

Lawn Care

*The Easiest Steps To An
Attractive Environmental Asset*

Lori J. Brewer

Acknowledgements

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All included videos were directed and created by [Insights International, Inc.](#)

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This ebook is produced with New York State lawns in mind. Details would apply to places with similar growing conditions. Connect with your local [Cooperative Extension](#) system to gather sound information for your specific region.

Designed by Steven Lai (Cornell '18).



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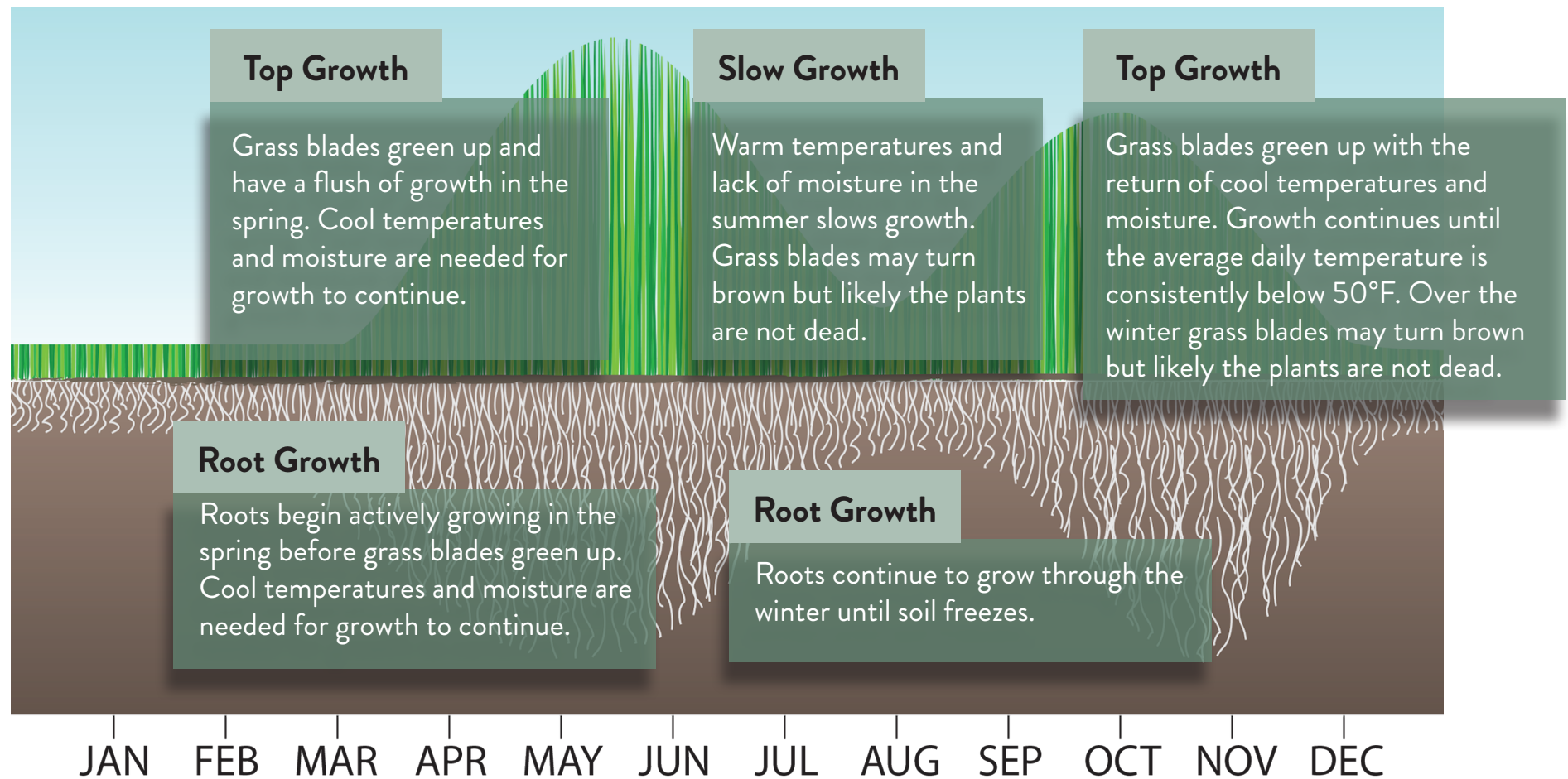
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Four Steps To Success



Step One | Know Your Lawn

In New York and areas with similar growing conditions, most lawns contain a mixture of cool-season grasses and weeds. [Tap on the buttons below](#) to find out more.



Step Two | Make Adjustments

Keep the Mower Blade Sharp.

Dull mower blades increase fuel use by up to 20% and shred the tips of grass blades. At the start of the season, consider taking your mower in for a tune up and blade sharpening. Throughout the season, check the appearance of your grass and mower blades. Look to achieve a clean cut on grass blades by sharpening mower blades at least once a season or when you see ragged brown grass blade tips.



 *Click above images for video content*



Click above image for video content

Mow Grass Higher.

Lawns cut lower than 3 to 3.5 inches will require more fertilizer and water.

Mulch Grass Clippings.

Grass blades are mostly water and nutrients. Leaving cut blades in place lowers fertilizer needs. A mulching mower is designed to finely chop grass blades and tree leaves so they may slip between growing grass to soil surface.

Mow Tree Leaves in Fall.

Lawn health is not compromised when tree leaves that drop on the lawn in the fall are chopped finely enough to slip between grass blades to soil surface. Chop dry leaves with a sharp mower blade when some grass is still peeking through throughout the fall.

Patch Weak/Bare Spots

If there is an empty space in your lawn, weeds will more rapidly invade it. Fill bare spots using a seed mixture of perennial rye grass.



 Click above image for video content

Perennial rye grass seed bag



PERENNIAL RYEGRASS MIX 3-1-0		GRASS SEED BLEND/MIXTURE LOT NO. 13020115	
PURE SEED	VARIETY/KIND	GERMINATION	ORIGIN
19.50%	SILVER DOLLAR PERENNIAL RYEGRASS*	85%	OR
14.62%	MAJESTY II PERENNIAL RYEGRASS**	85%	OR
14.62%	UNO PERENNIAL RYEGRASS**	85%	MN
OTHER INGREDIENTS			
0.25%	OTHER CROP SEED		
50.00%	WATER SMART® PLUS FERTILIZER COATING		
1.00%	INERT FROM SEED	*PVP PROTECTED VARIETY - UNAUTHORIZED	
0.01%	WEED SEED	PROPAGATION PROHIBITED	
NOXIOUS WEED SEEDS: NONE FOUND		**PVP PENDING	
LOT NO. 13020115		PERENNIAL RYEGRASS MIX 3-1-0	
TESTED: DEC. 2012 SELL BY: SEPT. 30, 2013		GUARANTEED ANALYSIS: F643	
In FL SELL BY: JUL. 31, 2013		TOTAL NITROGEN (N) 3%	
In MT, NE, SD, AND WY, SELL BY: DEC. 31, 2013		1.2% WATER SOLUBLE NITROGEN	
In AK, AZ, CA, CO, CT, DE, ID, IL, IN, MD, MN, NC, ND, NH,		1.8% WATER INSOLUBLE NITROGEN*	
NJ, NV, NY, OH, OR, PA, UT, VA, VT, WA, WI AND DC,		AVAILABLE PHOSPHATE (P2O5) 1%	
SELL BY: MAR. 31, 2014		DERIVED FROM ISOBUTYLIDENE DIUREA	
		AND PORCINE BONE MEAL	
		*PRODUCT CONTAINS 1.8% SLOW-RELEASE	
		NITROGEN (N) FROM ISOBUTYLIDENE	
		DIUREA AND PORCINE BONE MEAL	
NET WT. 3 LB (1.36 KG)		ALSO CONTAINS NON-PLANT FOOD INGREDIENT:	
		1% CROSS-LINKED POLYMER	

Step Three | Do Less

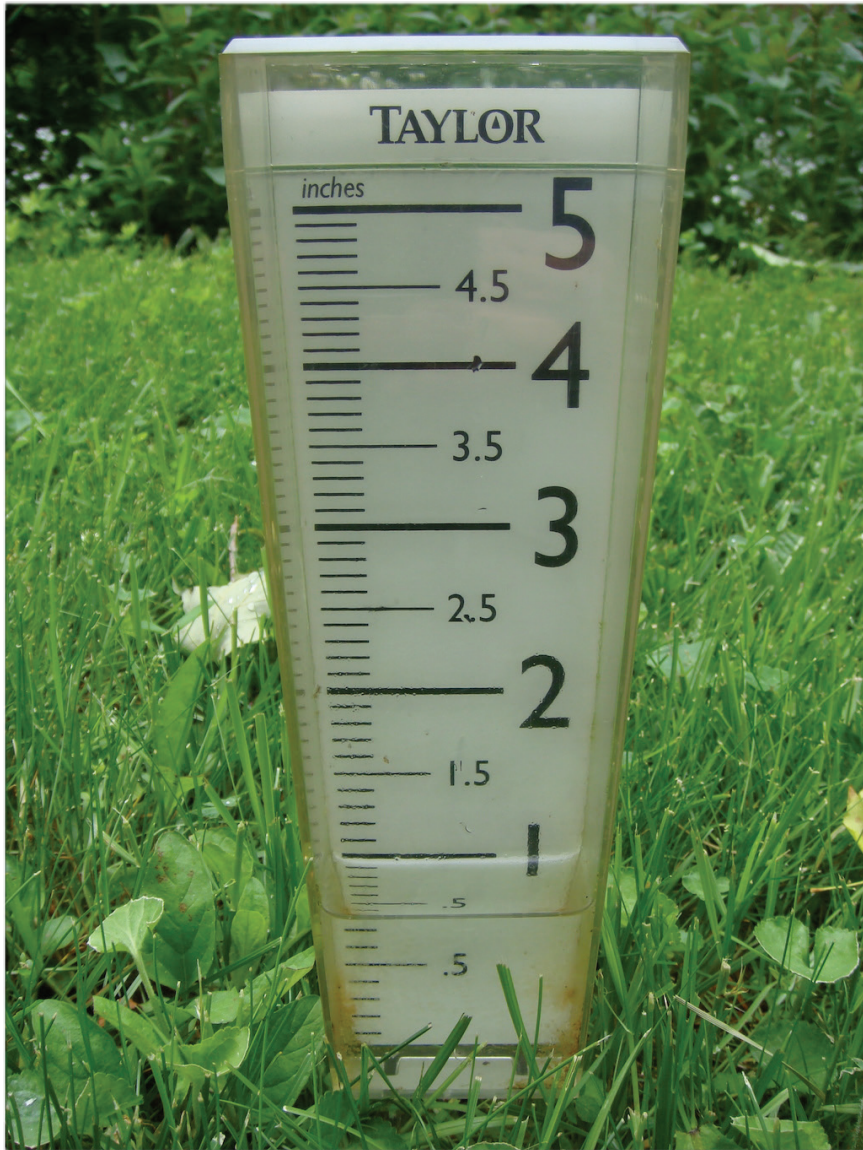
Skip Spring Feed.

If your lawn is thick with a dense cover of desirable grass that grows vigorously, do not apply spring feed (fertilizer). The lawn is getting enough nutrients released from the soil, grass clippings and a late season feeding.

Follow the Clump Rule.

Mow often enough to avoid piles of grass clippings. This might be every 5 days during the flush of top growth in spring, not at all during summer drought and every 7-14 days the rest of the growing season.





Limit Watering.

Cool-season grasses slow growth under drought conditions. They may even turn brown but are likely not dead. Drought stress is rarely lethal as most lawns will survive on a fraction of an inch of water over a 3-week period. Use a rain gauge to measure your rainfall. During active growth apply supplemental irrigation to reach no more than one inch per week at a rate where all the water is soaked up with no puddles forming or running off. Choose a sunny morning to allow leaves to dry and minimize disease conditions.

In addition, moss thrives in damp wet soils. Limit watering and fix soil compaction in the area.



Live With Some Weeds.

Check garden centers or online stores for the many hand tools that exist for pulling specific weeds. Pulling weeds is easiest when the soil is moist. Be sure to remove the entire root system as perennial weeds will regrow from the underground parts. Also a targeted spray on young small weeds with the proper herbicide can be efficient. Be certain to properly identify the weed and read the herbicide product label to determine if the active ingredient(s) listed will kill the identified weed. Your time and money will be wasted if you spray herbicide that is not effective for your specific weed issue.



Click above image for video content

Step Four | Use Alternatives

Grass is not a good choice for shade, popular paths and steep slopes.

- A minimum of 4 hours of direct sun is needed even for shade tolerant grasses such as fescues.
- For any grass to thrive concentrated foot or equipment traffic needs to be spread out. This includes varying mowing paths to distribute mower tire traffic.
- Managing mowing equipment over steep areas is a hassle and potentially dangerous, alternative cover minimizes risk.



Organic mulches (formerly living material) such as chopped leaves, straw, wood chips and shredded bark.



Inorganic mulches such as gravel and stones.



Shade-tolerant perennials, annuals, woodland natives and groundcovers such as Hosta species, impatiens, coleus, salvia, mosses, ferns, trilliums, wild ginger, lily-of-the-valley, sweet woodruff, and geranium (pictured).



Sun-loving groundcovers such as wildflowers, junipers, ivies and sedums.

For more options see: [Weed Suppressive Groundcovers](#)

Advanced Care



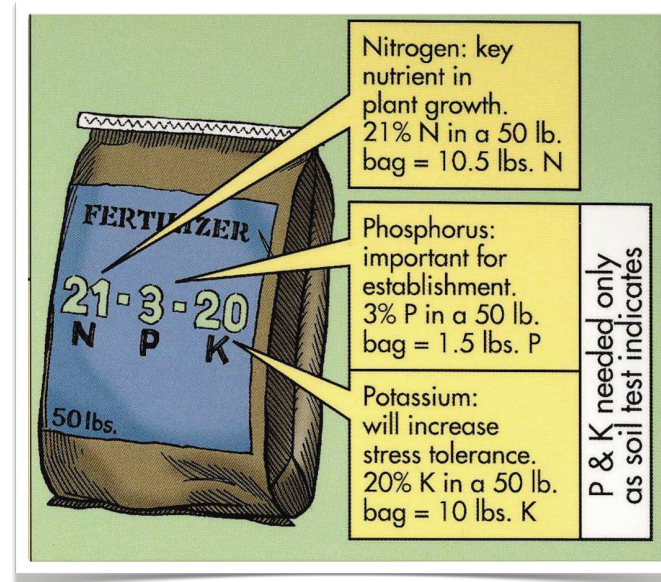
Feeding

A deep, extensive root system helps cool-season grasses build up reserves to get through the winter, green up top growth in spring, and minimize vulnerability to insects, diseases and summer drought. Nutrients released from the soil, grass clippings and late season fertilization (feeding) will promote root growth.



Fertilizer Labels

The nutrient content (fertilizer analysis) is printed on the fertilizer bag. Nitrogen (N), phosphorus (P) and potassium (K) are the nutrients required by grass in the highest quantity. Other nutrients are usually adequately available when the pH is in the proper 6.0 to 7.5 range. N levels fluctuate depending on soil conditions and biological activity so soil testing provides a good measure of the availability of P and K but not N. The soil test results are the basis for choosing a fertilizer product with the necessary P or K. Only if P is low should a fertilizer with P be used. Only if K is low should a fertilizer with K be used. If both P and K are need, a complete fertilizer with N, P and K can be used. Follow standard N recommendations.



Cornell - Almanac

Standard Nitrogen (N) Recommendations

- Never apply more than 1 pound of nitrogen (N) per 1,000 square feet (about 32 feet by 32 feet) per application.
- Return grass clippings to minimize the need for phosphorus fertilizer and reduce the need for nitrogen by 25 to 50 percent.
- Standard recommendations are for full sun lawn areas, shaded lawn areas need much less nitrogen. Also consider alternatives to lawn in shade.

Desired Lawn Quality	Number of Nitrogen Applications	Spring		Summer		Fall	
		Apr	May	June	Aug	Sept	Oct
Good	0-1					✓+	
Better	1-2		✓			✓+	
Highest	3-4		✓	✓		✓+	✓

✓+ Best application time ✓ Additional application time as needed

Good Lawns	Better Lawns	Highest Quality Lawns
 <p>Have limited traffic/use, are mowed at 3 to 3 ½ inches. with clippings left in place without clumps and do not receive supplemental water but may receive targeted pesticide spot treatment as needed.</p>	 <p>Receive more traffic/use and care along the same as detailed for good lawns.</p>	 <p>Used very often for outdoor activities and intensely manage to keep grass shorter than recommended and clippings removed. Pesticide applications are used as needed to address identified weeds, insects or diseases.</p>



Nitrogen Sources

Organic fertilizers contain carbon and are derived from living organisms. Corn gluten meal, feather meal, composted manure and bio-solids are examples of natural organic fertilizers derived from plant and animal residue. Using nitrogen (N) from organic sources is usually more expensive because by volume they have lower amounts of available nutrients. Warm (higher than 65°F), moist soil with microbial activity is needed to release nutrients. Also many compost sources are high in phosphorus and far exceed plant needs. When compost washes off site it is a threat to water quality.

Though some view white clover as a weed in the lawn, it can enhance nitrogen availability. Like other legumes it is able to take nitrogen from the air, convert it to a form plants can use and release it to surrounding soil.

Water-insoluble nitrogen (WIN) is a slow release source that is less likely to contaminate waterways. This includes the synthetic organic fertilizer coated urea (sulfur coated or polymer coated).

- On non-sandy soils use a fertilizer containing at least 30 percent slow release N.
- On sandy soils use a fertilizer containing at least 60 percent slow release N.





Soil Testing

For best test results collect a representative soil samples. Use a soil corer or a trowel to gather 10 to 20 subsamples at a consistent depth from a uniform area (for example from a problem area). Let air dry then submit the different samples to a soil testing lab to measure availability of phosphorus (P) and potassium (K) and pH levels. A simple kit will measure pH only.



Check Soil pH Before Using Lime

Lime is used to raise the pH when the pH is 6.0 or lower. Sulfur or acidifying fertilizers (like ammonium sulfate or ammonium nitrate) are used to lower pH when the pH is above 7.5. Modifying the pH is easiest before planting when material can be mix into the upper 4 to 6 inches of soil. For established lawns scatter material on top and water in. Apply only the recommended rate. If more than 50 pounds of lime per 1,000 square feet is required split the application and apply the second half in 3 to 6 months. Check soil pH before planting and every few years. Keep pH in 6.0 to 7.5 range.





New York State Runoff Law

Restricting the use of lawn fertilizer containing phosphorus (P) is aimed at reducing the amount of phosphorus that makes its way to lakes and streams through runoff.

Do not apply any fertilizer on lawns between December 1 and April 1 (Suffolk County November 1 to April 1, Nassau County November 15 and April 1). Fertilizer is most likely to run off frozen ground and water saturated soil to then contaminate waterways.

Fertilizer spilled on surfaces (roads, driveways, sidewalks) must be swept up immediately to avoid being washed into storm drains.

Do not apply any fertilizer within 20 feet of a water body. You must use a drop spreader or one with a shield.

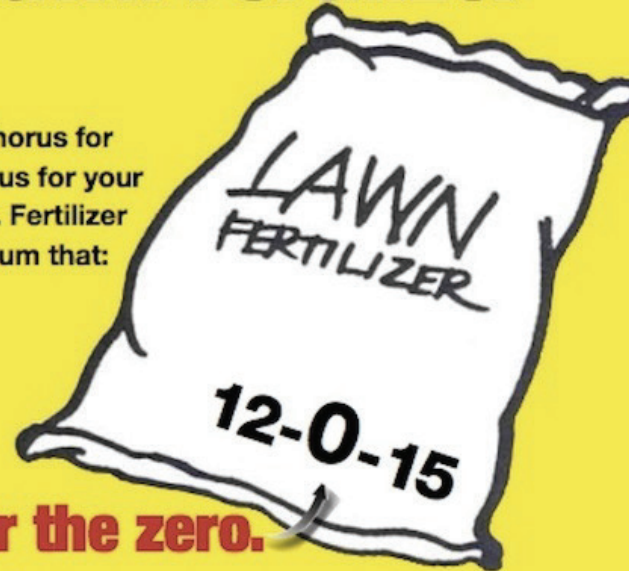
Do not fertilize if a heavy rainfall is expected within 2 days of application. Do lightly water the lawn with about a ¼ inch of water to wash the fertilizer off the grass blades and into the soil.

[Click here for New York State Runoff Law](#)

Use Phosphorus-Free Lawn Fertilizer It's the Law!

Most lawns in New York State do not need additional phosphorus for healthy growth. When you use fertilizer containing phosphorus for your lawn, the rain can wash it into streams, lakes and reservoirs. Fertilizer in water can create excess algae, plant growth and green scum that:

- Interfere with boating and swimming
- Harm fish populations
- Degrade drinking water quality



How do you know if you are using phosphorus-free fertilizer? Look for the zero.

Check the fertilizer bag for a set of three numbers; they represent the percentage of nitrogen, phosphorus and potassium. The number in the middle should be a "0."

Phosphorus runoff poses a threat to water quality. Therefore, under New York law (effective January 1, 2012), phosphorus-containing fertilizer may only be applied to lawns or non-agricultural turf when:

- A soil test indicates that additional phosphorus is needed for growth of a lawn or non-agricultural turf.
or
- The fertilizer is used for newly established lawns or non-agricultural turf during the first growing season.



Visit <http://www.dec.ny.gov> for more information.

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION

Soil Compaction

Avoid traffic on moist soils to minimize the most common factor behind soil compaction. Use a knife, trowel, or shovel to dig into areas where after it rains water puddles and drains slowly.

Compact soil structure is a massive block that lacks pore space to allow good air infiltration and drainage. With hand tools, loosen small compacted spots to a depth of 6 to 8 inches. Seed as described in the Step Two video on patching bare spots.

For larger areas use a core aerator. It pulls a plug of soil from the lawn which creates small holes and leaves soil cores on the surface. Once the cores are dry use a rake to break up and redistribute the cores across lawn. Core aeration is most effective in late summer when temperatures are starting to cool and the soil is only slightly moist.

After aeration, air and moisture can penetrate the compaction through the holes. DIY people might find a core aerator at a local equipment rental center or contract with a local landscape company for this task.



Thatch

Thatch is a normal component in a dense vigorous lawn.

It is a tightly intermingled layer of living and dead plant material that accumulates between the layer of actively growing plants and the soil underneath.

Grass clippings left after proper mowing do not contribute to excess thatch thickness. Thatch that is not too thick can increase the resilience to heavy traffic.

It is not until thatch thickness increases to nearly 1 inch that it might compromise the ability to maintain a dense canopy of grass blades and vigorous growth.

Excess thatch thickness is most common on lawns that get more fertilizer and water than needed or when soils are compacted and have a pH outside the ideal 6.0 to 7.5 range.

Follow practices in four steps to success. Core aeration might also help relieve or minimize excess thatch. It is described in the soil compaction section.



Deicing Salt & Dog Urine

Sodium chloride used for deicing may cause bare spots along sidewalks, driveways, and roads. Salts in dog urine can leave dead spots with greener grass around the edges. Even if the damage does not kill the vegetation it increases stress on plants, making them vulnerable to insects, diseases and weed competition. Salts can also prevent germination and damage seedlings. Three cool-season grasses (perennial ryegrass, fine fescues, and tall fescue) are more tolerant than Kentucky bluegrass to salt damage. Minimize salt damage by addressing soil compaction and patch bare spots.

Minimize Salt Damage

Do not plow or shovel salt-laden snow on grass

Apply only enough salt to do the job

Use calcium chloride-based deicing salts

Train dogs to go elsewhere or flush immediately

Flush salts from the soil if drainage is adequate-rain might do it or add water by hand



Disease

By the time you see a lawn disease, it is too late to do much in the short-term. The best defense against significant damage from diseases is a dense cover of vigorous growing grass blades. Promote this by following practices in four steps to success.

Practices To Minimize Disease

Use alternatives to grass in shady areas

Avoid excess nitrogen - when nitrogen is needed, focus on late season feeding

Limit leaf blade wetness by limiting watering to the morning and to achieve no more than 1 inch per week

Choose disease resistant cool-season grass

Disease Examples



Brown Patch
Summer



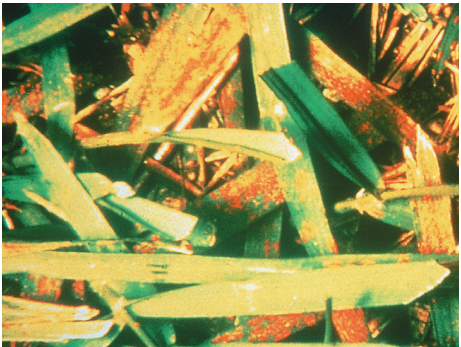
Gray Leaf Spot
Summer



Red Thread
Spring and Fall



Fairy Rings
Spring and Fall



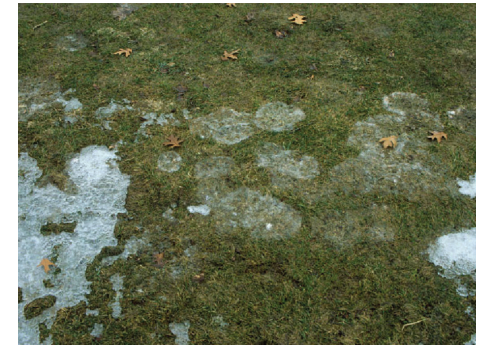
Rust
Summer



Dollar Spot
Spring, Summer and Fall



Pythium Blight
Summer



Pink Snow Mold
Late Fall to Early Spring

Insects

Most insects who cross our paths are not pests. They serve useful roles including managing populations of pest insects. Through routine observations you will become familiar with insects living around your lawn. Do not consider an insect a pest until the number of individuals reaches a number that threatens the quality of your lawn. If you then choose to treat, follow all directions on label and apply the treatment when the pest is most vulnerable. You waste time and money when a pest is not correctly identified or the product is applied at the wrong time of year.

Surface Feeders



Sod Webworms (larvae)



Hairy Cinch Bug



Bluegrass Bill Bug (larvae and adult)



Black Cutworms (larvae and adult)

Underground Feeders



Northern Masked Chafer
(larvae and adult)



European Chafer
(adult)



Oriental Beetle
(adult and grub)



Japanese Beetle
(adult and grub)



Lawn grubs feed underground on the roots of grass blades.

Animals

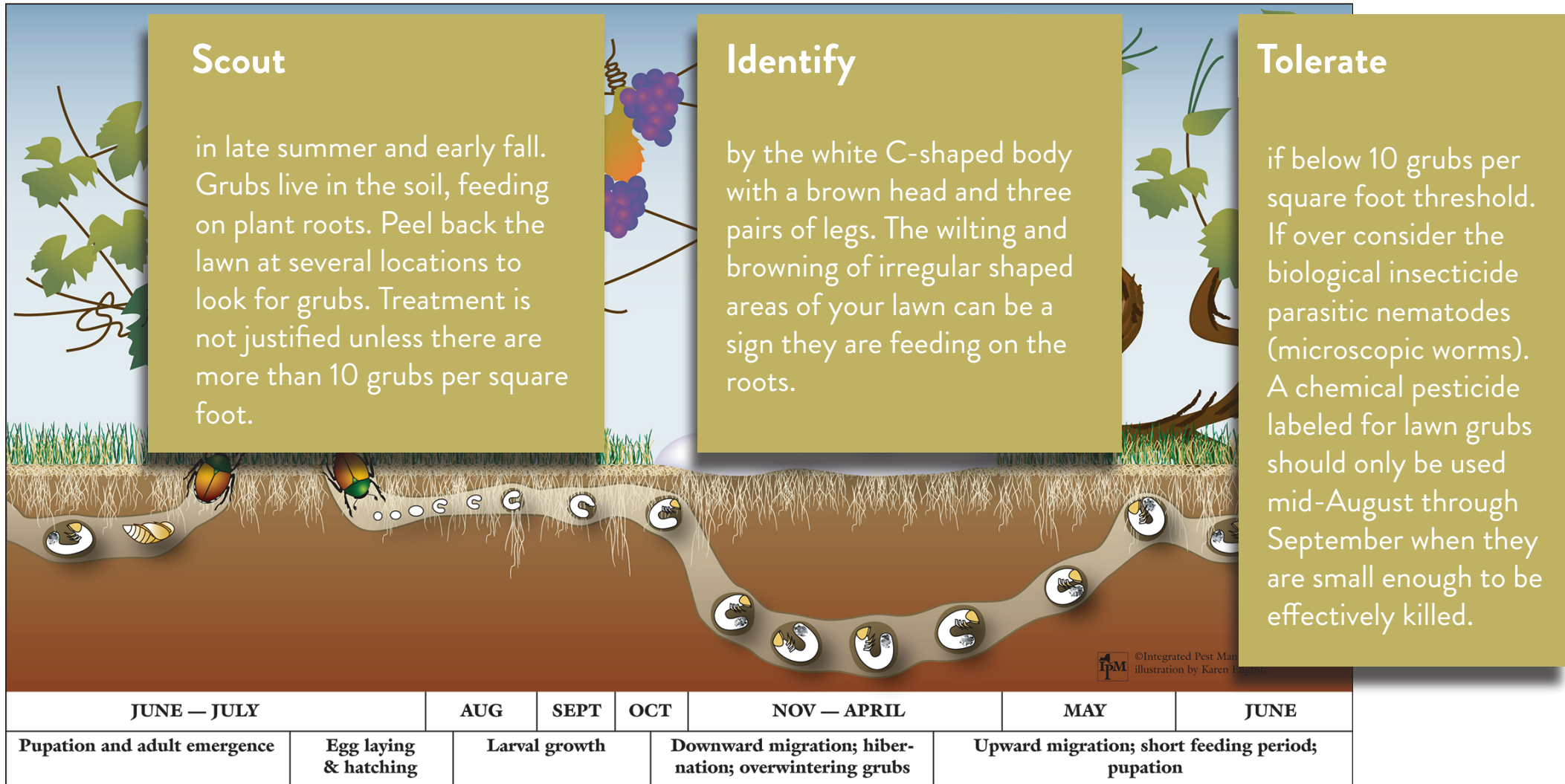
Animals like moles, skunks and crows dig in lawns to feed on grubs. Managing grubs is the best management strategy for grub feeding animals.



Erwin C. Nielsen in IDNR

Japanese Beetle: Integrated Pest Management Example

A properly mowed, watered and fertilized lawn may tolerate 10 to 15 grubs per square foot. The same number of grubs can devastate a weak lawn.



More info: [scouting video](#)

Weeds

Perennial Plants

Maintain a root system from which new top growth emerges each year. They produce seeds that are stored in the soil and sprout in following years. Broadleaf perennials often have showy flowers. Grass or grass-like perennials have narrow leaves with parallel veins.



Dandelion



Ground Ivy



Plantain



Creeping Speedwell -
Veronica



Yellow Nutsedge

Annual plants

Sprout from a seed, flower, set seed and die in one year.

They produce seeds that are stored in the soil and sprout in following years. Winter annuals sprout in the fall and winter then actively grow in spring. Summer annuals sprout in the spring and are kill by frost.



Japanese Stiltgrass



Crabgrass



Goosegrass

Starting Fresh



Wait Before You Renovate

First follow the four steps to success and evaluate advance care needs. If after 1 or 2 growing seasons your lawn is still weak with more than 50 percent weeds then you might consider the time and resource consuming process of lawn renovation.



SuSanA Secretariat via flickr

Plan Ahead

Renovate or Establish a Lawn in Late Summer

The cooler temperatures, adequate moisture and less weed competition make the middle of August through September most favorable to sprout seeds and grow grass seedlings.

Test Soil

You need to know what you have. You can determine if you have high clay or sandy [soil by feel](#). Simply squeeze a moist soil sample in your hand by rolling your thumb across a clump of soil on your fingers. If the clump feels gritty and falls apart it is sandy. If you can form a sticky ribbon that is longer than 2 inches it is a clay soil. Soil testing will provides a good measure of the availability of phosphorus (P) and potassium (K) and the pH level. Allow 1 to 2 weeks for soil test results to be return from the testing lab.

For more on soil testing contact your local [Cornell Cooperative Extension](#) or outside NY find your [Cooperative Extension System](#).

*See UC Davis video: [Soil Texture By Feel](#)



Choose Cool-Season Grass Seed

Confirm that the cool-season grass seed combination in the seed bag is the best match for your needs. Bags of grass seed are generally a mix of species claiming to target a specific situation. 100% perennial ryegrass seeds sprouts the fastest and should only be use to patch small bare spots.

For renovation or new establishment avoid mixes that have more than 20% perennial ryegrass as its seedlings can overwhelm the other species. Also avoid mixes with annual ryegrass which only survive one growing season.



Choose The Right Grass Seed

[Click above image for video content](#)

<u>Sunny, lower maintenance</u>	<u>Sunny, higher maintenance</u>	<u>Shade</u>
(at least 6- 8 hrs direct sun)	(at least 6- 8 hrs direct sun)	(4 - 8 hrs direct sun)
100% tall fescue blend or 65% Kentucky bluegrass blend 15% perennial ryegrasses 20% fine fescues	65% Kentucky bluegrass blend 15% perennial ryegrasses 20% fine fescues	100% fine fescue va- riety blend



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*Suggested Stores: [Seed Super Store](#) and [Preferred Seed Company](#) in Buffalo, NY.

Common Cool-Season Grasses

	<u>Kentucky Bluegrass</u>	<u>Perennial Ryegrass</u>	<u>Tall Fescue</u>	<u>Fine Fescue</u>
Shade Tolerance	Poor	Poor	Good	Excellent
Drought Tolerance	Poor	Poor	Some	Some
Wear Tolerance	Good	Good	Good	Poor
Estab. Days to Seedlings	Slowest 30-90	Fastest 14-21	Avg 21-30	Avg 21-50
Feeding Need	Highest	Average	Average	Lowest

Most cool-season sods are improved Kentucky bluegrass varieties because their spreading rhizomes intertwine to form a strong sod.

Endophytes are beneficial fungi that live on the grass and discourage surface feeders. There are endophytic varieties of perennial ryegrass and fine or tall fescues.

Prepare Seedbed

Kill Current Weeds and Lawn

For small areas, mow the lawn very close to the ground, secure black plastic or heavy cardboard over the area. In several weeks most of plants under the light excluding material will be dead.

For larger areas, a sod cutter will slice under the roots of the old lawn and weeds. Another mechanical alternative is to use a rear-tined tiller. Tilling will bring weed seeds to the surface where they will sprout so it will likely be necessary to till 3 to 4 times reaching the depth of 4 to 8 inches at about one week intervals. A nonselective chemical herbicide kills or injures all plants it contacts.

Use a sprayer to carefully apply product and follow the instructions on product label. It may take 5 to 7 days for the weeds and grass to look yellow. If yellowing is not evident a second application may be necessary. Do it yourself people might find a sprayer, sod cutter or tiller at a local equipment rental center or contract with a local landscape company for this task.



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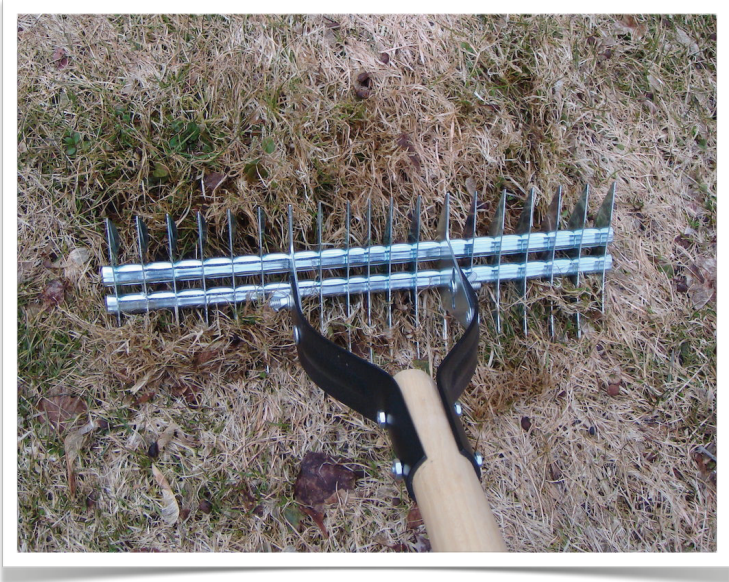
Remove Dead Plants

If a sod cutter is used to kill existing weeds and lawn, roll up sod strips and dispose of them in a municipal or home compost. For small areas a hand tool like a thatching rake will help with removal and is easy to come by at any store that sells lawn supplies. Do it yourself people might find a power versions of a thatching rake at a local equipment rental center or contract with a local landscape company for this task.



Establish Proper Grade

The ground should be made even and to slope away from your house in all directions dropping at least 2 or 3 inches every 10 feet. For minor adjustments, do it yourself people might find a small version of earth moving equipment at local equipment rental center or contract with a local landscape company for this task. Also address any soil compaction.



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Add Materials To Improve Soil

Mixing in compost materials will improve many topsoils, especially those low in organic matter content or high in clay or sandy. Many compost materials are high in phosphorus so their addition could eliminate the need for additional phosphorus from supplemental fertilizer. Add 1 pound of nitrogen fertilizer per 1,000 square feet (that is about 32 feet by 32 feet). If a soil test indicated the pH is outside the proper range (6.0 to 7.5), lime is used to raise pH and elemental sulfur is used to lower following the recommendations on soil test results. Rake or till the added materials into topsoil. Establishing at least 4 inches of topsoil is essential.



[Scott Hamlin via flickr](#)

Plant

Spread Seeds

The number of seeds to sow can range from 1 to 10 pounds per 1,000 square feet (about 32 feet by 32 feet).

Find and follow the seeding rate on seed bag label. Putting down too much seed creates too much competition between the seedlings.

Apply the seed in two different directions using a hand or push drop spreader calibrated to deliver half of the recommended seeding rate.

Rake lightly to mix the seed and soil so that the seed is covered no more than 1/16 to 1/8 inch deep. If laying sod, keep in shade so it does not dry out, and install in a staggered brick-like fashion without delay.



[Cornell- Mary Thurn](#)

Overseeding is the periodic application of lawn seed to an existing lawn to improve density. A thin home lawn may benefit from broadcasting grass seed over the top after core aeration (described in soil compaction). Always be sure there is good seed to soil contact and adequate moisture.



[robert terrell via flickr](#)



Mulch and Roll

Spread a thin layer of weed-free straw to conserve moisture and minimize seeds moving off site with soil. Be sure there is good seed to soil contact using a lawn roller that is half full of water. Do not overfill the roller as it may crush seed and contribute to soil compaction. Do it yourself people might find a lawn roller at a local equipment rental center or contract with a local landscape company for this task. For smaller areas, rolling a 5 gallon bucket on its side over the area might be effective.



Keep Moist, Feed and Mow

Water seedbed only enough to keep the surface moist. Overwatering can result in seeds moving off site with soil. Gradually reduce water after seedlings emerge to encourage deeper rooting. About 2 to 3 weeks after seeds emerge, spread 1 pound of nitrogen fertilizer per 1,000 square feet. Once the grass covers the majority of the ground, the surface should be allowed to dry. Wait until the grass reaches at least 4 inches before mowing. Follow the four steps to success from the start. Note that dull mower blades will tear young seedlings from the soil.

Closing Notes



Love A Good Lawn

With more than 2.8 million acres of home lawns in New York State, what we do with our lawns matters. By cultivating a dense vigorous lawn you create an attractive environmental asset that will:

Provide a safe and fun place for outdoor play for people and pets of all ages

Catch, filter and conserve surface water to reduces run off of contaminants

Reduce soil erosion

Cool surface temperature

Capture and store carbon

Filter air pollutants

Reduce noise pollution

Increase home selling price



Find more details in [The Benefits of Turf.](#)

Lawn Service Contracts

The key to success is communication. Talk with your existing or a potential lawn care professional to find out how their lawn care program matches up to the [four steps to success](#). Are they willing to consider adjustments to achieve your desired results? Are they responsive to ongoing discussion about results? If not, find someone willing to work with you to reach realistic outcomes that you will find pleasing in approach and appearance.



ntr23 via flickr

Useful Contacts

Your local [Cornell Cooperative Extension office](#)

[Cooperative Extension](#) in other states

[Cornell pH Test Kit](#) and [Dairy One soil testing](#)

[Cornell Insect Diagnostic Laboratory](#)

[Cornell Plant Disease Diagnostic Clinic](#)

[Cornell Turfgrass](#)

[Fore Cast: Weather for the Turf Industry](#)

[New York State Integrated Pest Management for Landscapes](#)



www.gardening.cornell.edu

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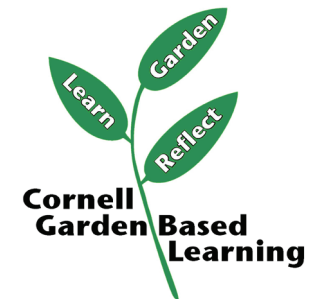
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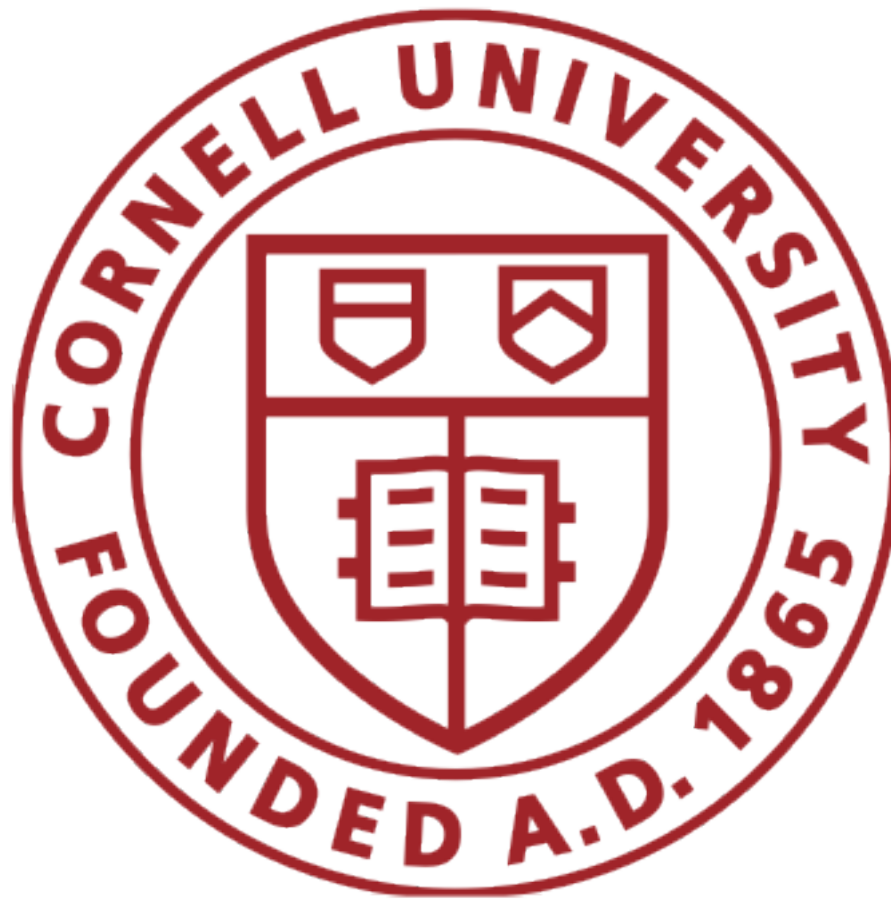
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