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BASIC LAWN CARE

The lawn is a very prominent and important part of the home landscape. Aside from its attractive looks, the lawn has many other benefits: it improves air quality around your home, it reduces noise, and it works like an air-conditioner by cooling your property in the summer. Perhaps this is why Americans spend a significant amount of time and money maintaining their lawns.

Selecting the Proper Grass

The first step to having a nice lawn with minimal or no pesticides is to select the proper species and cultivars for the site. Several grass species can be used for home lawns in New York State. Species, and even varieties, will differ in their appearance, their adaptation, and their ability to tolerate diseases and insects. Cornell University annually publishes a list of recommended turfgrass species and cultivars. Consult this list or with your county cooperative extension office, when planning any new lawn seeding. It should be noted that the best time of year to seed new lawns is August 15 - September 15.

Kentucky Bluegrass - Kentucky bluegrass is the lawn grass species best adapted to New York State conditions. The newer, improved, cultivars are very attractive and survive extremes in temperature and drought. Kentucky bluegrass is a true sod-forming grass because it spreads by underground stems. Thus, it has the ability to fill in areas of the lawn that may be damaged by pests. Most new bluegrass cultivars have good to excellent resistance to Leafspot (one of the more common diseases on bluegrass lawns). Likewise, cultivars differ in their resistance to other diseases, such as Summer Patch. Using a blend of at least three bluegrass varieties for home lawns will maximize the lawn's disease resistance.

Perennial Ryegrass - Perennial ryegrass is a common component of lawn seed mixtures. Improved cultivars are very attractive, and are compatible in mixtures with Kentucky bluegrass. Perennial ryegrass is susceptible to winter injury, so it should only be seeded in mixtures with Kentucky bluegrass in upstate New York. Like Kentucky bluegrass, perennial ryegrass cultivars vary in their tolerance to diseases. As a whole, perennial ryegrasses have excellent resistance to Summer Patch, and should be included in a seed mixture where patch diseases are a problem. Also, the ryegrass cultivars Repell, All*Star, Citation II, Dasher II, Pinnacle, Saturn, and Pennant have resistance to surface feeding insects like sod webworms and chinch bugs. Perennial ryegrass is much more vigorous in the seedling stage than Kentucky bluegrass. Therefore, it may be included in a lawn seed mixture with Kentucky bluegrass, provided that it does not exceed 20% by weight in the seed mixture.

Fine Fescues - Fine fescues are a group of grass species that includes creeping red, chewing, and hard fescue. The fine fescues are excellent low-maintenance grasses; they do well under low fertility and low moisture conditions. They are very fine textured and will produce an attractive turf cover if properly installed and maintained. Fine fescues are quite tolerant of shade. Use fine fescues alone or in mixtures with shade tolerant bluegrasses for shaded lawns. Fine fescues have a few disease problems, such as red thread and dollar spot. Select cultivars resistant to these diseases: Spartan, Waldina, Bighorn, Reliant, Scaldis, Aurora, SR3000, and Biljart. New cultivars with resistance to surface feeding insects are now available: SR3000 and Jamestown II.

Tall Fescue - Tall fescue is another good low-maintenance grass. It does well in low fertility and moisture conditions, and has few diseases. Tall fescue is much coarser textured than the other cool-season lawn grass species. However, the improved "turf-type" tall fescues are finer textured than old varieties; they will produce an attractive lawn if installed properly. Tall fescue does not survive harsh winters very well. Therefore, it is not recommended for lawns north of Westchester and Orange Counties, except in areas close to Lake Erie and Lake

Prepared by Dr. Norman W. Hummel, Turf grass Science Program, Cornell University as Lawn Care W/O Pesticides.
Revised July 2000 as Basic Lawn Care.

Ontario. Tall fescue is not compatible with other grasses. Therefore, it should be seeded only as a monostand, i.e. with no other grass species.

Fertilizing your Lawn

A properly fertilized lawn will need fewer pesticides. Soil pH and fertility, especially nitrogen and potassium, influence a lawn's ability to resist turfgrass pests. Soil testing is the first step in determining fertilizer requirements of a lawn. Soil testing information may be obtained from your Cornell Cooperative Extension Service.

The soil pH should be maintained in a range of 6.0-7.0. Plant nutrients are more available and beneficial microorganisms more active within this range. Apply lime or sulfur according to soil test recommendations to modify the pH.

Nitrogen and potassium are needed in moderate amounts for a pest resistant lawn. **Returning the clippings** after mowing can reduce these requirements by 30%. On average, Kentucky bluegrass lawns will require 2 to 3 lbs. of actual nitrogen, and 1 to 3 lbs. of potash per 1,000 sq. ft. per year, split into two or three applications. Fine fescue and tall fescue lawns will require 1 to 2 lbs. of nitrogen and 1 to 3 lbs. of potash per 1,000 sq. ft. per year.

Lawns should be fertilized two or three times each year. If fertilized twice, fertilization should be done in the spring and early fall. If fertilized three times annually, fertilization should be done in late spring, early fall, and late fall. Slow- release fertilizer sources, such as sulfur-coated urea or natural organic, will provide a more uniform release of nitrogen. This means that the lawn will be greener for a longer period of time, and top growth won't be excessive. Some natural organic fertilizer products will also suppress diseases.

Mowing your Lawn

Proper mowing will discourage weeds, and make the lawn more resistant to some pests. Proper mowing involves mowing at the correct height and frequency. Mowing height will affect the size of the root system. The shorter the mowing height, the shallower the root system will be. This will make the lawn more susceptible to drought injury, and less tolerant of root-feeding insects and root-pruning diseases. Also, lawns mowed too short allow more weed seed germination, which makes the lawn much more prone to weed invasion. Mow Kentucky bluegrass and fine fescue lawns to a height of 2 to 3 inches.

Proper mowing also means mowing at regular intervals. The rule of thumb is: Never remove more than one-third of the leaf tissue with each mowing. Scalping the lawn can shock it, making it more susceptible to stress. Lawn mower blades should be kept sharp; dull mower blades leave wounds on the grass blades that serve as a point of entry for diseases. Leafspot is especially encouraged by dull mower injury.

Watering your Lawn

Most cool season lawn grasses have the capability to survive extreme drought conditions by going into a summer dormancy. While this is an effective means to survive drought, summer dormancy may result in extensive injury from insects and diseases, and encourages weed invasion. Remember, it is a vigorous, healthy lawn that is most pest resistant.

In the early summer, lawns should be watered when signs of wilt appear. Water the lawn thoroughly with about 1 inch of water. This deep watering encourages deeper rooting. As the summer progresses, grasses begin to obtain most of their water from the soil surface. Therefore, mid-summer watering should be shallow and more frequent.

The best time to water a lawn is in the early morning. Evaporation losses are low, and the leaves dry off quickly. Although less than optimal, lawns can be watered later in the day, but should be completed early enough for the grass to dry before darkness; this will avoid disease development.

Pest Control

Integrated Pest Management (IPM) is an approach which integrates many factors into a pest management program. Proper culture, pest monitoring, sanitation (e.g. thatch control), and proper timing and selection of

pesticides are all a part of an IPM program. Following an IPM program will greatly reduce the reliance on pesticides. However, a weed or insect population may reach an unacceptable or damaging threshold where a pesticide may be justified. Then, IPM depends on the proper identification of the pest and the selection of the pesticide that will manage the pest most effectively with minimal hazard to the environment.

Weed Control The best form of weed control is prevention. Lawns that are damaged or weak are most prone to weed encroachment. Homeowners should follow cultural programs that result in a healthy, vigorous lawn that is tolerant of diseases, insects, and environmental stresses. Research has shown consistently that a balanced fertilizer program and proper mowing will help lawn grasses out-compete weeds.

Even with the best cultural program, weeds will encroach into a lawn. The only weed control alternative to herbicides is hand pulling. When pulling weeds, be sure to remove all of the root system, since many perennial weeds will regenerate new growth from underground parts.

If broadleaf weeds such as dandelion, clover, and chickweed cannot be controlled by cultural techniques, apply herbicides during September. Dry granular formulations of these herbicides are often mixed with fertilizer which makes them convenient to use. Liquid herbicides provide more rapid control of weeds, but present a potential problem if herbicide drifts away from the target area and injures other plants. A general broadleaf weed killer should have a combination of 2,4-D with mecoprop. An exception to this is the broadleaf weed called Veronica. Control this weed during late May to June when temperatures are between 75^{o}F. to 85^{o}F by applying 6 to 7 ounces of 75% wettable powder (Dacthal) per 1,000 square feet. September treatments are also effective. Treatments can be made when Veronica is in full bloom, or later. Granular Dacthal is not effective.

Crabgrass, and many other narrowleaf weeds are most effectively controlled during April on established turf with either Dacthal or Balan. Siduron (Tupersan) also controls crabgrass, and can be safely used on new spring-seeded lawns. These materials are often mixed with fertilizer and should be used before May 1 according to label directions.

Disease Control

The most important lawn diseases in New York include leafspot, patch diseases (necrotic ring spot, summer patch), red thread, rust, and snowmold. These diseases can usually be controlled through the use of resistant varieties and proper cultivation. In addition, some natural organic fertilizers and composts may suppress and sometimes prevent disease problems. Composts may contain microorganisms that are natural antagonists to pathogens. Diseases that have been suppressed by these products include red thread, dollarspot, and others. Examples of natural organic fertilizers with known disease suppression include Ringer (Judd Ringer Corporation), and Sustane (composted turkey litter).

Leafspot is most serious on Kentucky bluegrass lawns when cool, wet weather prevails, usually in the spring. If the disease progresses into the early summer, the much more damaging crown rot or "melting out" stage may develop. Avoid high rates of nitrogen fertilizer in the spring. Raise your mowing height if you notice the disease. Avoid over-watering. Consult your county cooperative extension office for cultivars of bluegrass and fine fescue that are resistant to leafspot.

Summer patch is a devastating disease that occurs during hot, dry periods. Perennial ryegrass and several bluegrass varieties are resistant to this disease and should be included in a new seed or over-seeding mixture. Summer patch is caused by a root pathogen. Therefore, any practice that encourages deeper rooting will make the lawn more tolerant to this disease, including proper pH (>6.2) and fertilization, proper mowing and irrigation.

Red thread is a disease that is common during cool, wet periods in the spring. Grasses most affected are fine fescues and perennial ryegrass. Select and introduce cultivars that have resistance to red thread. Red thread is encouraged by low nitrogen and potassium fertility, so maintaining an ample supply of these two nutrients should make your lawn more resistant to this disease.

Rust is a disease that is common on Kentucky bluegrass and perennial ryegrass in the fall. It is a disease that is encouraged by low nitrogen fertility and by drought. Fall fertilization should prevent rust from ever being a problem.

Snowmold is one of the more serious diseases in Upstate New York. The symptoms of snowmold are not

usually noticed until after the snow recedes in the spring. Snowmold is a winter disease that is enhanced by succulent growth. Proper fertilization in the fall with nitrogen and potassium should help keep the damage to a minimum. Timing of application is most important. Avoid late fall fertilizer applications until after the last mowing of the season, usually in early to mid-November.

There are other diseases that may occur on home lawns. Consult with your county cooperative extension office for management strategies on the disease you wish to control.

Insect Control

There are two basic types of insects that feed on lawn grasses: root feeders and surface feeders. Root-feeding insects include several white grub species. Surface feeders include chinch bugs and sod webworms.

As with other pests, a properly maintained lawn will be more tolerant of insects than a neglected or improperly maintained lawn. For example, a lawn that is watered and fertilized may tolerate 10 to 15 grubs per sq. ft. without any visible damage. The same number of grubs can devastate a weak, poorly maintained lawn.

Root Feeding Insects - The most common damaging insect on home lawns in New York is the white grub. There are actually five species of beetles in New York whose larvae feed on turf grasses. The most common grub types are the European chafer and the Japanese beetle.

Currently, there are two biological insecticides labeled for turf. Milky spore is a naturally occurring bacterial parasite that infects Japanese beetle grubs. It is not effective on other white grub species. Milky spore products on the market do not survive cold winters very well. They have been at best marginally effective in New York. Parasitic nematodes (microscopic worms) are also available for insect and grub control. While results with nematodes have been inconsistent, they are a viable choice for insect control on lawns. Homeowners that rely totally on biological control for white grubs may have to renovate their lawns when heavy grub infestations occur.

Chemical controls for grubs are also available. Before treating, it is strongly recommended that you monitor the lawn closely to be sure that control is really necessary. In general, if you find more than 8-10 grubs per square foot, chemical control may be appropriate. Controls include carbaryl (Sevin), isofenphos (Oftanol) and trichlorfon (Dylox, Proxol). These are best applied from August 15 through September. If you use granular formulations, water them into the lawn thoroughly immediately after applying. Consult with your county cooperative extension office for additional management strategies.

Surface Feeding Insects - Chinch bugs and sod webworms, although not as damaging or widespread as grubs, can do substantial damage to home lawns.

In recent years, plant breeders have been working on varieties of lawn grasses that have insect resistance. They have been able to do so by introducing a fungus called an endophyte into the grass plant that produces a chemical that is toxic to insects. Perennial ryegrass cultivars with insect resistance include All*Star, Repell, Citation II, Dasher II, Pennant, Pinnacle, and Saturn. Fine fescues infected with the endophyte include Jamestown II and SR3000. Unfortunately, the toxin does not move to the underground plant parts. Thus, insect resistance is limited to surface feeding insects such as sod webworms and chinch bugs.

Chemical controls for chinch bugs and sod webworms include carbaryl (Sevin), isofenphos (Oftanol), and Aspon. Water the lawn prior to treatment; granular formulations should be watered in immediately. Chinch bugs should be treated in early June and again about three weeks later. Sod webworms should be treated in the evening in July or August. Consult with your county cooperative extension office for additional information.

NOTE: Mention of any product by name does not imply endorsement.
NOTE: More detail on any of the topics addressed in this publication are available in Home Lawns: Establishment and Maintenance. This 45 pg booklet features many useful tables and diagrams. It is available, along with many other publications, at your local county extension office.

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