate (2 x/yr)	Spring & Fall	Good over-all choice
Higher (3 x/yr)	Spring, Summer & Fall	Season long beauty

Fertility Needs During the Year

Fall

Fall is a recovery time for turfgrasses. The warm days and cool nights are ideal for lawns to produce new growth, both roots and leaves. Early fall is often considered the most efficient time of the year to fertilize a lawn. Fertilizers having nearly equal amounts of nitrogen, phosphorus and potassium are encouraged during this season.

Spring

Spring also represents a time for turfgrasses to initiate new growth. While 'Mother Nature' alone helps stimulate spring green-up, most turfgrasses benefit from a fertilization. Starter-type fertilizers which generally contain more

phosphorus than nitrogen are commonly used in a spring feeding. Additional phosphorus helps initiate root development and early turf establishment of young seedlings.

Summer

Most turfgrasses turn brown and go dormant during the hot periods of summer without additional water. If a lawn is fertilized this time of year, lighter application rates of products containing mostly slow release nitrogen sources (including organics) are suggested to avoid burning of the lawn.

Nutrient Functions

Nitrogen

Turfgrasses require nitrogen in larger quantities than other essential nutrients. It is involved with nearly all the plant growth and development

processes. Increased top growth, darker green color and denser turf are generally associated with moderate (2 applications per year) nitrogen levels.

Phosphorus

The primary function of phosphorus is in the development of a strong root system and early seedling establishment.

The majority of rooting of turfgrasses occurs in the spring and fall of the year.

Potassium

Among its various roles, potassium helps in cell wall development and regulates water movement within the plant. Turfgrasses with adequate potassium levels have improved drought and wear tolerance. A nitrogen to potassium ratio of 4:3 is desirable to maintain during the year.

Characteristics of Nitrogen Fertilizers

FAST RELEASE NITROGEN FERTILIZERS

Fertilizer Name	Nitrogen (%)	Low Temperature Response	Residual N Activity (weeks)	Leaching Potential
Ammonium nitrate	33	rapid	4-6	high
Ammonium sulfate	21	rapid	4-6	high
Urea	46	rapid	4-6	high

SLOW-RELEASE NITROGEN FERTILIZERS

Fertilizer Name	Nitrogen (%)	Low Temperature Response	Residual N Activity (weeks)	Leaching Potential
Synthetic Organic				
Sulfur-coated urea	22-38	mod. rapid	10-15	low
Once	24-35	mod. rapid	15-36	low
ScottsPoly-S products	16-40	medium	12-24	low
IBDU	31	mod. rapid	10-16	mod.-low
Nitroform	38	slow	10-30	very low
Fluf	18	medium	6-10	low
Nutralene	40	medium	10-16	low
Methylene urea	39	medium	7-9	low
Natural organic fertilizers				
Ringer (blood, bone, seed meals)	6	medium	10-12	low
Sustane (turkey waste)	5	medium	10-12	low
Milorganite (activated sludge)	6	slow	10-12	low

Where trade names are used for identification, no product endorsement is implied nor is discrimination intended against similar materials.

Watering

During the summer:

Lawns will often go semi-dormant and turn brown during the hot periods of summer without being irrigated. Death of the lawn may result from severe drought. Most lawn grasses during the summer require 1 inch of water each week to remain green and healthy. Placing an empty coffee can 5 to 10 feet away from a sprinkler is an easy and helpful way to monitor the amount of water applied.

Time of watering:

The most efficient time to water home lawns is early in the morning! While evening waterings are convenient for most homeowners, they encourage more disease activity. Mid-day waterings are also possible (they will not harm the turfgrass) but the water lost to evaporation is higher.

Fertilization

Fertilization is one of the most important practices in lawn care. A properly fertilized lawn is more dense, darker green and has fewer weeds than lawns under (or never) fertilized. Few of our native soils contain enough of the most important nutrients needed by turfgrasses; nitrogen, phosphorous, and potassium. As a result, lawns need supplemental fertilization to maintain vigorous and healthy growth.

What to buy? When to apply? Depending on the maintenance level desired, most lawns should be fertilized between one and three times per year. Fertilizers containing slow release nitrogen sources (including natural and synthetic organic) help reduce the threat of nitrate leaching and provide a longer response.

For more information on home lawn fertilization, see the section on fertilization in this chapter.

Liming

To determine if lime is necessary, have the soil pH checked at a local laboratory. Since lime is slow to react (up to 6 months) and quite immobile in the soil, late fall applications are ideal. However, agricultural limestone can be safely applied throughout the year due to its low burning potential.

For newly seeded lawns, limestone should be applied prior to seeding and thoroughly mixed into the upper 4 to 6 inches. The desired pH for lawn grasses is between 5.5 and 7.0. Lawns containing predominantly Kentucky bluegrasses should have a minimum soil pH value of 6.0.

Thatch

Thatch (also known as organic matter) is the layer of partially decomposed stems, roots and some leaves of grasses which accumulates at the soil surface. Thatch buildup is a naturally occurring process as older plant parts die and new tissues are generated. Bacteria in the soil feed on thatch and help break it down. Moderate ($\frac{1}{2}$ inch) thatch layers are considered desirable in home lawns.

However, excessive thatch buildup (greater than 1 inch) is unwanted. Thick layers harbor insects and diseases, promote shallow rooting of turfgrasses (lawns will dry out faster in hot weather), and cause an overall decline in turf vigor.

Thatch control

Powered rakes (also called dethatching or vertical thinning machines) are effective in removing thatch ($\frac{1}{4}$ inch at a time). These can be rented from garden equipment outlets. Early spring or fall mechanical thinnings are preferred as recovery of the lawn during these periods will be rapid (1 to 2 weeks). Fertilizing immediately following a dethatching also hastens the recovery time.

Pests of Home Lawns

Lawn Insects

There are naturally many different types of insects present in a lawn. Most of these are not harmful to the grass. Control for insects is not necessary unless the pest population builds up enough to cause visible damage to the lawn.

The most common above-ground insect pests in New Hampshire are chinch bugs; these feed on grass leaves and stems. Below ground, the most common pest is the white grub larvae; these feed on plant stems and roots.

Hairy Chinch Bug:

Chinch bugs are probably the most destructive pest of home lawns. The adults are small (1/16" long), black, with white wings and red legs. The small nymphs are without wings and appear completely red. These insects damage grass by piercing the plant with their needle-like mouth parts and sucking plant juices. Rainy weather hinders chinch bug development so damage is less likely to occur during wet periods. Chinch bugs prefer to feed on bluegrass and fescues.

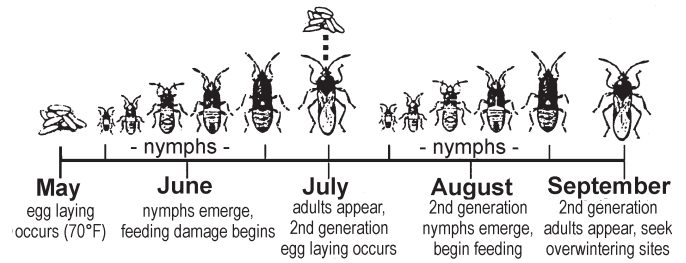
Chinch bugs prefer sunny areas and lawns with thatch. The overwinter adults emerge from sheltered areas and seek grass plants. Egg-laying occurs when temperatures reach 70 °F, generally in May. The eggs hatch into young nymphs which do the greatest amount of damage.

Damage to turf is first observed in June. This begins as yellowish areas which soon become dead patches. During warm weather, turf can be damaged quickly as the bug population multiplies. New adults will appear in July. A second generation occurs in August and more turf damage can be expected. In the fall, large numbers of adults are seen around building foundations.

Chinch bug damage appears quickly in hot weather and is often confused with drought damage. If chinch bugs are suspected, there are several methods of detection:

- Get down on your hands and knees and search the crown of the grass next to a damaged area. Chinch bugs are most active and visible during the heat of the day.

- Remove both ends of a can press it into the ground. Fill the can with water. Stir up the grass with your hand. The bugs should float to the top.

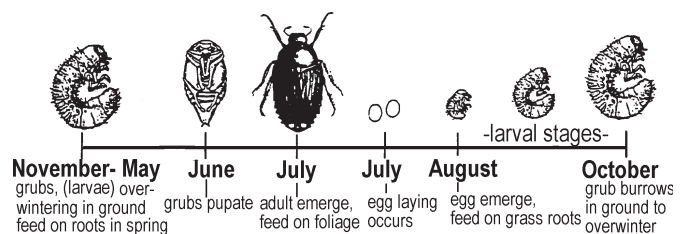


White Grubs:

White grubs are the larval or grub stage of several species of beetles and chafers. The two most common in New Hampshire are the Japanese beetle and the June bug. These beetle larvae are C-shaped, and can be found feeding among the roots of grass. They are typically cream-colored with a brown head and with a dark area at the posterior end where the body contents show through the skin. White grubs feed on grass roots and most complete their development in one year (June beetles require two or three years).

Japanese beetle eggs are laid in July and August. June beetle eggs are laid in June and July. The young begin feeding on the grass roots within one or two weeks. Feeding goes on until fall when the grubs burrow deep into the ground to overwinter. In the spring, the grubs burrow upwards to the grass root level. They resume feeding until June when they transform to the pupal stage.

Adults begin emerging from the ground about the first week of June for the June beetle and the first week of July for the Japanese beetle. Evidence of an infestation of white grubs appears as grass begins to turn brown due to root damage. Usually the turf can be rolled back like a rug to reveal the white grubs.



Bird, mole, or skunk damage is a sign of grubs present. Chemical control depends on proper timing of the application. Usually chemical control isn't necessary until there are 10 grubs per square foot. Most chemicals should be applied when the grubs are near the surface (spring or late summer). The grubs are smallest in late summer and control will be better at this time.

For specific insect control recommendations and more information on other lawn insect pests, refer to Insect Fact Sheet #7, "Insect Pests of Home Lawns", by Dr. Stanley R. Swier.

Common Turfgrass Diseases of Home Lawns:

Red Thread & Pink Patch

Infected lawns often have a pink or reddish cast. Irregular patches of dead and dying leaves are also common. Upon close inspection, tiny red threads of the fungus may be observed growing from the leaf tips. Red thread and pink patch are most common on perennial ryegrasses and fine fescues, but they may be seen on any species of turfgrass. Infections are most obvious during the spring and fall during cool (65-75 °F), moist weather. Cultural management techniques include maintaining soil pH at 6.5-7.0, collection of clippings during mowing, avoiding late day watering, and aeration to improve turf growth.

Leaf Spots and Melting Out

The initial symptoms first appear on the leaves as small purple or red colored oval spots. The centers of the spots eventually turn tan, forming dark-bordered 'eye spots'. Under moist conditions, leaf spots may coalesce and blight the entire leaf. The fungus may eventually invade the crown and roots causing the 'melting out' phase of the disease which is visible as large patches of dead and dying turfgrass. The leaf spot phase is most common during the spring and fall and the 'melting out' phase is more prevalent during the warm months of summer. Succulent growth, promoted by high nitrogen fertilization and high moisture conditions favor the development of the disease. Several cultural management practices can help reduce both phases of the disease; 1) avoid excessive fertiliza-

tion with water soluble nitrogen sources, particularly in the spring, 2) raise the mower height to 2.5-3" and remove no more than 1/3 of the leaf blade at any mowing, 3) do not mow wet grass, 4) water infrequently and deeply and never mow in the late afternoon or early evening, 5) reseed damaged areas with turfgrass cultivars resistant to leaf spots. Blends of turfgrass species are preferable to monocultures.

Rhizoctonia Brown Patch

Circular patches of yellow, brown and sunken grass up to several feet in diameter may develop on home lawns. Individual grass blades often develop irregular purplish-brown lesions. Under moist conditions, a gray, web like fungal growth may be visible on the infected leaves, particularly at the margins of the patch. Brown patch is most common during the hot humid weather of summer. Several successive nights of warm temperatures with high humidity often trigger outbreaks of the disease. Cultural management techniques include; 1) avoiding nitrogen fertilizer applications just prior to and during hot humid weather, 2) water early in the day (to a depth of 6"). Kentucky bluegrass and fine fescue lawns are less susceptible to brown patch.

Snow Molds (pink and gray)

Injury caused by snow mold fungi usually becomes evident as the snow melts in the spring. Roughly circular patches of dead, matted grass, 3-12" or greater may appear white to gray or even pink. Gray snow mold rarely damages the crowns or roots, thus lawns infected with the gray snow mold fungus usually recover quickly. Pink snow mold infections often kill the crown and roots thus infected areas often require reseeding. Snow mold fungi are most active under moist conditions at temperatures just above freezing. Ideal conditions for the development of snow molds occurs when snow cover occurs early over unfrozen ground and remains throughout the winter. Thick layers of fallen leaves also provide moist conditions favorable for snow mold development. To prevent snow mold, it is important to continue to mow the grass until growth ceases in the fall. Slow release nitrogen fertilizers should be applied at least six weeks before dormancy. In the spring, dead and matted grass should be raked from the affected areas to allow for new growth.

Turfgrass Diseases: Cultural Management Recommendations

Cheryl A. Smith, Extension Specialist, Plant Health

Disease (pathogens)	Turfgrass Hosts	Season of Occurrence	Cultural Management Methods
Dollar Spot (<i>Sclerotinia homeocarpa</i>)	All species	late spring-September	avoid drought stress, water early (5-10am), avoid compaction, balanced N-P-K, reduce thatch
Leaf Spot, Melting-Out (<i>Bipolaris</i> , <i>Dreschlera</i>)	All species, Kentucky bluegrasses* , ,fine fescues	spring-October	raise mowing height, avoid excess soluble N, reduce thatch, water early
Red Thread (<i>Corticium fuciforme</i>)	Most species perennial ryegrasses , fine fescues	spring-October	maintain balanced N-P-K, avoid low pH, light applications of N (0.5-1.0#/1000 ft ²), remove clippings, avoid low pH
Powdery Mildew (<i>Erysiphe graminis</i>)	Kentucky bluegrasses fine fescues	early summer-October (most prevalent in Sept.)	reduce shade, avoid excess N, improve air circulation
Brown Patch (<i>Rhizoctonia solani</i>)	All species tall fescues , perennial ryegrasses	July-September	avoid excess N (especially during active growth), mow only when dry, water early (5-10am)
Pythium Blight (<i>Pythium spp.</i>)	All species perennial ryegrasses	June-mid-September	avoid night watering, avoid excess N, mow only when dry, (fungicides usually required)
Pythium Root Rot (<i>Pythium spp.</i>)	All species annual bluegrasses	March-November (periods of slow plant growth)	as above, increase organic matter, improve drainage
Anthracnose (<i>Colletotrichum graminicola</i>)	Bluegrasses, fescues, bentgrasses annual bluegrass	July-September	avoid drought stress, avoid compaction, balanced N-P-K
Summer Patch (<i>Magnaporthe poae</i>)	Fine fescue, Kentucky bluegrass , annual bluegrass	July-September	avoid compaction, avoid drought stress, raise mowing height, lower pH in top 1" soil 6.5, avoid overwatering
Fusarium Blight (<i>Fusarium culmorum</i>)	All species	June-September	as for summer patch
Snow Molds Gray (<i>Typhula spp.</i>) Pink (<i>Microdochium nivale</i>)	All species	November-April (during extended periods of cool, wet weather, 32-55 F)	continue mowing until growth ceases in the autumn, maintain pH < 7.0, avoid late N applications

* Most susceptible species indicated by bold type.

Weeds in Home Lawns

Control Methods:

Cultural Control:

Effective weed control involves the use of recommended cultural practices and the use of herbicides when necessary. Producing a dense, healthy stand of turfgrass is the best way to minimize annual grass weeds and other broadleaf weeds. The proper mowing height and frequency, fertilization and irrigation are part of the weed control program and should be practiced throughout the growing season. There are two basic groups of weeds: broadleaf weeds and weedy grasses. Broadleaf weeds consist of the familiar dandelion, chickweed, ground ivy, oxalis, plantain, and anything which is not classed as a grass. Examples of weedy grasses are quackgrass and crabgrass.

Chemical Control:

Timing is important for herbicide application. The best time for annual grass weed control is late April or early May in New England. The best approach is application of a preemergence crabgrass or annual grass control herbicide about two weeks before annual grass seeds germinate. If you apply these herbicides after annual grasses appear above-ground, the application may not be effective. Preemergence herbicides control germinating weeds and provide effective control of crabgrass and other annual grass weeds for several weeks or months, depending upon dosage and products. The effectiveness of these materials is based upon their ability to provide excellent weed control with no turf injury.

There are good selective herbicides available for broadleaf weed control. In general, broadleaf weeds respond best to weed killers when they are most actively growing and/or in the seedling stage. This is usually in late spring or early fall. When equally effective, fall applications are preferable because fewer ornamental and garden plants are in an active state of growth.

Herbicides for Broadleaf Weed Control in Turf

Trade Name	Common Name	Recommended Fl. Oz./1000 sq. ft.
TRIMEC CLASSIC	2,4-D+ MCPP + dicamba	1.2 to 1.5
SUPER TRIMEC	2,4-D 2,4-DP + dicamba	0.75 to 1.1
TURFLON D	2,4-D + triclopyr	1.1 to 1.5
WEEDONE DPC	2,4-D+ 2,4-DP	1.0 to 1.5
CONFRONT	Triclopyr + clopypalid	0.37 to 0.74

Other Common Home Lawn Problems

Moss and Mushrooms in Home Lawns

Moss

Many home lawns in New Hampshire contain moss and/or algae. Moss is often found in shady conditions which have acidic, infertile, poorly-drained soils. They won't directly damage the turfgrass, but they do compete for space and can dominate sections of a lawn with time.

Mosses are small green plants which have a mass of fine stems and shallow roots. They can be a very attractive ground cover in those areas to which they are well adapted. However, if control is desired, the following practices are suggested.

Generally, moss cannot invade a vigorous, healthy lawn. Unless the basic fault(s) that allowed moss to enter in the first place is corrected, the control will be incomplete or only temporary.

For successful control of moss, maintain good soil fertility and pH values which favors dense, vigorous turf growth. Have the soil tested to determine lime and fertilizer needs. Liming alone is not recommended as a short-term control measure.

Mushrooms

Mushrooms, also called *toadstools* and *puffballs*, live on organic matter in the soil. The mushroom is the above-ground fruiting or reproductive structure of a fungus. After wet weather, mushrooms will sprout (overnight) in the lawn. Most mushrooms don't damage the lawn, but are objectionable because they are unsightly.

There is no practical or permanent way to eliminate mushrooms. However:

- 1) The easiest (yet temporary) solution is to simply mow them off.
- 2) Annual dethatching to reduce the organic matter buildup also helps.
- 3) If possible, remove any buried roots, stumps and lumber that mushrooms might live on.

Moles in Home Lawns

Look, there's another one! Homeowners often see large mounds of soil and ridge-like tunnels in their lawns shortly following snowmelt in early spring. This is the result of mole activity. Due to the unsightly mounds moles create, they are often considered unwanted pests in home lawns.

Runways are dug to search for food, provide protection from predators and create space for resting and breeding. The annoying mole hills are external evidence of the moles' underground tunneling activities. Unfortunately, for most homeowners, moles remain active throughout the year.

Moles are primarily carnivores. Their diets consist mainly of earthworms, grubs, beetles and insect larvae they find in the soil. A mole's appetite seems to be insatiable. They consume enough food to equal 60-80% of their body weight (averaging only 3 to 4 ounces) daily. The estimated yearly intake of food for a single mole is about 40 pounds!

In the long haul, moles are here to stay. Thorough control is difficult to obtain due to a mole's elusive life style and its ability to form an extensive network of underground tunnels of numerous nesting sites. Some farmers have trapped 100 moles annually, only to be faced with the original amount of infestation the following season!

As a result, when large populations of moles exist in a lawn, only short term and partial reductions should be expected. Often times, the easiest method for homeowners is to "wait and see". Mole activity will often subside later in the spring once the ground dries out.

For additional information on home lawn insects, diseases and other pests such as moss, mushrooms and moles, contact your local county Extension office.

Management Practices To Reduce Ground Water Contamination In Home Lawns

- Reduce the need of pesticides by following recommended cultural practices such as proper mowing and watering which maintain a dense, vigorous lawn.
- Select pesticides and fertilizers that are resistant to leaching. For example, when possible select fertilizers that have 'slow release' or less water soluble sources of nitrogen.
- Use minimum dosage of pesticides to achieve adequate pest control. Read and follow the instructions on the label.
- Calibrate fertilizer and pesticide equipment in order to assure the desired application rate is being applied.
- If needed, when establishing new lawns, select a topsoil such that its depth, soil texture and percent organic matter are effective in absorbing fertilizers and pesticides. For example, 6 inches of a silt loam textured soil would be preferred to 3 inches of a sandy loam soil.
- Maintain soil conditions such as adequate drainage and aeration which favor microorganism activity since they are important for decomposing pesticides in the soil.
- Select turfgrass species well adapted to local environmental conditions and varieties which have a low pesticide and fertilizer demand.
- Use rinsate from washed pesticide containers and application equipment on the lawn as diluted pesticide.
- To avoid runoff and leaching, do not apply pesticides just prior to heavy rainfall. To avoid pesticide "drift" off the target area do not spray on windy days.
- When applicable, apply fertilizers and pesticides during periods of active turf growth for improved uptake by the plant.