4-1-1946

The home lawn

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Recommended Citation
Ten Hints for Good Lawns

1. Make the lawn area smooth and well graded with 8 inches of fertile topsoil before seeding.

2. One week before planting rake into the seed-bed ammonium sulfate or other nitrogen fertilizer at the rate of 4 pounds per 1,000 square feet to establish a strong stand of grass quickly. At the same time apply 15 pounds of superphosphate (0-25-0), or use 15 pounds of 4-16-0 which contains the nitrogen and phosphate together. Repeat the application of nitrogen fertilizer to the young grass the latter part of May.

3. Sow a high-quality seed mixture evenly and at the recommended rate of application.

4. Seed the prepared area Sept. 1, or April 1 as second choice.

5. Adjust the lawn mower to cut the grass 1½ inches high.

6. Follow a regular fertilizing schedule every year: Apply 4 pounds ammonium sulfate, nitrate of soda or other nitrogen fertilizer April 1 and June 1; 6 to 8 pounds of a 10-6-4 or 10 to 20 pounds of 4-12-4 Sept. 1; and 1 cubic yard top-dressing of composted soil or fine black peat in November.

7. Control dandelion, plantain and other lawn weeds by spraying with one of the 2,4-D compounds.

8. The lawn area should receive at least several hours of sunlight each day. Lawn grass will starve because of the shade and roots of too many trees.

9. In the fall remove the lawn leaves and other material that may be thick enough to smother the grass during the winter.

10. Keep off the lawn as much as possible during winter and early spring.

Photo used on cover courtesy O. M. Scott & Sons Co., Marysville, Ohio.
A well-graded, fresh, green lawn is the first requirement for the home grounds planting. A fine lawn gives the family physical comfort. We often get our most satisfying relaxation on a soft, cool, well-kept lawn. Every family can have a good lawn by following the simple directions given in this bulletin.

BUILDING A NEW LAWN

You reap what you put into the lawn at the beginning. A properly made lawn will cost you less money to maintain. It is very important that thought be given to the proposed lawn area from the standpoint of soil drainage, organic matter content and fertility. Above all, start with a good soil foundation. Then select an approved grass seed mixture and do the seeding at the right time.

Surface and Subsoil Water Drainage

The surface of your lawn area should be smooth and well graded to allow surplus water to drain away. A very small degree of slope to all sides away from the house will provide surface drainage. Careful grading will do away with small basins where surplus water would collect. Water and ice standing in low spots on your lawn will cause injury.

The subsoil in your lawn should be porous enough to allow surplus water to drain to a lower level. A heavy, tight subsoil acts as a barrier to surplus water draining away. A lawn does not thrive in a wet, soggy soil. Lines of 4-inch tiles spaced 25 feet apart, 3 feet deep and with a fall of 8 inches per 100 feet, normally will take care of surplus water underneath the lawn.
Soil

Our common lawn grass thrives best on crumbly, fertile soil, high in organic matter. Good soil around homes is often covered with poor clay soil. This clay soil, which comes from the basement excavation, is usually left to avoid the cost of hauling it away. The cost of hauling the soil is less than the upkeep in the struggle to grow a lawn having a poor foundation.

You need at least 6 to 8 inches of fertile topsoil to support good lawn growth. A light sandy or gravelly subsoil close under the surface will not hold moisture. If a test shows this condition, the topsoil should be 10 to 12 inches in depth.

Before you seed the lawn some form of organic matter should be worked into the soil. Good topsoil can be improved by thoroughly working in well-rotted barnyard manure. Fresh manure should never be used. Apply rotted manure at the rate of 1 cubic yard per 1,000 square feet. Granulated peat may be used to supply organic matter where manure is not available. The peat should be uniformly fine. Spread it on the soil to a depth of 2 inches and work it in thoroughly. In case of lawn areas of large size, organic matter may be worked into the soil by growing a green manure crop such as soybeans. Soybeans sown broadcast in the spring should be plowed under in time to make a good seedbed in late summer. Let the soybeans make as great a growth as possible before plowing under if the seeding is not to be done until spring.

Time of Seeding

We can plant lawns successfully in Iowa in late summer or early spring.

Late summer seeding is preferred to spring seeding. If it cannot be done in late summer, it should be delayed until spring. Late summer sowing should be done either the latter part of August or early September. This
gives the seeding enough time to establish a reasonably heavy stand of grass able to survive the rigors of winter. Winterkilling is likely to be a serious problem when the late summer planting is made much later than recommended. Late summer planting gives the grass an advantage over the weeds because very few weed seeds germinate until spring.

Lawns to be started in the spring must be seeded as early as the ground can be worked. If planting is delayed too long in the spring, the moisture is likely to be low. In addition, weeds may gain a head start.

### Selection of Seed

Selection of the proper seed is very important. Many people have learned that grass seed bargains do not generally turn out to be true bargains. Good seed obtained from reliable sources usually is of greater value. This is true whether you purchase one kind of grass seed or seed mixtures. Weed seeds, poor germination and poor selection of grasses are common faults of cheap seed. The mixtures offered by reputable concerns for specific purposes generally can be relied upon to give good results.

### Preparation of Seedbed

Up to this point you should be sure that the lawn area is well drained, that the topsoil is well supplied with organic matter and that the proper seed selection has been made. The next important task is preparation of the seedbed. One week before sowing the grass seed, ammonium sulfate (20 percent nitrogen) or other nitrogen fertilizer should be applied. This will stimulate the grass seedlings to strong growth immediately after germination. Scatter the fertilizer uniformly over the area at the rate of 4 pounds (under average conditions) per 1,000 square feet and rake it well into the soil. At the same time apply 15 pounds of superphosphate (0-20-0) per 1,000 square
feet. The nitrogen and phosphate fertilizer can be applied to the seedbed together rather than separately. Use 15 pounds of 4-16-0 per 1,000 square feet. If the young grass does not appear to be growing well, apply more ammonium sulfate or other nitrogen fertilizer at the same rate in late May or early June.

In the final operation of preparing the seedbed, the finer the soil is pulverized and the smoother it is raked the more even will be the stand of grass. It will be disastrous to the lawn if you do not take out humps and pockets at this stage.

After thoroughly working the soil, rake to the finished grade and roll. Then rake again, taking out uneven places made by the roller. Then roll again in the opposite direction. Follow this by a final raking which should eliminate all uneven spots.

Seeding

Most home seeding is done by hand. To get an even spread sow in one direction first, then at right angles to the first sowing, and follow this by a third sowing on a diagonal. Avoid sowing on a windy day if possible.

After sowing rake lightly over the surface so that most of the seed is mixed in the upper \( \frac{1}{2} \) inch of topsoil. You will find that it is not possible to cover all of the seed by raking. Too heavy raking will bury a large part of the seed too deeply. Firming the soil with a lawn roller or a hand tamper after seeding speeds germination. Watering after sowing is often beneficial and sometimes necessary. At this time no attempt should be made to soak the ground to any great depth. Frequent light sprinklings should be made using a very fine spray until the grass is fairly well established. After germination takes place and growth is well under way, the amount of water applied should be increased. It should be increased up to the stage where the grass can utilize the thorough soaking discussed under watering.
GRASS SEED TABLE

<table>
<thead>
<tr>
<th>Conditions</th>
<th>Sow mixture at 4 lbs. per 1,000 square feet</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Good light</td>
<td>3 lbs. Kentucky bluegrass 1 lb. redtop</td>
<td>Bluegrass is the most satisfactory grass for lawns. Several years are required for bluegrass to get established. Redtop is the best companion grass to give quick cover and hold the soil. Dutch white clover is not always desirable in the lawn. Where desired ( \frac{1}{4} ) lb. may be added to the mixture.</td>
</tr>
<tr>
<td>Partly shaded by trees and shrubs</td>
<td>3 lbs. Kentucky bluegrass 2 lbs. Chewing’s fescue 1 lb. Colonial bent</td>
<td>This is a good mixture where there are soil moisture and exposure changes.</td>
</tr>
<tr>
<td>Moist, shady areas</td>
<td>3 lbs. rough stalked meadow grass 1 lb. Chewing’s fescue 1 lb. redtop</td>
<td>Rough stalked meadow grass is the best grass for shaded areas that are naturally moist or where plenty of water can be given.</td>
</tr>
<tr>
<td>Dry, shady areas and sandy soil</td>
<td>2 lbs. Chewing’s fescue 1 lb. redtop 1 lb. Kentucky bluegrass</td>
<td>Chewing's fescue is the best grass for dry, shaded areas and sandy soils.</td>
</tr>
</tbody>
</table>

CARING FOR AN ESTABLISHED LAWN

Most people seem to believe that lawn care consists only of mowing the grass when it gets too long. Practices such as fertilizing, weed control, rolling and watering also are necessary in maintaining a satisfactory lawn.

Fertilizing the Lawn

A regular fertilizing schedule every year is necessary to produce good turf. Two simple and effective schedules follow. Select the schedule that fits your condition.
FERTILIZING SCHEDULE FOR LAWNS

I. FOR THE LAWN WHERE MANURE IS NOT AVAILABLE

<table>
<thead>
<tr>
<th>Time</th>
<th>Kind of fertilizer (any of the following which may be available)</th>
<th>Amount per 1,000 square feet</th>
</tr>
</thead>
<tbody>
<tr>
<td>March or early April</td>
<td>Ammonium sulfate (20% nitrogen)</td>
<td>4 pounds</td>
</tr>
<tr>
<td></td>
<td>Sodium nitrate (18% nitrogen)</td>
<td>5 &quot;</td>
</tr>
<tr>
<td></td>
<td>Uramon (42% nitrogen)</td>
<td>2 &quot;</td>
</tr>
<tr>
<td></td>
<td>Ammonium nitrate (32% nitrogen)</td>
<td>3 &quot;</td>
</tr>
<tr>
<td>June 1</td>
<td>Nitrogen fertilizers (as above) (apply if turf is not growing well)</td>
<td>As above</td>
</tr>
<tr>
<td>September 1</td>
<td>10-6-4 or 4-12-4</td>
<td>6 to 8 pounds</td>
</tr>
<tr>
<td>November</td>
<td>Top-dressing of composted soil or fine black peat</td>
<td>1 cubic yard</td>
</tr>
</tbody>
</table>

II. FOR THE LAWN WHERE MANURE IS AVAILABLE

| Late fall or early winter | Well-rotted, pulverized manure | 2 bu. per 1,000 sq. feet |

Note: There are many commercial lawn fertilizer mixtures on the market. These will give satisfactory results when applied according to manufacturers’ directions. Fertilizers such as cottonseed meal, tankage, dried blood and shredded sheep manure also have fertilizing value for the lawn; however, these may be too expensive to use.

Commercial fertilizers should be watered in immediately after application. Use enough water to wash the fertilizer off the grass and into the soil. If there is moisture on the grass at the time the fertilizer is applied, burning may result with at least temporary damage to your lawn. After applying commercial fertilizers, regular watering should be done if needed.

Composted soil for top-dressing the lawn can be obtained by building a compost pile. Use alternate layers of soil and sod or garden refuse such as vegetable tops, leaves and weeds which have not gone to seed. This material should be thoroughly decomposed before you apply it.
Fig. 1. Seeder and fertilizer spreader. Seeds and fertilizers can be applied quickly and evenly with this machine.

Use of Lime

Poor growth of grass sometimes results from the soil being too acid. If this is true in your case, you should apply lime to correct this condition. Before using lime it is important to determine its need by a soil test. See your county extension director for instructions if you want your soil tested.

Rolling

Rolling your lawn in the spring is a good practice. The reason for rolling is to push back into place the tufts of grass that have been heaved up by freezing and thawing. It should not be considered a means of smoothing out all
irregularities on the lawn. Depressions should be filled in by top-dressing with composted soil.

You need a heavy roller for a satisfactory job. A most important point is the condition of the soil at the time of rolling. If the ground is hard and dry, rolling does little good. If the soil is too wet, rolling tends to pack the soil and do harm. The soil must be moist but not wet. No set time can be given for the rolling. The earlier in the spring the better, however, since the heaved turf is likely to dry out if it is left unrolled. We must use good judgment as to when the soil is in the proper condition, then roll immediately.

**Mowing**

When the grass is growing rapidly in the spring and early summer, it may be cut shorter than during the rest of the season. It is very important, however, for us to leave the grass rather long during hot, dry summer
weather. It is also good practice to allow grass to go into the winter with some length. Turf can be severely injured if long grass is reduced to a short length in one cutting. We should change the height of cut gradually by adjusting the height of the roller. A better lawn throughout the season may be had by cutting to 1\(\frac{1}{2}\) inches in height. This requires more frequent cutting but the improvement in the lawn is worth the additional effort. Folks consider 1\(\frac{1}{2}\) inches a high cut, but it is the minimum for a healthy lawn. Grass clippings left on our lawns help to maintain humus. We should not remove clippings except when they are long and thick enough to mat down over the grass and smother it.

Your mower should be oiled every time it is used. Keep it sharpened. The clearance between the cutting bar and the reel should be just enough to allow a thin sheet of paper to pass through. Sharpening the mower is a job for someone with the proper equipment and should not be attempted at home.

**Watering**

Late afternoon and evening is the best time for watering the lawn during the summer. During continued dry weather watering is necessary to keep bluegrass from turning brown. One or two thorough soakings a week usually will be needed during hot, dry weather. Lawn sprinklers should be used and moved to new locations as each section becomes soaked. Hand watering with a hose is not considered satisfactory. We seldom have the patience to stand in one spot long enough to apply enough water. We should never give light sprinklings at infrequent intervals. Unless we are able to carry through with regular watering during dry spells, it is better not to water at all.

**Lawn Pests**

Earthworms are a common cause of trouble in many lawns. Their workings make the lawn bumpy. Five pounds
of lead arsenate per 100 square feet either mixed with water and applied with a sprinkling can or scattered dry and washed into the soil with water will control the worms. White grubs and sod webworms also will be controlled. At the same time the poison will repel moles and tend to keep them out of the lawn. Bulletin P43, "Rodent Pests of Iowa and Their Control," available from the office of the county extension director or Iowa State College, Ames, gives additional information on rodent control.

Ants in lawns may be destroyed in several ways: (1) Punch several small holes 6 to 12 inches deep in their hills with a rod or stick; then pour 1 or 2 tablespoonfuls of carbon bisulphide down each hole. A tin funnel or one made out of heavy paper may be used to do this. Close each hole and cover the nest with heavy paper weighted down with bricks for several days. The soil should be reasonably dry and warm before treatment. (2) Sprinkle 1 percent rotenone dust on each ant hill. (3) For numerous small hills in the lawn, broadcast evenly a 50-50 mixture of paris green and brown sugar. Apply dry and use 1 pound per 500 square feet of lawn. DDT is not effective against some species of ants and should not be used.

Weed Control in Lawns

Heavy sod is good protection against weeds in lawns. The lawn practices discussed in this bulletin work together to produce a thick stand of grass. Certain weeds, however, will gain a foothold even in the best kept lawns. Lawn weed-killing sprays should be considered only an aid to the lawn practices discussed in the over-all control of weeds.

Chemicals such as iron sulfate, dilute sodium chlorate and kerosene have been used for lawn weed control. The most recent weed killer introduced is 2,4-D (2,4 dichlorophenoxyacetic acid). It is different from the old weed killers in that it is a hormone or plant growth regulating
chemical. It kills most of the broad-leaved weeds found in lawns, golf courses, parks, cemeteries, drives, fence rows, roadsides and other turf areas.

2,4-D was first introduced and used as a weed killer in 1944, during which time numerous experimental tests were run on weedy areas, including lawns. The 1945 experiments showed uniformly good results. Practically all of the most troublesome turf weeds were killed by 2,4-D. It has several advantages to us as users. Even though it kills the weeds, it does not harm the kind of grass commonly grown in our lawns. It is not poisonous to animals. It does not corrode the sprayer or other metals. No harm is done to the skin or clothing. There is no danger of fire, as there is with sodium chlorate. In view of the advantages, 2,4-D is likely to replace most of the old weed killers. A considerable number of the 2,4-D compounds will be on the market under various trade names from now on.

Weeds Killed by 2,4-D Compounds

Lawn weeds killed by 2,4-D compounds include dandelion, common plantains, buckhorn, bracted plantain, small ragweed, shoofly, ground ivy, black medic, shepherd’s purse and yellow lady’s sorrel. Knotgrass is so severely injured it usually fails to produce seed. Also, the “rosettes” or prostrate growing plants of goat’s beard, wild parsnip, sour dock, wild carrot, vervains, yarrow, goldenrod, bull thistle, burdock, catnip, wild lettuce and chicory are easily killed by 2,4-D. Such plants as chickweed or red sorrel usually have to be sprayed several times before control is complete. This is due to regrowth from seeds or shallow horizontal roots. Several sprayings can be made without injury to the grass. For the control of most lawn weeds, however, one spraying usually is enough for one season. Many of the weeds mentioned, together with poison ivy, wild grape, Virginia creeper (5 leaved ivy or woodbine), giant ragweed, stinging nettle and wild hemp found in places other than lawns, can be killed with 2,4-D sprays.
Fig. 3. A knapsack sprayer is adapted to applying 2,4-D weed killer solutions to the lawn. Note the strings used to guide the spraying across the lawn. Much overlapping is thus avoided.
We must remember that many weeds such as dandelion, goat’s beard, wild lettuce, etc., can come back into our lawns each year by means of their wind-blown seeds. Furthermore there is always the threat of plantains, chickweed, red sorrel, etc., growing in our lawns if they go to seed before being sprayed. We must not forget, too, that reseeding with impure lawn seed introduces weeds into our lawns.

How to Use 2,4-D Sprays on the Lawn

2,4-D compounds are available in the form of tablets, powder or liquid. These compounds contain different amounts of active ingredients. Therefore it is necessary to follow the manufacturer’s directions for the amount to dilute in water and how to apply it. Very dilute solutions of 2,4-D will kill weeds. Some materials are mixed with water at the rate of 1 gallon to 60 or 100 gallons of water, others use 1 or 2 tablets per quart of water, or 1 quart to 100 gallons of water, or 1 pound of the powder form to 100 gallons of water.

The operator should dissolve the material according to directions on the container. Warm (not hot) soft water is best. Dissolve the material in a small quantity of water first, then add the rest of the water. The average home lawn can be sprayed easily with a 3-gallon knapsack pressure sprayer. 2,4-D solution applied at the rate of 3 gallons per 1,000 square feet is enough to kill all of the weeds. Before starting to spray, lay out 5-foot strips across the lawn by means of cord and pegs. This will prevent overlapping some areas with spray and missing others. It is easy to apply the spray evenly by this method. Where weeds are not spread uniformly over the lawn, spot spraying may be all that is necessary.

When to Apply 2,4-D Compounds

The 2,4-D compounds can be applied any time from late spring to as late as Nov. 1. The weeds should be in active
Fig. 4. Dandelion plant sprayed with 2,4-D Sept. 4. Picture, taken 2 days later, shows how the flower stems had curled. The leaves turned purplish brown later and finally both tops and roots were killed.

growing condition when application is made. Therefore, in the spring it is well to wait until the weeds have developed some good sized leaves before spraying. Do not apply the materials when temperatures are less than 60°F. Temperatures between 70° and 80°F. are regarded as ideal. Temperatures of 90°F. or over should be avoided because there is some danger of damaging the grass. It is desirable that rain does not follow the application for a period of 4 to 5 hours.
What to Expect Following Spraying With 2,4-D

Within 24 to 48 hours, weeds show a greatly speeded up growth. This is followed by curving and curling of the leaf and flower stems. Dandelion leaves turn a purplish brown and begin to wilt in from 7 to 10 days. In 10 to 14 days they are dead. Even the roots decompose. How fast killing takes place is largely governed by the temperature at the time of spraying and following the application. In general, the killing of weeds is most rapid when they are in a succulent growing condition.

Spraying experiments on large grass plots were conducted in 1945 at Iowa State College. The results were very convincing in showing the ability of 2,4-D to kill weeds in general. The bluegrass thickened up and turned dark green in color in the plots where the weeds were killed. The weeds no longer competed with the grass for the available moisture and fertility. It is believed this is the reason for the improved turf.

Effect of 2,4-D Compounds on White Dutch Clover

White Dutch clover is severely injured by 2,4-D sprays. This will come as good news to golf enthusiasts and those who regard white Dutch clover as a weed in lawns. To many people, however, this injury to white Dutch clover is unfortunate. The plants usually are not completely killed but are very severely injured. If lawn spraying is done early, enough recovery occurs so that the plants produce seeds. If spraying is done late in the season, usually enough clover heads have matured so that reseeding occurs. Thus white Dutch clover can be kept easily in our lawns by spraying either early or late. If desired, clover seed can be sown very early in the season (March) to keep up the stand. On the other hand, if we want to kill out the clover, several sprayings are needed during the season. We must remember that seedlings will continue to arise from seeds already in the soil.
Fig. 5. Area in foreground sprayed with 2,4-D Aug. 8. Picture taken 32 days later shows all dandelion and plantain killed. Compare this area with weedy area in background which was not sprayed.

Precautions to Observe With 2,4-D Sprays

1. There is likely to be difficulty in dissolving 2,4-D materials in hard water. In this case, the materials should be dissolved in soft (cistern) water. In communities where the water is softened at the water plant, there is likely to be no difficulty.

2. Avoid "drift" of spray to valuable shrubs, trees, ornamentals, vines or vegetables. Severe injury to many
desirable plants has been observed because small amounts of the spray were allowed to "drift" to them. *Spray on a quiet day.* In areas next to other desirable plants we should keep the sprayer nozzle close to the ground and turned away from desirable plants. Spray with low pressures. High pressures put out spray in a "fog" which is not desirable.

3. Valuable flowers, vegetables and shrubs have been severely injured because of failure to wash out sprayers thoroughly after using 2,4-D. If weed-killing chemicals of the 2,4-D type are used in the same sprayer used for spraying plants for disease and insect control, be sure the sprayer has been thoroughly cleaned. Wash the sprayer out with warm, soapy water and rinse several times in clear water. Then flush the sprayer (including pump, hose and nozzle) thoroughly with warm, soapy water and several rinsings of clear water. There is some evidence that several flushings with kerosene or with trisodium phosphate (1 pound to 25 gallons of water) or baking soda (1 pound per 25 gallons of water) will clean sprayers of 2,4-D so that the sprayer may be used to apply spray materials to desirable plants. In order to avoid the need of thorough cleansing, one sprayer could be owned cooperatively in the neighborhood, to be used only for 2,4-D solutions.
## RENEWING THE OLD LAWN

The three following general groups represent types of poor lawns and the method probably best suited for reworking each.

<table>
<thead>
<tr>
<th>CONDITION</th>
<th>HOW TO HANDLE</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>GROUP 1</strong></td>
<td></td>
</tr>
<tr>
<td>Soil fair to good Grass thin Few weeds</td>
<td>Save the grass in a lawn of this type rather than turn it under and reseed. Top-dress with a light covering of pulverized, composted soil. Reseed with 2 lbs. of bluegrass seed per 1,000 sq. ft. Follow the fertilizing program every year as given in the Fertilizing Schedule.</td>
</tr>
<tr>
<td><strong>GROUP 2</strong></td>
<td></td>
</tr>
<tr>
<td>Soil fair to good Poor or spotty turf Weedy</td>
<td>Apply manure or peat. Spade under, plow or disk. Follow suggestions under Preparation of Seedbed and use the grass mixture suited to the location as given in the Grass Seed Table. Late summer is the preferred time to do this with early spring second choice.</td>
</tr>
<tr>
<td><strong>GROUP 3</strong></td>
<td></td>
</tr>
<tr>
<td>Soil poor Little grass Weedy</td>
<td>Numerous home lawns fall into this group because the grass is struggling on poor soil. Improper grading when the house was built may have distributed too much poor soil close to the surface. The remedy is to turn under a thick coating of manure. Then bring in 4 or more inches of rich topsoil. Proceed with the seeding as outlined on page 650.</td>
</tr>
</tbody>
</table>