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Maintaining a BLUEGRASS LAWN

EXTENSION SERVICE
UNIVERSITY OF NEBRASKA COLLEGE OF AGRICULTURE AND HOME ECONOMICS
AND U. S. DEPARTMENT OF AGRICULTURE COOPERATING
E. F. FROLIK, DEAN J. L. ADAMS, DIRECTOR

Maintaining A Bluegrass Lawn

By Clark Jenson

Area Agricultural Extension Specialist
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A beautiful lawn is your outdoor carpet. The attractiveness of your home plantings of trees, shrubs and flowers depends a great deal on the lawn surrounding them. You can have a resilient lawn that will give beauty and service to your family and that will add value to your home.

Prevention eliminates problems before they occur. Maintenance practices followed in fertilizing, mowing, watering, aerifying, trimming and cleaning are important for a well-kept lawn. Done properly, they are preventive measures against diseases, insects, weeds and other environmental hazards.

The following points are offered to help you maintain your lawn.

FERTILIZATION

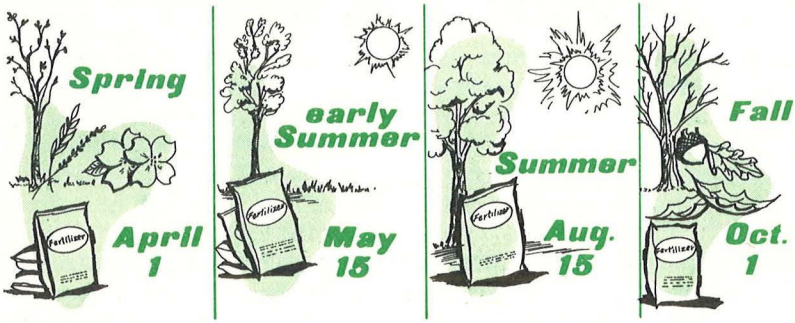
Fertilizer can make the difference between a good lawn and a poor lawn. Regular applications of a complete lawn fertilizer containing nitrogen, phosphorus and potassium are important in maintaining the lawn in its best possible condition. The amount and kind of fertilizer, as well as the time of application, is important to the appearance of your lawn.

The best method of determining your lawn's fertilizer need is by taking a soil test. Ask your County Extension Agent for a soil sample box and information on how to take the sample. Return the sample to the Extension Office for testing. The soil test report and letter of recommendation will indicate the fertilizer needs of your soil.

The principal element required in turf fertilization is nitrogen. A total annual application of four to six pounds of actual nitrogen per 1,000 square feet is required for a bluegrass lawn. Common Kentucky bluegrass will respond well with 4 to 6 pounds of nitrogen while merion bluegrass may require from 6 to 8 pounds. As a general rule of thumb, most lawns respond well with lesser amounts of phosphorus and potassium.

Ten pounds of a fertilizer containing 10 percent nitrogen or five pounds of 20 percent nitrogen fertilizer will give you one pound of actual nitrogen per 1,000 square feet.

For example, if you plan to apply fertilizer to your lawn four times during the growing season, determine the amount to apply each time from Table 1. This can be applied approximately April 1, May 15, August 15 and October 1. One to one and one-half pounds of actual nitrogen per 1,000 square feet is generally considered a safe rate of application for quickly available forms. Larger applications of a slow-release nitrogen fertilizer may be made without causing



injury to the grass. Generally, fertilizers should be watered immediately after application.

If only two fertilizer applications are to be made in one season, spring and fall are the best times. If only a single application is to be made, it will generally be most effective in the fall.

Some fertilizers are especially made for fall application. Such products normally contain larger amounts of phosphorus and potassium than nitrogen. These products are designed to temper lush late-season growth and help build winter hardiness.

Slow-release sources of nitrogen are generally listed as water insoluble. Those releasing nitrogen quickly are water soluble forms. When quickly released forms of nitrogen are applied at high rates, grass becomes very susceptable to the disease "melting out."

Table 1. Amount of fertilizer to apply per 1,000 sq. ft. of lawn.[a]

First number on analysis tag (nitrogen)	5	10	15	20	25	30
Number of pounds of this fertilizer to apply to equal 1 lb. of actual nitrogen per 1,000 sq. ft. of lawn.[b]	20	10	6.7	5	4	3.3

[a] 100 ÷ % N = Lbs. Fertilizer per 1,000 sq. ft. of lawn.
[b] For higher rates of nitrogen apply more frequently.

Slow-release forms of nitrogen tend to provide a more uniform rate of growth. Nitrogen fertilizers originating from animal or plant tissue or the ureaform fertilizers are examples of slow-release fertilizers. Other slow-release nitrogen sources include processed sewage sludge, cotton seed meal, soybean meal and other vegetable and animal by-products. Slow-releasing fertilizers tend to reduce turf burning.

Fertilizers which are more quickly released often require more careful attention during application to prevent burning of the grass. They are more readily available to plants in early spring when soil temperatures are low.

SELECTION OF FERTILIZERS

Your garden supply center will usually carry a variety of fertilizer brands. These will contain varying amounts of nutrients. Some of these products will cost more than others. They will vary in price because of a number of factors.

Nutrient Content

Fertilizers containing a high percentage of plant nutrients generally cost less per pound of actual nutrients than those containing a small percentage of nutrients. Actual amounts of any nutrient will correspond with the percentage of that element listed on the analysis tag in each 100 pounds of fertilizer. For example: 100 pounds of a fertilizer with the analysis of 20-5-10 contains 20 pounds of actual nitrogen, 5 pounds of phosphorus (as P_2O_5) and 10 pounds of potassium (as K_2O).

Ingredients

Fertilizers containing slowly available forms of nitrogen (water insoluble) cost more per pound than those containing quickly available forms (water soluble).

Most fertilizers are sold on the basis of how much and what type of primary plant nutrient elements they contain. These elements are nitrogen, phosphorus and potassium. These elements will be abbreviated on the analysis tag as N (nitrogen), P_2O_5 (phosphorus) and K_2O (potassium). By reading the fertilizer tag and comparing these figures, you can determine the content of the fertilizer you are buying.

A complete fertilizer is one that contains all of the primary elements: nitrogen, phosphorus and potassium. They may be contained in varying amounts.

Additives

Fertilizers containing iron or other trace elements, weed control chemicals, insecticides, or other pesticides cost more than plain fertilizers.

Package Size

As a rule, fertilizers in small containers demand additional expense in packaging.

Are the expensive products worth the extra price? After considering their advantages over the less expensive fertilizers, you may decide they are. A lawn fertilizer containing both slow-release as well as the more quickly available forms of nitrogen will tend to provide an even growth pattern of your lawn; an even growth pattern of the grass may tend to reduce disease incidence. The valid test is performance of the product on your lawn.

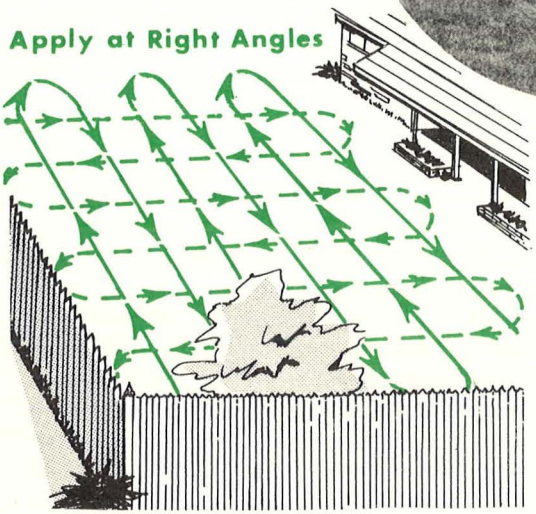
APPLICATION OF FERTILIZERS

Fertilizers may be applied with a broadcast type spreader or a cart type spreader. A good spreader that can be adjusted accurately is vitally important to the future of your lawn.

Cart type spreaders are accurate if handled properly. Read the instructions on how to use your spreader. Adjust the spreader for the particular fertilizer you are using. Check its application rate on a smooth surface before entering the lawn area. Determine the amount the wheel needs to overlap for even distribution of fertilizer. Avoid overlap or skips in application. Shut off the spreader when turning at the edge of the lawn.

With broadcast type spreaders you can apply fertilizer faster than with cart types. Broadcast spreaders drop the fertilizer onto a whirling disk which throws it out in an arc in front of the machine. This decreases the chance of burning or striping since the edges feather out.

When applying fertilizer, divide the amount into two equal parts, then apply one half in one direction and the other half at right angles to the first.



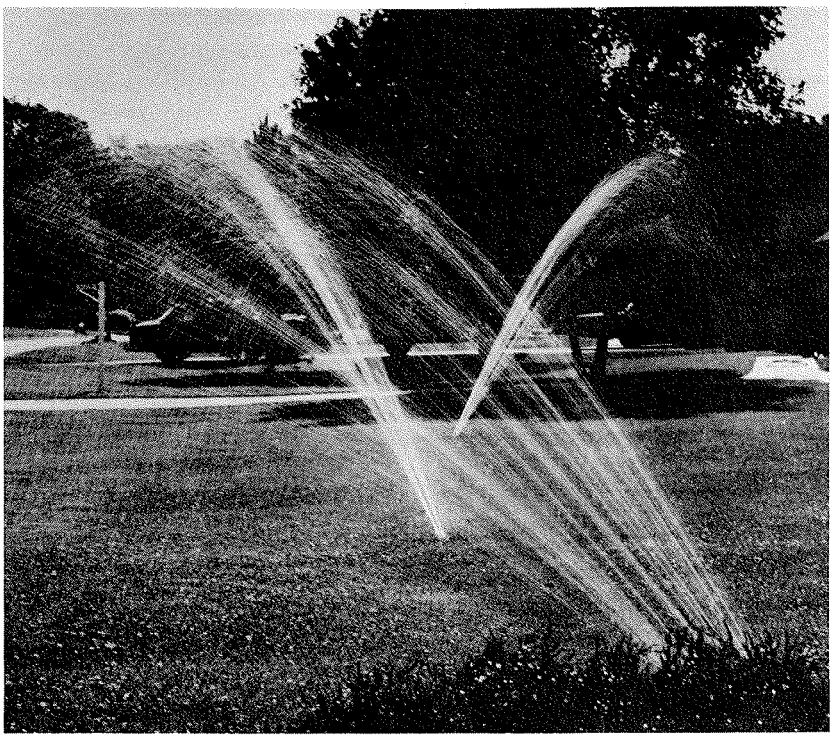


Photo courtesy Toro Manufacturing Corp., Minneapolis, Minn.

WATERING

Proper lawn watering is one of the most important operations in the maintenance program. The home gardener must visually recognize moisture needs of the grass and adjust his watering program accordingly. No single rate of watering can be employed for the entire growing season.

Water should be applied slowly so that there is no runoff. Too rapid a rate of application is damaging because it causes compaction and erosion of the soil. In general, if there is surface runoff before the soil is wet to the desired depth, the water is being applied too rapidly. The type of soil is often a determining factor of the lawn's ability to absorb moisture.

Bluegrass indicates a need for water when areas in the lawn take on a dark bluish cast. This generally occurs when the grass blades lose their flat appearance and begin to fold very slightly around the midrib. As the need for water becomes more acute, they take on a shriveled appearance and fold very conspicuously.

Drought symptoms during the hot months should be recognized quickly. Turf with a well developed root system will be better able to withstand insect and disease infestation as well as the rigors of summer heat and drought.

Spring Care

Bluegrass grows best during the cool seasons of spring and fall and should, therefore, be encouraged to develop a good, deep root system during these periods. Thorough watering promotes deep rooting which in turn results in utilization of sub-surface moisture.

When natural precipitation is light, it may be necessary to water immediately after a shower to thoroughly moisten the root zone.

Dormancy

Bluegrass naturally tends to go dormant during the hot, dry summer months of July and August. However, this natural tendency can be prevented by keeping the soil moist. If you want a green lawn during the summer, follow a good watering program.

If you do not plan to continue a watering program during the hot summer months, you may not want to start it, but allow the lawn to go dormant. During extended drought conditions, supplementary moisture may be required to prevent drying of the lawn. The dormancy concept for summer care should not be practiced on newly established lawns or lawns existing on sandy soils or on heavy, compacted clay soils.

Summer Care

A soil probe that removes a small core of soil six to eight inches or more in depth is the best method of checking moisture penetration. After one becomes thoroughly familiar with the soil in various areas of the lawn, you may find a sharpened steel rod may serve as a substitute for a soil probe to check soil moisture penetration. By pushing the rod into the soil you will feel resistance when it penetrates dryer soil.

The amount of water applied by a sprinkler and its distribution is easy to determine. For this purpose, use small cans of equal dimension, such as one-pound coffee cans. Place these throughout the area covered by the sprinkler.

For example: during the cool growing seasons, you may want to apply 1 to 1½ inches of water to your lawn weekly. When there is 1 to 1½ inches of water in the cans, it is time to move the sprinkler. If the same amount of water is found in each can, the lawn is being watered uniformly. During the heat of the summer, this amount may be reduced to ¾ inch and applied more frequently. The amount of water needed will vary depending on soil type, temperature and natural rainfall.

If you want a green lawn throughout the summer, you will usually have to provide supplemental watering. During the summer, the moisture demands of the lawn are greater than during the cool seasons. During the hot months, the lawn will require the water to be applied more frequently but in smaller amounts than during the cool seasons.

Spots which consistently show drought more quickly than the rest of the lawn area can generally be traced to one of two conditions: 1. Soil does not have enough water holding capacity, or 2. The water does not penetrate the soil under normal water procedures. For soils that do not have a rapid rate of moisture intake due to compaction, refer to the section on aerifying.

Fall Watering

Late fall watering is very important to your lawn. The soil should be moistened to a depth of one foot or more. This will help prevent soil dryness during the winter and the early spring growing season. Heavy watering of dry turf before the soil freezes in the fall is beneficial.

Mowing

Lawns are mowed to make them attractive and to produce a dense turf. Regular mowing with a sharp mower is a very important factor in maintaining an attractive lawn.

The mower you select should be capable of mowing from 1 to 3 inches in height. Some mowers cannot be adjusted to cut 3 inches high.

Bluegrass should be maintained from 1½ to 3 inches in height. Most bluegrass will perform best at 2 to 3 inches in height. Bluegrass grows best in cool weather. It is essential that a higher mowing height be maintained during the heat of summer to protect the crown and root area.

Height of mowing is measured on a solid surface (floor or sidewalk) up to the edge of the bed-knife on reel-type mowers or the cutting edge on other types of mowers.

Crabgrass and other annual grasses can be reduced by the shading effect of a higher clip. With bluegrass, it is better to mow too high than too low.

Grass should be mowed frequently during the growing season. Mow the lawn often enough so that no more than ⅓ of the total height is removed at any mowing. During spring and fall periods of rapid growth, cut the grass every 3 to 4 days. This period may be extended from 5 to 10 days or more when growth slows down during the hot days of summer and the cool days in late fall. If the grass gets too long, gradually cut it back to its normal height in several mowings rather than all at once.

Allowing the grass to get too long between mowings may result in more than an unsightly turf. Tall grass shades the lower leaves until the chlorophyll is gone, similar to plants growing in darkness. The yellow leaves are then exposed after mowing. When the tall growth is removed, the exposed lower blades are scalded by the sun.

This condition in bluegrass does not cause permanent damage but it produces a temporary setback and quite often accounts for

invasion of weeds and makes the grass more susceptible to disease and insects.

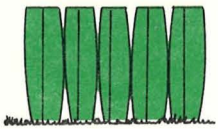
To maintain the lawn at its best appearance, remove the clippings. They may be caught in a mower bag or a lawn sweep may be used to remove them. The sweep may be pulled behind a riding mower or it may be a separate operation after mowing has been completed.

When clippings are not to be removed mow often enough so that no more than one-half inch is cut during any mowing operation.

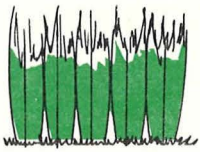
Mow only when the grass is dry. Avoid mowing in heavy dew or after a rain. Mowing wet grass spreads disease, increases mowing hazards and compacts wet soil.

A dull mower blade will crush and bruise the grass leaves and cause the tips to turn white or brown. Mowing equipment handled improperly may give a shreaded effect to the tip of the grass blade rather than a clean cut. A lawn that is mowed with a dull mower blade will be more susceptible to certain diseases, and its regrowth will be much slower compared to a clean cut.

SHARP MOWER BLADE



DULL MOWER BLADE



Rotary mowers can be kept sharp with a steel file. A few strokes with the file on each cutting edge before each mowing insures a clean cut of the grass. As a safety measure, be sure to have the mower unplugged or disconnect the spark plug wire before sharpening the blade.

Mower engine speed is quite often responsible for an improper cut. Slow speeds may cause excessive tearing of the grass blades while excessive engine speed does not compensate for a dull mower blade. Operate engine speed according to the manufacturer's recommendations.

The mowing pattern should be given careful attention. The direction of mowing should be varied frequently. Changing directions will help lift grass straight up and give a better cut. A 45-degree angle cut from the most prominent view will generally give the most desirable appearance.

TRIMMING AND EDGING

Regular trimming and edging makes the big difference between a good lawn and one that is outstanding. Beds of flowers, shrubs, evergreens and tilled areas around trees can help make the lawn appear more attractive when they are edged properly.

The soil in the beds should be cultivated frequently to give a good contrast color to the lawn. Incorporation of peat moss into the bedding soil aids in color contrast and aids in moisture conservation.

Whether the beds consist of curved or straight lines, the edge of the lawn should be distinct. This edging of well-kept beds may require frequent attention. Trimming along walls and buildings aids in improved lawn appearance.

Avoid trenching along walks. Trenches are pedestrian hazards, interfere with mowing and act as reservoirs for weed seed.

Mechanical rolling slicers and trimmers are available as hand tools or as power equipment for edging.

SHADE

Trees may be responsible for poor lawn growth in the area they shade. However, shade is seldom the major contributing factor to lawn failures. In many cases, it is the tree root system that depletes the lawn area of its moisture and plant nutrients. If this occurs, the grass will weaken and may fall victim to the tree root competition.

Some species of trees may be planted that will give the grass a better chance for survival. New home owners who have not yet planted their trees should consider this factor.

Where older trees exist, it may be necessary to trim them for a more compatible relationship with the grass. Prune carefully to retain symmetry and shape and still allow maximum light filtration to the lawn. A competent arborist may be employed to prune surface roots of certain types of trees for temporary relief.

As trees develop, their roots should be encouraged to grow deep by deep fertilizing and deep watering. Deep watering and fertilizing may give some relief to the trees as well as the turf where established trees are involved. Surface application of increased quantities of both water and fertilizer will generally provide the quickest and best results.

AERATION

Aerification is cultivating the soil under the lawn without appreciably damaging the surface. The purpose is to perforate the soil so that air, fertilizer and water can penetrate and create a more favorable condition for the grass to grow.

Aerification of the soil is done by a power driven or hand implement that pulls out portions of the soil in the form of a core approximately the size and length of a person's finger. The holes in the turf should be from 4 to 6 inches apart.

Many turf grass areas suffer from excessive traffic and are heavily compacted. Grass has difficulty growing in these compacted areas so that regular treatment may be necessary to supply conditions for proper grass development. Heavy traffic areas such as paths, play areas and cut-across areas should be aerified at least once annually.

There are a number of brands of mechanical aerators on the market. These machines can often be rented from your garden center or a rental agency. You may wish to employ the services of a reputable lawn service.

Photo courtesy Ryan Equipment Co., St. Paul, Minn.

THATCH

Grass clippings, shreaded leaves and other debris accumulate on the surface of the soil in your lawn in a thick layer called thatch. It retards the penetration of water and fertilizer and forms ideal conditions for certain disease and insect invasion.

Although you cannot eliminate thatch, you may be able to slow down its rate of accumulation. Three important steps in reducing thatch build-up are:

1. Remove grass clippings.
2. Remove tree leaves from the lawn area.
3. Aerify the lawn frequently.

Power equipment used for thatch removal must be dealt with carefully. Timing is important. Early spring or early fall are most ideal. When thatch is heavy, do not attempt to remove it all at once. Setting equipment for the removal of smaller portions of the thatch in any one operation may be advisable. Power equipment is available for removing thatch from the lawn. Thatch removal equipment can be rented from rental agencies or this service can be rendered by a reputable lawn service.

BROWN SPOTS

If you are to stop or prevent a lawn pest, you must be able to recognize its symptoms or anticipate its occurrence.

It is often assumed that any brown spot that occurs in the lawn is the result of insects or disease. Lack of water, mowing too short, high temperatures or the presence of excess soil moisture may produce symptoms which can be mistaken for insect or disease injury. Pets, fertilizer, chemical burn, buried objects and mechanical injury are just a few of the causes of sick grass or dead brown spots.

DISEASES

Certain diseases often flourish when the grass is put under stress. Drought stress often sets up a condition which allows various diseases to get started and spread rapidly.

For information on diseases, refer to the bulletin, Lawn Diseases in the Midwest, E. C. 66-1833.

INSECTS

Dead spots or low vigor areas in the lawn may be the result of an insect problem. Be familiar with the more common lawn insects and the symptoms they cause. Where severe insect problems have persisted over a period of time, a preventative program should be employed. Where insect problems occur occasionally, a corrective treatment is usually adequate. For information on turf insects, refer to the bulletin, Lawn Insect Control, E.C. 67-1599.

WEED CONTROL

Weeds are the most serious pest in the lawn. Controlling them is important in maintaining a lawn. Weeds are slow to invade a properly maintained lawn. Shade provided by a dense stand of turf is unfavorable for germination and growth of weeds. A thin stand of grass has open spaces that permits weeds to flourish and prevents the development of good turf.

Weeds rarely are a problem in a lawn that has had proper care. In general, weeds are not the cause of poor turf. Poor turf is the cause of weeds.

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