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LAWN CARE

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# 4-H LAWN CARE



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U.S. DEPARTMENT OF AGRICULTURE

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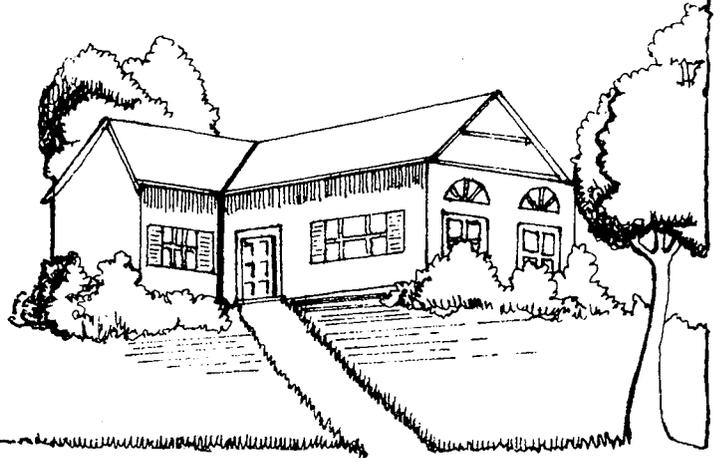
Prepared by Klara Peterson, 4-H youth specialist, Kathryn L. Palmquist, assistant extension specialist, and Katherine Koch-Lavene, assistant extension specialist.

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# PART 1 LAWN CARE

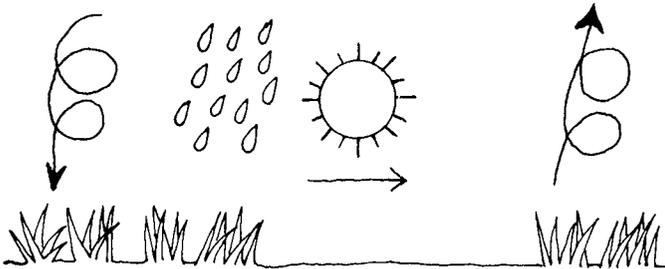
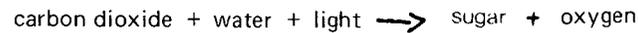


## The Advantages of a Lawn

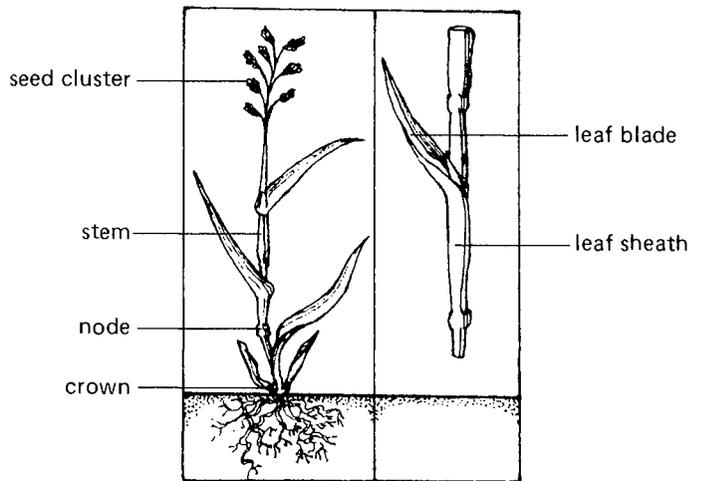
Having a healthy, attractive lawn has become an American tradition. A carpet of green around the house offers a relief from the hard pavement of sidewalks, roads, and highways. The lawn also provides other benefits to the home owner:

1. Oxygen is given off by the grass plants during their food making process called photosynthesis. The oxygen that is released by the grass plants is then used by people, animals, and plants for their life processes.

The process of photosynthesis:



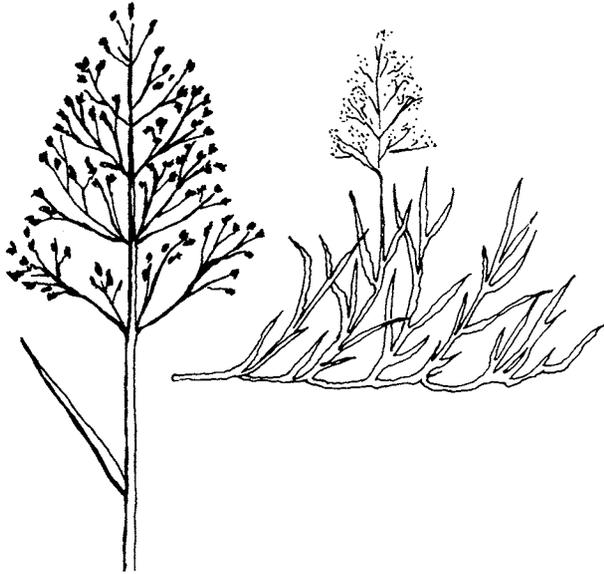
2. A thick, healthy lawn and other plants and shrubs in the yard absorb and reduce noise and dust.
3. A lawn can serve as an outdoor air conditioner. Water evaporating from the grass can keep the lawn up to 20 degrees cooler than paved areas.
4. A lawn helps prevent soil erosion by protecting the soil surface and absorbing large amounts of water from melting snow and rain.
5. A beautiful lawn increases the value of the property and is a source of pride to the home owner.



A grass plant is shown above. The stem grows from the base, or crown, and ends in a seed cluster. Joints, or nodes divide the stem. Grass leaves have two parts, a sheath that encircles the stem and a flat leaf blade.

## Lawn Grasses for Minnesota

There are many varieties of grasses grown in the United States, but only four of these are adapted to Minnesota climate: the colonial and creeping bentgrass, ryegrass, red fescue, and Kentucky bluegrass. Only three of these, Kentucky bluegrass, red fescue (*Creeping Fescue*), and some perennial ryegrasses are recommended for home lawns.



### Bentgrasses

Bentgrasses can be cut very low and are used mostly on golf course putting greens. Bentgrasses require constant care and are not usually recommended for home lawns.



### Perennial Ryegrasses

Perennial ryegrass types are used in many commercial lawn seed mixtures. Perennial ryegrass lives four or five years. Ryegrass is included in lawn seed mixtures because it germinates quickly. A small amount of ryegrass in the seed mixture may help prevent soil erosion on slopes while the slow growing permanent grasses (Kentucky bluegrass) become established.



### Red Fescue

Red fescue is a fine-leaved, shade and drought tolerant grass. Red fescue is usually included in seed mixtures with Kentucky bluegrass since red fescue is shade tolerant while Kentucky bluegrass usually thrives in sunny locations. When a mixture of red fescue and Kentucky bluegrass is seeded, it forms a fine textured sturdy lawn. When buying seed mixtures (especially for shady areas) look for the following improved varieties:

*Rainier, Illahee, Ruby or Pennlawn.*



### Kentucky Bluegrass

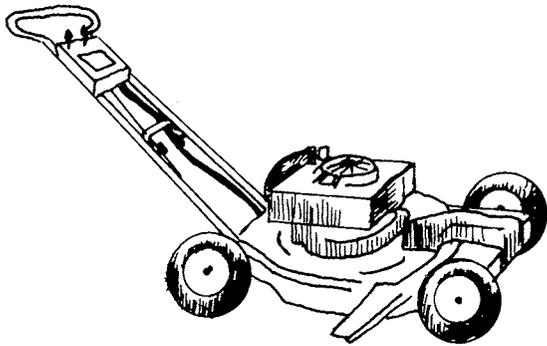
Common Kentucky bluegrass types, such as *Park* and *Newport* should be mowed to a height of 1½ - 2 inches. *Park* greens up a little earlier in the spring than other varieties. *Newport* does well in hot summer weather. *Nugget* is more shade tolerant than other Kentucky bluegrasses and may be used in mixtures. Blends of several bluegrass varieties usually perform better than a single variety.

Common Kentucky bluegrass types are desirable because they will not die out if not watered in midsummer. They will go dormant (only the leaves dry up) but will revive as soon as water is available.

Elite types of Kentucky bluegrass, such as *Merion*, need more care and are usually adapted to sunny situations only. The variety *Glade* has shade tolerance. They require more fertilizer than common types and must be watered regularly.

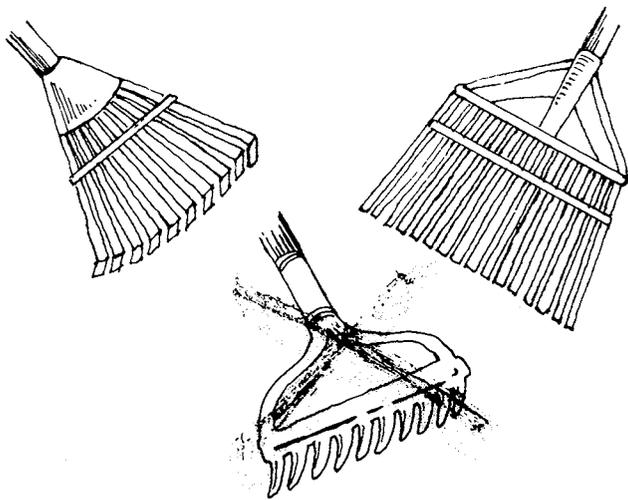
## Tools and Equipment

Using the proper tool for the job will make lawn work easier. You do not need to buy all the tools, but you will need some basic ones to get started. Buy the best quality you can afford.



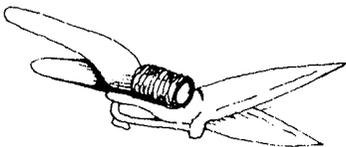
### Mower

Select a good quality mower with the necessary safety features.



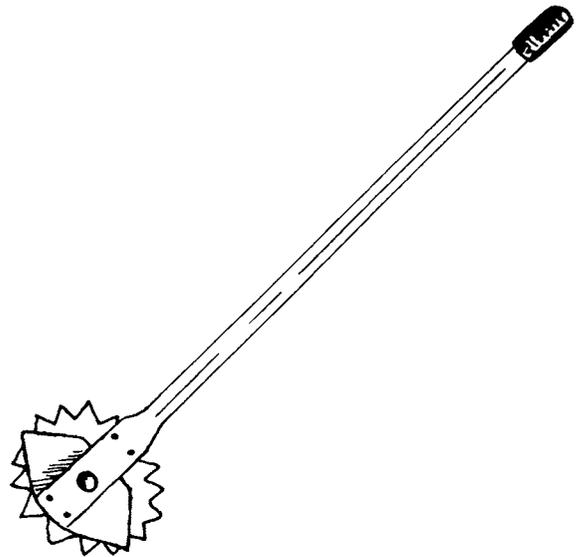
### Lawn Rake

Always use a lawn rake. An iron garden rake can severely damage grass plants. You can use a broom, wooden, bamboo, or wire lawn rake for cleaning up debris or raking leaves.



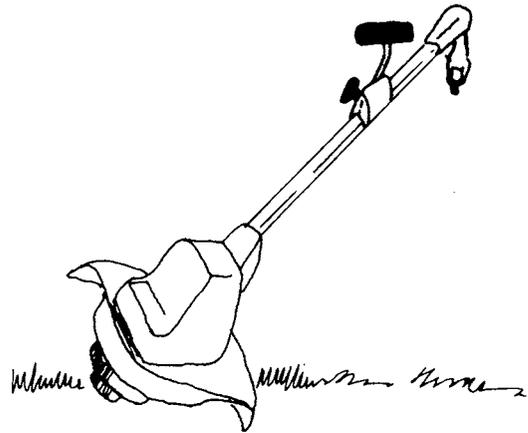
### Grass Clippers

Use grass clippers to cut around areas where the mower cannot reach. Make sure they are always sharp.



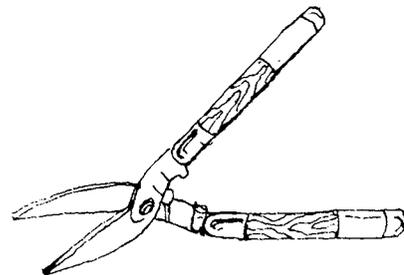
### Lawn Edger

Use a lawn edger to maintain an even line along sidewalks and flower beds.



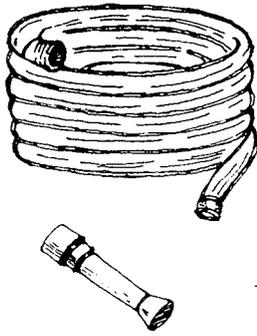
### Trimmer/Weeder

An electric or motorized trimmer/weeder trims grass and weeds quickly and easily.



### Hedge Clippers

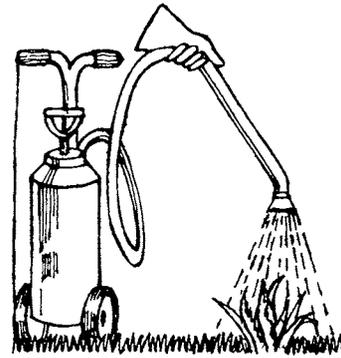
Always use hedge clippers to trim and shape hedges and shrubs. Keep the clippers sharp.



### Hose and Nozzle

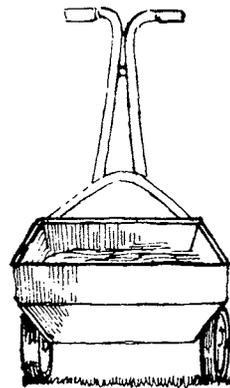
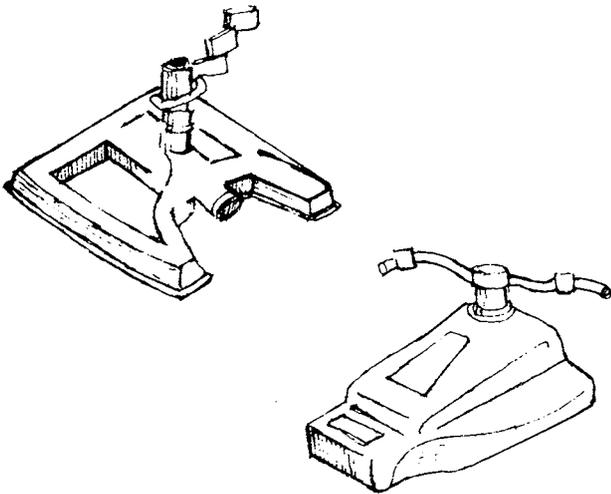
Select a good quality reinforced hose that will withstand pressure and low temperatures. Be sure the hose length and diameter will suit your needs.

This type of nozzle is best. It can withstand heavy use.



### Sprayers

Pesticides may be applied to the lawn with a sprayer. Sprayers must be made of non-corrosive materials. Clean the sprayer after each use. Use a separate sprayer for applying weed killers because chemicals in weed killers do not wash away. Small amounts that remain in the sprayer could injure plants. Pesticides are dangerous and should only be applied under adult supervision. Contact your county extension agent for diagnosis and proper treatment of any lawn problem.



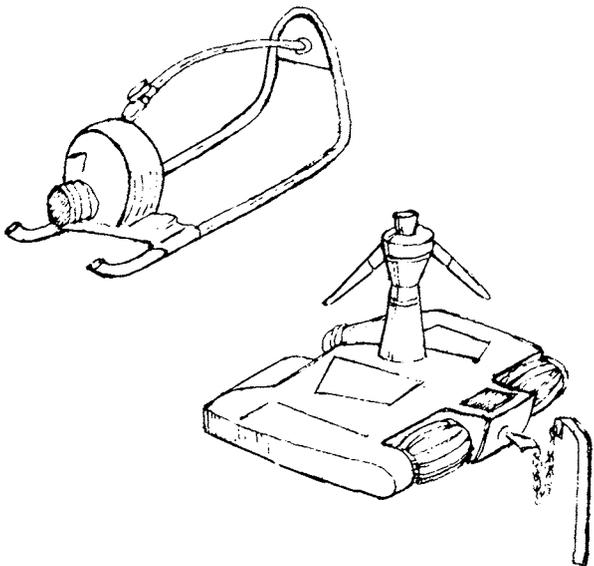
Trough spreader



Broadcast spreader

### Spreaders

There are two types of spreaders, the trough and the broadcast. The spreader should have on/off controls and should be made of non-corrosive materials.



### Sprinklers

There are many types of sprinklers from which to choose, such as oscillating, pulsating, rotary, and traveling.

### Establishing a Lawn

There may be a time when you will need information on starting a new lawn. You do not have to be an expert to start a good lawn, but you have to follow some sound rules. Whether seeding or sodding a new lawn, you must consider both the topsoil and the subsoil. The topsoil is the area where the grass roots grow and it should be a minimum of 4 inches deep (preferably a depth of 6-8 inches). The subsoil is the area below the grass roots and must be loose and provide good drainage.

A soil test may be advisable. It will give you information about pH (soil acidity or alkalinity), organic matter, phosphorus, and potassium. Contact your county extension office for soil testing information. Plowing or spading followed by disking and hand raking are the best methods of preparing the soil for planting. The two methods of establishing a lawn are seeding and sodding.

## Seeding

The best time to seed in Minnesota is between August 15 and September 10. That is the time grasses seed in nature. Most annual weeds do not germinate after August 15 and therefore will not compete with the young grass plants. Grass seeded in fall is established before winter and can be growing in the spring before weeds start to germinate. Seeding may also be done in early spring as soon as the ground can be worked. It takes six to twelve weeks to establish a healthy lawn from seed.

## Purchasing Seed

For most sunny lawns a mixture of 60-80 percent Kentucky bluegrass and 20-40 percent creeping red fescue is suitable. For shady lawns a mixture of 60 percent creeping red fescue and 40 percent Kentucky bluegrass is best. Many inexpensive seed mixtures contain too much common ryegrass seed. Check the label for the percentages of these grass varieties when purchasing seed. Purchase a seed mixture that does not contain any more than 5-10 percent ryegrass.

## Sodding

Sodding is more expensive but can save time and results in an "instant" lawn. However, a sodded lawn requires the same soil preparation as a seeded lawn. If the sod has been grown on peat soil, it is best if peat is raked into the topsoil to allow for better root growth. Sodding should be done in spring, and is not recommended during very hot weather, or after October 1. Newly laid sod will be firmly rooted into the soil in 2-3 weeks if watered regularly. It can then be used as any established lawn.

## Spring Clean-up

The lawn should be raked before the first mowing in the spring. Chemicals to control annual grassy weeds such as crabgrass should be applied before the weeds appear in the spring. Weed killers are dangerous chemicals and should be applied under adult supervision. Contact your county agent for more information.

## Fertilizing

Lawns should be fertilized at the time of the first mowing in the spring. Fertilizing during the hot mid-summer is not recommended. Fertilizing during hot weather encourages too rapid top growth and increases susceptibility to diseases. A second application should be made in early fall somewhere between the middle of August and September 10. Fertilizing in early fall strengthens the root system and helps the grass plants survive the winter in good condition.

## What's in a Bag of Fertilizer?

Fertilizers are usually sold as dry, granular material in bags. The main ingredients in a bag of fertilizer are nitrogen, phosphorus and potassium (N-P-K). Before applying any fertilizer, make sure you test your soil. Contact your county extension office for soil testing information.

Seed mixture for shade



Seed mixture for sun

**Nitrogen (N)** is the element most needed by plants. Nitrogen is used in the process of producing food in the grass plant. This food supports lush green growth as well as a strong, healthy root system. A combination of both rapid release and slow release nitrogen sources are found in most fertilizers. Rapid release nitrogen is available to the plants immediately after application. Slow release nitrogen is available to the plants over a longer period of time and it is less likely to injure the plants.

**Phosphorus (P)** is needed for energy and good root development. It is needed in smaller quantities than nitrogen. Most Minnesota soils have adequate supplies of phosphorus so only small additional amounts may be needed.

**Potassium (K)** aids in disease resistance, winter survival and root development of the grass plants. That is why it is important to apply potassium to the lawn in early fall.

## Amount of Fertilizer Needed

The N, P and K are indicated on the bag label as percentages of the total weight by numbers such as 20-10-10, 20-5-10, 10-10-10 and many other combinations. For example: a 30-pound bag of 20-5-10 fertilizer contains 20% nitrogen, 5% phosphorus, and 10% potassium. The nitrogen, phosphorus and potassium amount to 35% of the contents of the bag. The remaining 65% is filler material that helps spread the fertilizer.

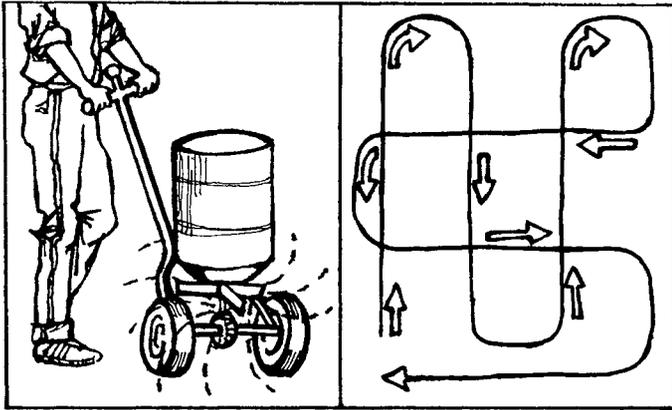
## A Sample Calculation

### FIRST STEP

To calculate the pounds of nitrogen, phosphorus and potassium in a 30-pound bag of 20-5-10 mixture:

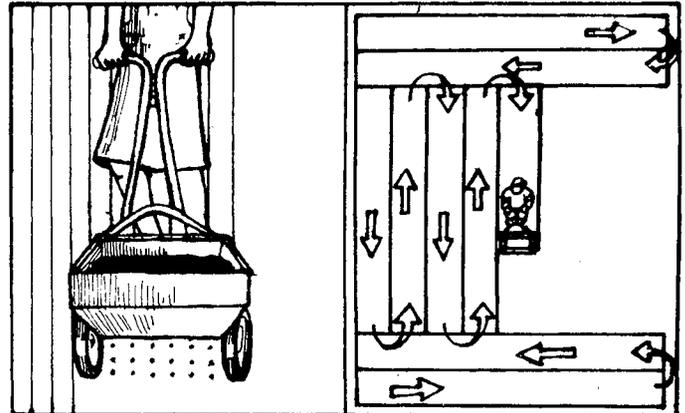
	percentage	x	weight of bag	=	number of pounds of nutrients
20% N in a 30-lb. bag =	0.20	x	30 lbs.	=	6 lbs. of nitrogen
5% P in a 30-lb. bag =	0.05	x	30 lbs.	=	1.5 lbs. of phosphorus
10% K in a 30-lb. bag =	0.10	x	30 lbs.	=	3 lbs. of potassium

The average lawn requires about four pounds of actual nitrogen per 1,000 square feet per year. Actual nitrogen is the exact number of pounds of nitrogen in the bag. One pound of actual nitrogen is applied per 1,000 square feet at each application.



Broadcast fertilizer spreader

Application pattern



Trough fertilizer spreader

Application pattern

## SECOND STEP

This is how to calculate the amount of fertilizer needed for one application:

For example, if the lot is 120 feet long by 40 feet wide and the house is 40 feet long by 20 feet wide.

$$120' \times 40' = 4800 \text{ square feet total area of lot}$$

$$40' \times 20' = 800 \text{ square feet total house area}$$

Therefore, the area of the lawn equals:

$$4800 \text{ square feet} - 800 \text{ square feet} = 4000 \text{ square feet}$$

$$\text{Total lot area} - \text{Total house area} = \text{Total lawn area}$$

Calculate the number of pounds of nitrogen needed to cover 4,000 square feet of lawn. You want to apply one pound per 1,000 square feet. To figure the number of pounds of nitrogen needed to cover 4,000 square feet, divide the total lawn area by 1,000 square feet.

$$\frac{4000 \text{ square feet total lawn area}}{1000 \text{ square feet per lb. Nitrogen}} = 4 \text{ pounds}$$

## THIRD STEP

Calculate the size of bag needed to provide 4 pounds of actual nitrogen:

For example, to calculate the pounds of nitrogen in a 20-pound bag of 20-5-10 mixture:

$$20\% \text{ N in a 20 lb. bag} = 0.20 \times 20 \text{ lbs.} = 4 \text{ lbs. of N per 20 lb. bag}$$

$$\text{percentage} \times \text{weight of bag}$$

If only a 10-5-10 mixture is available, you must buy 40 pounds of fertilizer to provide 4 pounds of actual nitrogen because 10% N in a 20-pound bag =

$$.10 \times 20 \text{ lbs.} = \text{only 2 lbs. of nitrogen}$$

$$\text{percent} \times \text{weight of bag}$$

But you will need 4 pounds of actual nitrogen to cover a 4,000 square foot lawn.

$$4 \text{ lbs needed} \div 2 \text{ lbs. in a bag} = 2 \text{ bags @ 20 lbs. per bag.}$$

So, you will need to buy two 20-pound bags of 10-5-10 mixture if a 20-5-10 mixture is not available.

## How to Apply Fertilizer

The best way to apply fertilizer is with a spreader. There are two types of applicators you can use — the broadcast type and the trough type. The broadcast type spreader applies fertilizer quicker and better than the trough type. With the trough type spreader, there is a greater chance of uneven fertilizer application.

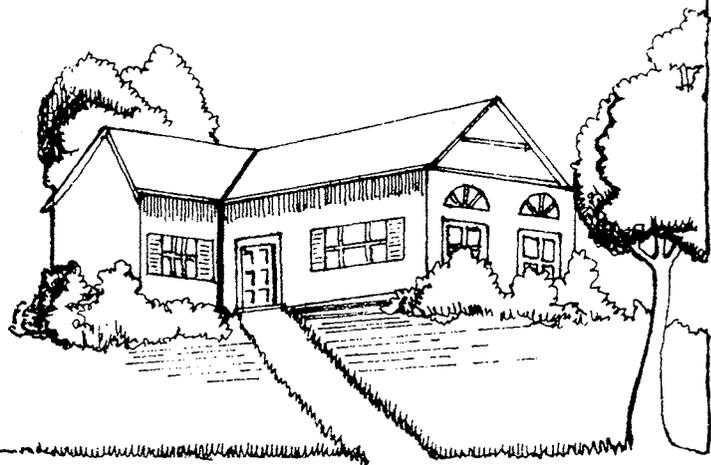
A broadcast or spinning type of spreader applies fertilizer by dropping it through a single hole onto a spinning disk. This disk sprays the fertilizer ahead and to the side of the machine in a wide arc. To use a broadcast spreader, go back and forth across the lawn in widely spaced rows. Then apply more fertilizer across the first rows in a criss-cross pattern, as shown.

A trough spreader applies fertilizer through a row of holes at the bottom. The amount is regulated by a cover. To apply the fertilizer evenly, first lay down two rows at opposite ends of the lawn to be covered. Then go back and forth between these rows as illustrated. Shut off the spreader when you make your turns.

## Additional Precautions

1. Always water the lawn immediately after fertilizing to prevent burning.
2. Use correct amounts of fertilizer. Do not over-fertilize. Too much fertilizer around the roots will draw water out of the plants and cause "burning" (the grass dries up). Never apply more than 1 pound of nitrogen per 1,000 square feet at any one time. Elite Kentucky bluegrass requires more frequent application of nitrogen at a rate of 1 pound per 1,000 square feet.
3. Never apply fertilizer to wet grass; it will cause burning.
4. Follow the above diagrams for fertilizer application. Shut off the spreader while turning corners to prevent over-fertilizing.
5. Always be careful when fertilizing lawns near lakes and streams. Make sure no fertilizer washes into the water. Excess nutrients in the water will cause algae and weeds to grow.

## PART 2 LAWN PROBLEMS



### COOL SEASON ANNUALS

These annuals grow actively in cool weather during spring and fall and mature and die in hot weather.

### Weeds

The best weed control is a healthy lawn, that is mowed, fertilized, and watered regularly. There are two types of weeds that appear in lawns: grassy weeds and broad-leaved weeds. Grassy weeds have hollow stems and narrow leaves with parallel veins. They have a mass of small roots (fibrous root system). Foxtail and Quackgrass are good examples of grassy weeds in lawns. Broadleaf weeds usually have solid stems, wide fleshy leaves with a network of veins and thick fleshy roots (taproot). To control a weed, it is important to know its life cycle. A weed, like any other plant, may be an annual, biennial, or perennial.

An **annual** germinates from seed, grows, produces flowers and seeds, then dies, completing its life cycle in one season (usually less than a year).

**Biennials** require two years to complete their life cycle. The first year the plant produces leaves and stems; the second year it blooms and produces seeds. For example, many thistles are biennials. Control measures for biennials are most effective when applied during the first year's growth.

**Perennials** live more than two years. White clover and dandelions are perennial weeds. They need to be controlled during active growth in late spring or fall.

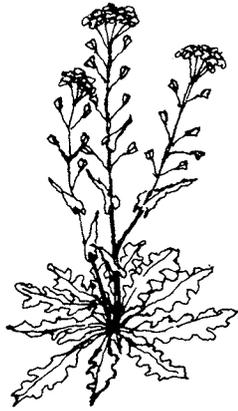
The following weeds are common in lawns in Minnesota. They are grouped according to their life cycles:



**Common Chickweed** is a hardy, low growing, cool season annual with delicate creeping stems. The small opposite leaves are oval-shaped and smooth. The small, white starlike flowers produce seeds that germinate in spring.



**Annual bluegrass** is a low growing, compact weed. Some of its flattened stems lie close to the ground. It can produce seeds even when mowed to  $\frac{1}{4}$  inch height. The seeds germinate in the fall; the plants grow and produce seed during spring and die in the heat of summer.



**Shepherd's purse** seeds germinate in fall and form a rosette of deeply lobed leaves. Tiny white flowers form on the plants in early spring and develop into triangular seeds that are scattered by the wind during the summer.



**Crabgrass** has stems that grow along the ground and form roots wherever a joint (node) comes in contact with the soil. It also spreads by seeds. The seed head is divided into several fingerlike segments. Crabgrass grows fast during hot, dry weather in summer and crowds out and kills lawn grasses.

## WARM SEASON ANNUALS

The seeds of these annuals germinate in late May and early June when temperatures start rising. They grow vigorously during the hot summer then form seeds that lie dormant in the soil until the following spring.



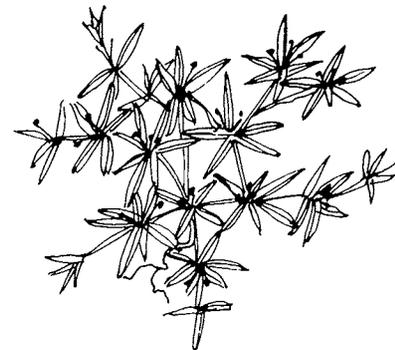
**Goosegrass** is most often found growing where Kentucky bluegrass is doing poorly. The stems are flat and whitish in color near the base.



**Common purslane** has round fleshy leaves and thick, reddish stems. The plant grows close to the ground (prostrate) and stems root wherever they touch the ground.



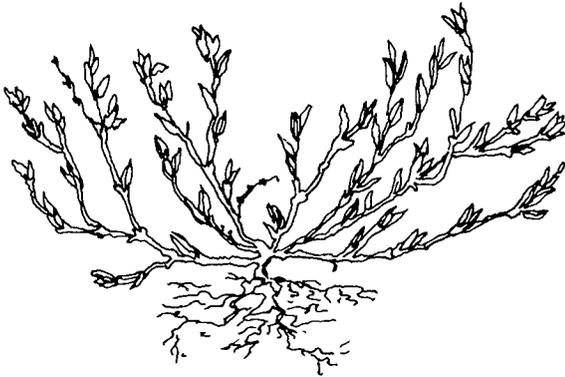
**Prostrate spurge** is a low growing weed with tiny blue-green leaves and reddish stems. The stems contain milky sap.



**Carpetweed** has green, smooth stems that branch along the ground in all directions from the root, forming a flat, circular mat on the ground. The light-green, smooth, tongue-like leaves are grouped five to six together forming whorls at each joint on the stem.

## “ALL SEASON ANNUALS ”

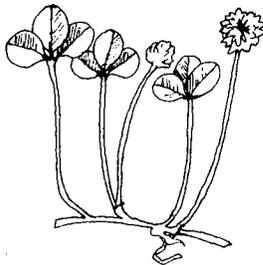
These annuals thrive from early spring to late fall. Germination occurs in very early spring and the plant grows actively throughout the summer and early fall. It forms seeds and dies in late fall.



**Knotweed** forms a wiry, tough, low growing cover of green. It grows well in compacted soil. The stems are thin and very leafy. The leaves are blue-green, small and narrow.

## COOL SEASON PERENNIALS

Cool season perennials grow actively during cool periods and mature or go dormant during the hottest part of the summer.



**White Clover** spreads by underground and above ground stems. The seeds live for twenty or more years in the soil.



**Plantain** has leaves that are large, rounded, have wavy edges and are from three to six inches in length. These leaves form a rosette. Long rattail-like seed heads grow out of the rosette.



**Ground Ivy or Creeping Charlie** was originally introduced as a ground cover, but has become a weed in many lawns. The leaves are round, scalloped along the edge, heavily veined and rough on the upper surface. They appear opposite each other on long, trailing, square-shaped stems. The flowers are purplish-blue and trumpet shaped.



**Quackgrass** is one of the most troublesome weeds because it spreads rapidly by starting new plants from strong underground stems, called rhizomes. Quackgrass is easily identified by rings of root hairs about every inch along the underground stem. The leaf-blades are long, rough and tapered.



**Dandelion** is one of the most persistent perennial weeds. It can produce new plants from seeds that are carried by the wind as well as from a fleshy taproot. Seeds germinate in warm temperatures and seedlings can appear throughout spring, summer, and fall. Dandelions must be controlled by preventing the formation of seeds and their germination.

## WARM SEASON PERENNIALS

Warm season perennials grow most actively during the heat of summer.



**Yellow Nutsedge** is a grass-like plant with flat, yellow-green leaves and a triangular stem. Tiny nutlets form at the end of the roots. The plants grow rapidly in July and August.

### Controlling Weeds

Weeds can be controlled by pulling or killing with chemicals. Digging and pulling are simple, effective ways of controlling a few scattered weeds. Pulling weeds works best following a heavy rain or after deep watering.

There are two major types of chemical weed control: preemergence and postemergence. Chemicals applied to the soil to stop

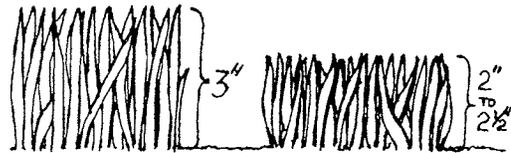
the growth of seeds are preemergence herbicides. They work best on annuals and also control some perennials starting from seed. Preemergence products have no effect once the plants are growing.

The application of weed killers to emerged plants is called postemergence weed control. These herbicides selectively control many broadleaf weeds and will not injure desirable lawn grasses if applied correctly.

When purchasing weed killers, check the label to see if it controls the problem weed or weeds on the lawn. Select either a preemergence or postemergence chemical depending on the stage of the weeds' growth. All application of weed killers should be supervised by adults. Contact your county agent for further help in the identification and elimination of weeds.

### Mowing

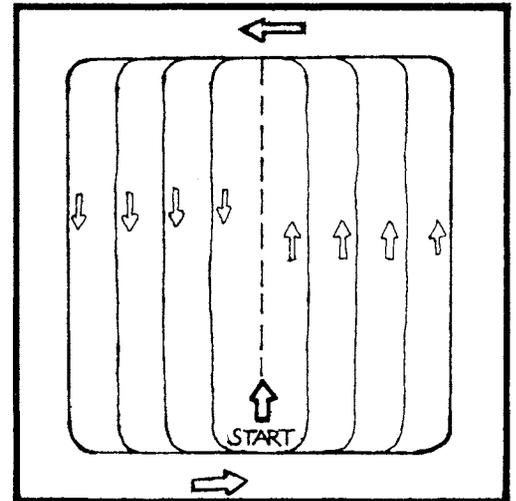
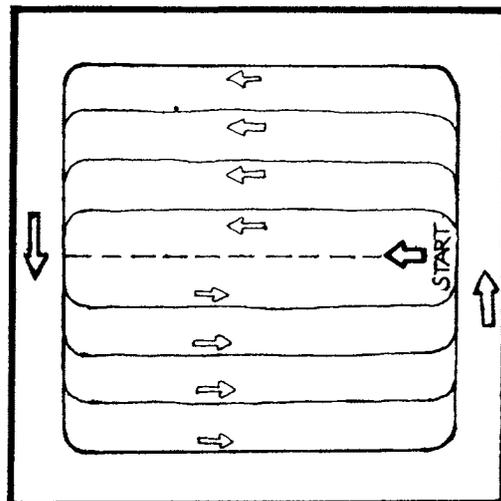
Lawns need to be mowed regularly. The frequency of mowing depends on the rate of grass growth. Not more than a third of the



total grass height should be cut at any one time. Since the leaves produce the food, removing too much leaf area will starve the plants.

Kentucky bluegrass should be cut at a height of 1½ to 2½ inches. Creeping red fescue is finer and should be cut at 2 to 2½ inches height. If the lawn is mowed regularly, small amounts of grass clippings can be left on and will decompose and provide nutrients for the lawn. However, some people prefer to collect their lawn clippings every time. If you use a grass catcher turn off the engine before removing the clippings.

To avoid lawn damage use a different path each time you mow a lawn. This will avoid patterns made by the lawn mower tires tramping down the lawn.



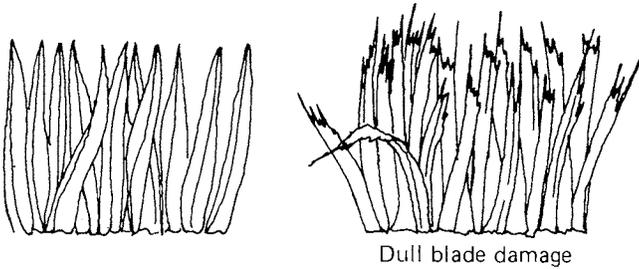
Mowing patterns

## MOWER DAMAGE TO LAWNS

Preventing mower damage to lawns is very important. Carelessness, poor adjustment, or mower defect will result in damage to the lawn.

Here are a few tips that can help you prevent problems caused by mowers:

- 1. EXHAUST BURN** Keep the mower moving when it is running. If you allow the running mower to stand in one place on the lawn there could be spot burning. Spot burning occurs because some mowers discharge exhaust gases under the deck toward the lawn.
- 2. EDGING DAMAGE** When cutting around trees, shrubs or flower beds, be careful not to damage them in any way. The mower housing or the blade will easily scar a tree trunk or clip off shrubbery or flowers. Scarring the tree trunk damages the water conducting tissue under the bark and causes the leaves to dry up. Use hand grass shears to clip the grass bordering trees, shrubs, and flower beds.
- 3. SCALPING DAMAGE** Scalping occurs when the mower blade cuts the grass off at the surface of the ground or when the blade digs into the soil. Severely scalped grass is usually killed. Scalping may be caused by an uneven lawn surface, by a vibrating mower blade, or by mowing height that is too low. When mowing a rough lawn, use higher cutting height. Keep the mower blade in balance and in good condition.



- 4. DULL BLADE DAMAGE** Always keep the lawnmower blade sharp. A dull blade will crush and bruise the grass leaves and cause the tips to turn white or brown. Grass that is cut with a dull blade will look shredded and will also be more susceptible to disease.
- 5. MOWING WET GRASS** Wet grass causes the mower to plug frequently. Wet grass will not blow into the grass catcher easily. Wet clippings tend to mat together and leave unsightly debris on the lawn. Disease problems can be increased by mowing wet grass. Wet grass should never be mowed with an electric mower as there is danger of electric shock.

## Watering

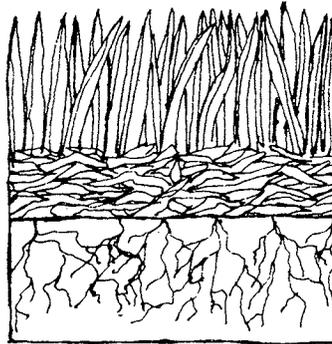
An adequate amount of water for a lawn is one inch a week. This amount will penetrate the soil about six inches deep. Water at this depth encourages deep rooting of the grass plants and helps them survive dry periods. Most lawn sprinklers deliver approximately ¼ inch of water per hour. So four hours of watering per week will provide about one inch of water for an area.

Various soil types absorb water at different rates. Sandy soils absorb water more quickly than clay soils. Sandy soils also lose water more quickly through evaporation, so it may be necessary to water a sandy soil more often than clay soil. Early morning is the best time to water the lawn. Watering in the evening leaves the grass wet and more susceptible to disease.

## Thatch

Thatch is a layer of undecomposed clippings, old grass plants, leaves and other debris that accumulate on top of the soil. Thatch is a common problem in old lawns, particularly in elite Kentucky bluegrass lawns. If the thatch is more than one inch thick, the grass roots will grow into the thatch layer and could dry up during hot weather.

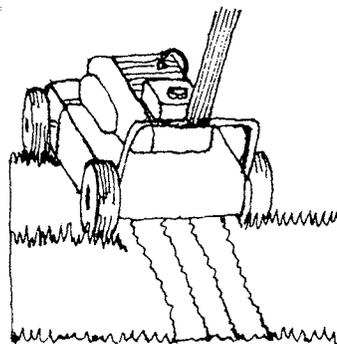
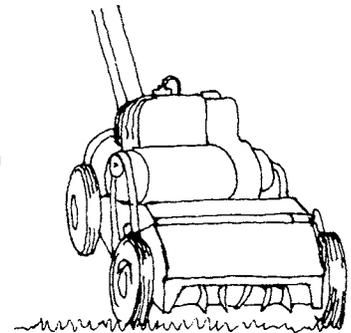
Thatch that is more than one inch thick would be removed with a machine in spring or early fall. This equipment can be rented.



Thatch

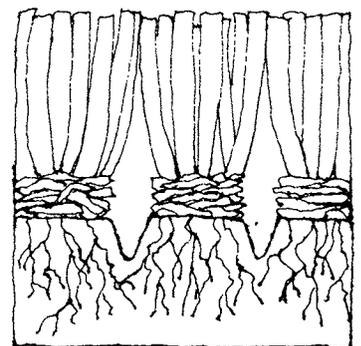
Thatch is a layer of clippings and dead grass. It prevents water and air from reaching the roots.

The best way to remove thatch is with a dethatching machine.



The dethatching machine leaves parallel slits about one inch deep.

Dethatching opens the root zone to air and water.



## Fall Clean-up

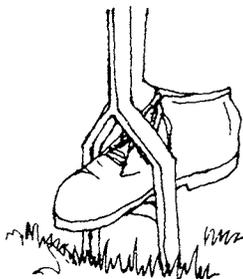
A heavy mat of leaves left on the lawn over winter can cause disease problems in spring. Remember to always use a lawn rake and not an iron garden rake which can severely damage grass plants. You can use a bamboo or wire lawn rake for cleaning up leaves, grass clippings, and debris. Keep mowing the grass in the fall as long as it is growing. Long grass left over winter will mat and be more susceptible to disease in the spring.

## Soil Compaction

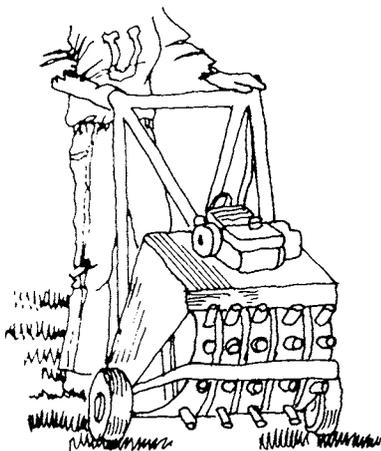
Lawns may have hard, bare spots or areas where only shallow-rooted knotweed will grow. The problem may be caused by soil compaction. Under heavy traffic or equipment the soil particles are pressed together excluding the air that is needed by grass roots. The soil becomes compacted and the grass dies out.

To correct compaction in small spots, dig to a depth of 5-6 inches with a spading fork to loosen the soil, add peat moss and fertilizer, then reseed or sod. A turf aerator that helps air to enter the soil can be used on larger areas.

If the compacted area is used as a walk, it may be best to replace the grass with paving, crushed rock or wood chips.



Aerifork



Turf aerator

## Diseases

**Gray Snow Mold** shows up early spring as the snow is melting. The fungus thrives under the cool, moist conditions of melting snow. Diseased spots in the lawn are covered with a grayish mat of the fungus.

**Melting Out** usually starts in cool wet spring weather. By early to midsummer irregular areas of grass thin out, turn brownish, and die. Close examination of the grass leaves reveal brown or straw colored oblong spots surrounded by a darker border. As the disease progresses, the crowns and roots become infected and the plants die.

**Fusarium Blight** can occur when temperatures range from 75 to 100 degrees Fahrenheit and humidity is high. Small bluish-green patches appear in the lawn. Later, the color changes in a 36-48 hour period to dull reddish-brown, then tan, and finally straw colored. Healthy, green grass will grow within the centers of dead patches of grass. Poor lawn care practices and drought contribute to the development of this disease.

**Septoria Leaf-Spot** appears during cool, wet weather in spring and fall. The overall appearance of an infected lawn resembles injury from a dull mower. The leaf blades turn light yellow from the top downward. Close examination shows black dots embedded in the grass blades. These are spores of the fungus that are carried by splashing rain and infect healthy grass.

**Fairy Ring** appears as a circular ring of fast-growing, dark green grass often with a ring of thin or dead grass inside or outside. The ring is caused by the growth of mushroom fungi in the soil.

## DISEASE PREVENTION

A well cared for, healthy lawn is less likely to be infected by disease organisms. Try to prevent diseases by following these recommended lawn care practices. (Contact your county extension office for further information on identifying lawn diseases and applying chemicals to the lawn.):

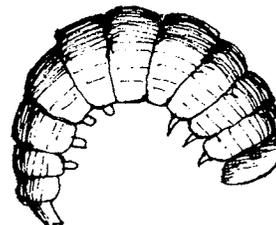
1. **Proper watering.** Enough water should be applied at one time to provide adequate moisture for a week (one inch of water that soaks the soil to a depth of six inches). Frequent light waterings keep the grass wet, an ideal condition for diseases.
2. **Removing excess thatch.** A thick layer of decaying material (thatch) prevents water from penetrating the soil and reaching the grass roots.
3. **Mowing grass at the correct height.** Mow grass frequently so no more than  $\frac{1}{3}$  of the leaf surface is removed. Mowing too short removes the food making leaves and weakens the grass plants.
4. **Fertilizing according to soil test recommendations.** Over-fertilizing injures the grass plants and makes them more susceptible to diseases.
5. **Following suggested insect and weed control programs.**
6. **Providing good air circulation and adequate light** by pruning overgrown shrubs and trees.

## Animal Damage

**Dog Spots** are dead patches in the lawn caused by animal urine. They are more or less round and are bordered by a ring of lush, dark green grass. Heavy watering helps spots to recover.

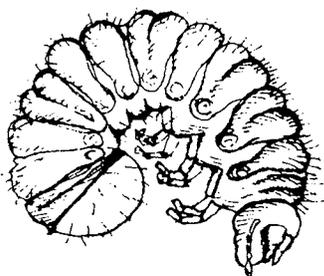
**Moles** dig tunnels close to the surface of the lawn. This creates long, rounded ridges that are soft when stepped on. Baits and traps are effective ways to control moles. Since moles eat grubs, make sure grubs in the lawn are controlled.

**Gophers** dig holes that are surrounded with a mound of loose soil. Gopher traps are effective for control.

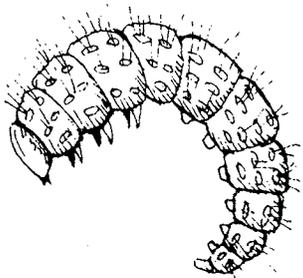


**Cutworms** are most likely to be found in uncut grass or in lawns next to unmowed areas. The worms feed on the grass leaves or cut the grass off at the soil surface at night. During the day they hide in the soil or under debris. Full grown worms are about 1 ½ inches long and may be gray or brownish. One common species has conspicuous bronze stripes.

## Insect Damage



**White Grubs** are the larvae of the common May beetles or June bugs that fly toward light in the spring. The beetles lay eggs in spring and summer. Brown-headed white grubs hatch in late summer and feed on grass roots. The grubs are usually found curled in a "C" shape in the soil at the edge of dead patches of grass. Their heavy feeding will loosen the sod so that it can be rolled back. The damage usually appears as irregular patches of yellowed or dead grass. Common White grubs are a favorite food of skunks and moles. They in turn damage turf by digging for the grubs.



**Sod Webworms** are narrow, light-colored moths. The moths lay their eggs in the lawn. The worms hatch from these eggs and begin to feed at night on the grass leaves. When fully grown, the worms are about ¾ inch long, dirty white to light brown with darker spots.

### CAUTION

Application of insecticides must be supervised by adults and handled with care. Before applying any chemical, contact your county agent for diagnosis and control information. Read and follow directions and precautions on the container labels. Avoid contaminating skin and clothing, and wash thoroughly with soap and water. Store pesticides in a safe place where children and pets cannot get to them. Dispose of empty containers safely.

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