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LAWN WEED CONTROL

By J. W. HERRON

UNIVERSITY OF KENTUCKY | COOPERATIVE EXTENSION SERVICE
AGRICULTURE AND HOME ECONOMICS

DEFINITIONS OF TERMS USED

1. *Annual*—A plant that lives one year.

2. *Basal rosette*—A very short stem bearing a cluster of leaves at or near the soil surface.

3. *Dormant*—State of natural rest of seeds or other plant organs due to internal causes.

4. *Foliage*—The leaves of a plant.

5. *Perennial*—A plant that lives more than two years.

6. *Pesticide*—Chemicals used for controlling lawn pests such as weeds, insects and diseases.

7. *Post-emergence*—After a plant breaks through the surface of the soil.

8. *Pre-emergence*—Before a plant breaks through the surface of the soil.

9. *Sterilize*—When a herbicide prevents the growth of plants when present in the soil. Soil sterilization may be temporary or relatively permanent.

10. *Tuft*—A cluster.

11. *Volatile*—A herbicide is said to be volatile when it evaporates or vaporizes (changes from a liquid or solid to a gas) at ordinary temperatures on exposure to the air.

12. *Weed*—Any plant growing where it is not desired.

13. *Weed eradication*—The complete elimination of all undesirable plants.

14. *Weed control*—The limiting of weed growth (where eradication is not possible or practical) so that desirable lawn plants can obtain maximum growth.

15. *Wettable powder*—A compound manufactured in the form of a powder that can be dissolved in water and applied as a spray or drench.

16. *Winter annual*—A plant from autumn-germinated seed which blooms, fruits, and dies the following spring or early summer.

PLANT INDEX

(Illustrations on page opposite descriptions)

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By J. W. HERRON[1]

The grass in your lawn is a crop and should be treated accordingly. Farmers know they can't produce high yields by planting seeds and forgetting about the crop until harvest time. And you, too, can't maintain a good lawn by sowing seed and not continuing with a good lawn management program. If any crop is abandoned to nature, it will soon be infested with weeds. Therefore, it is important to plan and follow a program which will let the crop plant compete with weeds to the fullest extent possible. Many weeds are easily controlled if you identify them correctly and use proper control methods.

It is true that when you follow a program of good lawn management and weed control, results are not always as favorable as you might anticipate; however, if you don't follow such a program, weeds may become a more severe problem.

Information in this publication includes illustrations, descriptions and controls for some of the more common lawn weeds of Kentucky.

HOW WEEDS GET IN THE LAWN

1. Weed seeds are often present in the soil when the lawn is seeded. It is an established fact that some seeds may remain alive in the soil for several years before they germinate (start to grow).

2. Sod for lawns is often taken from old pastures and fields that have been heavily infested with weeds.

3. Seeds may be carried into lawns by various methods such as sowing impure seed, wind, water, mowers, birds, pets, or by man himself.

Author's acknowledgment: The illustrations, except for Figs. 5 and 9, were made by Mrs. D. M. Smith.

[1] Associate Professor of Horticulture, College of Agriculture and Home Economics, University of Kentucky.

METHODS OF WEED CONTROL

It is important to emphasize the word *control.* The ultimate goal is to get rid of all weeds, but this is difficult, if not impossible. Therefore, you must try to reduce to the greatest extent possible existing weeds and prevent reinfestation from outside sources.

Cultural

You can often control weeds in lawns with good lawn management.[2] Weeds are less likely to survive in sod containing a good stand of desirable grass. However, at times undesirable plants will appear in the best managed lawn.

Chemical

Herbicides are chemicals which kill or reduce plant growth. They do not eliminate the need for good lawn management, but if properly used they may be another tool in a lawn management program.

Herbicides are sold commercially under various trade names in several package sizes. It is not as important to consider the trade name as to obtain the proper chemical(s) (active ingredient). Active ingredients are indicated on the label of the container.

Herbicides are manufactured in different forms or formulations—as granules (small grain-like particles), wettable powders, or liquids. Liquids and powders can be added to water and applied as a spray to the lawn. If you use wettable powders in water, frequent agitation is needed to keep the chemical distributed. The label on the herbicide container will specify the amount of a formulation to be mixed in a certain amount of water.

PRECAUTIONS

1. Keep herbicide formulations containing 2,4-D or 2,4,5-T separate from other pesticides and fertilizers. Since herbicides may be poisonous if taken internally, keep them away from children and do *not* store them near food products.

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[2] For more information on cultural control, see your county agricultural extension agent.

2. Be sure that herbicides are properly labeled. *Follow carefully the directions on the label as to the necessary precautions and rates to use.* Never re-use herbicide containers.

Equipment for Applying Herbicides

Many types of commercial sprayers are available for applying liquid herbicides. All such equipment has its limitations, and usually effectiveness and durability will depend on its cost. Better equipment will cost more. Perhaps the best sprayers for home use are hand-operated, compressed-air sprayers with a capacity of 1 to 4 gallons.

Hand-operated fertilizer spreaders can be satisfactorily used for applying granulated material. An equally effective method of application is to scatter granules evenly by hand (*be sure to wear rubber gloves*).

Type of equipment is not so important as even distribution of the correct dosage on the area to be treated.

Here is the simplest method of applying the desired amount of material as a spray: Add the required amount of chemical to a relatively large quantity of water, and then repeatedly go over the lawn until all the water is used. After the first coverage, it is best to go crosswise to the preceding spray pattern each time.

Since this procedure can be too much work for a large lawn, a *calibration* of the sprayer may be desirable. When you calibrate your equipment, you determine the spreader or sprayer output for a given area at a certain speed.

Use the following steps to calibrate a sprayer:

a. Measure water (example: 3 gallons) into sprayer.
b. Measure an area of 1,000 square feet in size (example: 25 feet x 40 feet).
c. Spray evenly with the water until the area has been covered once.
d. Measure the water that is left and subtract this amount from the original amount (example: 3 gallons − 1 gallon = 2 gallons = amount of water needed for treating 1,000 square feet).
e. Put the necessary quantity of water in the sprayer, add the recommended amount of herbicide needed for treating 1,000

square feet, and spray the lawn in 1,000 square-foot areas walking at the same speed as originally used for calibrating the sprayer.

For applying granular material, follow calibration directions furnished with fertilizer spreader purchased. The setting with the smallest openings is often required for applying granulated herbicides. To be sure the setting is correct, apply a given amount to a small area before treating the entire lawn.

CARE OF EQUIPMENT

1. Rinse spray equipment and measuring utensils with clear water after each use, as some herbicide formulations contain materials that will eat away the equipment. Occasional light oiling of movable parts is advisable. *Do not use measuring utensils for other purposes.*
2. Remove any remaining granulated materials from fertilizer spreaders and wipe the hopper and agitator with a lightly oiled cloth.

2,4-D CONTAMINATED SPRAYERS

You may use sprayers contaminated with 2,4-D for all pesticides applied to the lawn. However, since it is very difficult to remove 2,4-D completely from equipment, *do not use sprayers contaminated with this herbicide for treating fruits, vegetables, or ornamental plants.*

RECOGNIZING SOME COMMON LAWN WEEDS

Correct identification of a weed is often necessary to determine the best control method or combination of methods to use. Some plants may be killed with a certain herbicide when used at comparatively low rates, whereas other plants may be resistant to the same herbicide when used at high rates.

The following illustrations and descriptions should help the homeowner identify a few of the common lawn weeds found in Kentucky. Of course, many weeds not included here may grow in a lawn, but to include all weeds would make the publication so large that it would be of little value to the homeowner.

You may send unknown plants for identification to your county agricultural extension agent or to the Department of Horti-

culture, Agricultural Experiment Station, Lexington, Ky. When possible, send the entire plant including roots, leaves, flowers, fruits or seeds. State the general structure or size of the plant, whether herb, shrub, tree or vine.

If you send two or more kinds of plants at the same time, attach a numbered tag to each plant.

If you can't send plants in fresh condition, press and pack them between pieces of cardboard.

Fig. 1.— Crabgrass, *Digitaria* spp. A. creeping base and rooting at lower joints of stem. B. arrangement of flower and seeds on finger-like head.

Crabgrass (*Digitaria* spp.)

Two common species of crabgrass are found in Kentucky. Since their life habits and control measures are similar, they will be treated as one.

DESCRIPTION: Annual grass that reproduces by seed and by rooting at the lower joints of the stem. The stems are erect or arise from a creeping base and usually form mats. The small inconspicuous flowers are produced in two rows along one side of the 3 to 10 finger-like branches at the top of the stem.

In Kentucky, crabgrass seed starts to germinate in late April or early May. It thrives best during warm summer months when bluegrass is making the least amount of growth. Crabgrass grows to maturity and develops seed from July until September then dies in autumn.

Fig. 2.— Goose-grass, *Eleusine indica*. A. stems arising from tufts. B. finger-like flower and seed head.

Goose-grass (*Eleusine indica* Gaertn.)

Other common names for this weed are wire-grass, yard-grass and crowfoot-grass.

DESCRIPTION: A smooth, flat-stemmed, coarse annual grass that reproduces entirely by seeds. Stems are branched, arise from tufts and often form mats. Flowers and seeds are produced in two rows along one side of the 2 to 10 finger-like branches at the top of the stem. Goose-grass may look like crabgrass; however, goose-grass differs since it has a flattened stem and does not take root at the lower joints of the stem.

Goose-grass germinates in April and May, produces seed from June to September and dies in autumn.

Fig. 3.— Nimblewill, *Muhlenbergia schreberi*. Entire plant, showing slender creeping stems, ascending seed heads.

Nimblewill (*Muhlenbergia schreberi* J. F. Gmel.)

Other common names are drop-seed and wire-grass. This grass is becoming one of our most troublesome weeds in Kentucky lawns.

DESCRIPTION: Nimblewill is a shallow-rooted perennial grass that spreads by seeds and underground stems. The stems are slender, branched, and spread along or near the surface of the ground. Tiny inconspicuous flowers and seeds are arranged loosely on nodding or ascending branches along the upper part of the stem. The leaf blades are usually less than ¼ inch wide and not more than 2 inches long. Nimblewill is grayish-green in color compared with the darker green bluegrass.

New growth of nimblewill starts from the underground stems in February and early March. It continues to grow throughout the summer and early autumn. The roots remain alive throughout the year, but the tops die in autumn, leaving dense brown mats in the lawn during the winter.

Fig. 4.— Annual bluegrass, *Poa annua*. A. plant showing tuft of stems. B. pyramid-shaped seed head.

Annual Bluegrass (*Poa annua* L.)

Other common names for annual bluegrass are annual spear-grass, dwarf spear-grass and six-weeks grass.

DESCRIPTION: Annual or sometimes winter annual that reproduces entirely by seed. Stems are flattened, grow in tufts, and sometimes take root at the lower joints. The leaves are very soft, and the seed heads are arranged in the shape of a pyramid.

Annual bluegrass thrives best during cool weather. Germination occurs in late winter and early spring. The plant grows to maturity, develops seeds and then dies in late spring or early summer leaving unsightly brown areas in the lawn. Annual bluegrass is often lighter green in color than Kentucky bluegrass. It usually grows from 4 to 8 inches in height.

Fig. 5.— Foxtail, *Setaria* spp. Entire plant showing erect stem with seed head at the top.

Foxtail (*Setaria* spp.)

Other common names are summer-grass, pigeon-grass and wild millet.

DESCRIPTION: Foxtails found in Kentucky lawns are annual grasses that reproduce entirely by seed. The stems are erect and may grow from 12 to 48 inches high. In lawns that are regularly mowed they will develop seed heads just above the soil surface. The stems are somewhat flattened, and the leaves may vary from ½ to 1½ inches in width. Seed heads develop at the top of the stems, and vary from 2 to 6 inches in length.

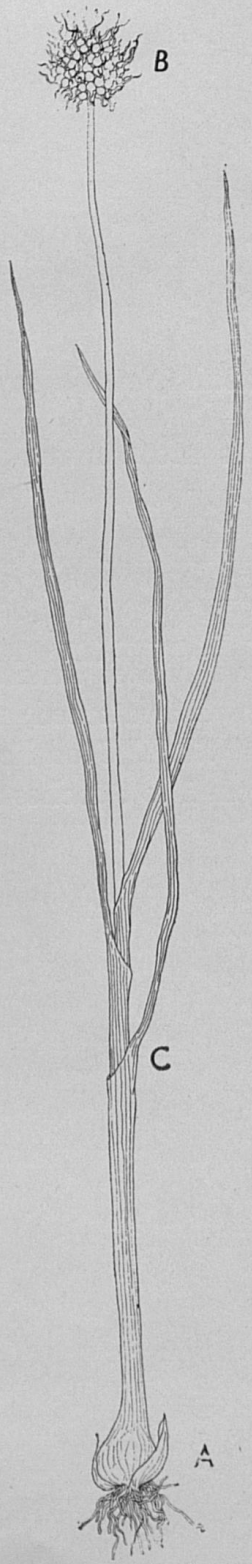

Fig. 6.— Wild garlic, *Allium vineale*. A. underground bulb. B. head of aerial bulblets. C. leaf base surrounding stem.

Wild Garlic or Wild Onion (*Allium vineale* L.)

DESCRIPTION: Wild garlic, a perennial that looks like the cultivated onion in appearance, reproduces by underground bulbs and bulblets above the ground. Stems are 12 to 24 inches tall, the lower part covered with leaf-bases around the stem. Leaves are hollow, slender, and round in earlier stages of growth, becoming grooved as the plant develops. The greenish-white to purple flowers are often replaced with bulblets, each containing a long, slender appendage. These bulblets are arranged in umbrella-like clusters near the top of the stem.

Wild garlic has two kinds of underground bulbs. The soft-shelled bulbs germinate in autumn, while the hard-shelled bulbs remain dormant until succeeding years. Some bulbs remain alive in the soil for at least five years.

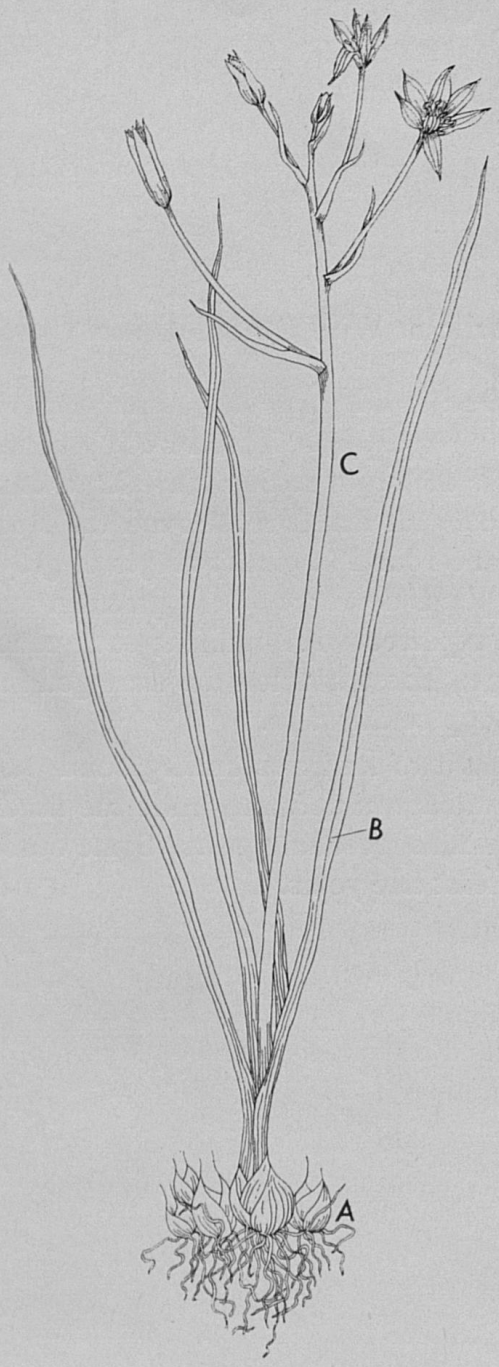

Fig. 7.— Star-of-Bethlehem, *Ornithogalum umbellatum*. A. bulbs. B. leaf showing light green midrib. C. stem with star-shaped flower.

Star-of-Bethlehem (*Ornithogalum umbellatum* L.)

Other common names are snowdrop and nap-at-noon. Star-of-Bethlehem is becoming more common as a lawn weed in Kentucky. It was introduced from Europe, and some people still consider it an ornamental plant. Where star-of-Bethlehem is a weed problem, the plants have escaped from cultivation, and in many cases almost completely crowded out desirable lawn grasses.

DESCRIPTION: Star-of-Bethlehem is a perennial that reproduces mostly by bulbs, rarely by seed. It belongs to the same family as wild garlic (lily family) and may be confused with wild garlic. Star-of-Bethlehem does not, however, have the strong scent of onion or garlic, and the leaves are about as long as the stem and have a light green midrib. The stems develop from small bulbs that are usually in clumps, grow to a height of from 4 to 12 inches and bear several white star-shaped flowers.

In Kentucky new growth starts in late January or early February. The plant grows to maturity and develops flowers in May or early June. The tops then die, leaving brown areas in the lawn throughout the summer.

Fig. 8.— Chickweed, *Stellaria media*. A. trailing stem with roots at joints. B. pair of opposite egg-shaped leaves.

Chickweed (*Stellaria media* Cyrill)

Other common names are starwort, starweed, winter-weed and satin flower.

DESCRIPTION: Chickweed is a juicy-tissued, shallow-rooted winter annual that reproduces by seed and trailing stems which take root at the lower joints. The leaves are arranged in pairs on the stem; they are usually egg-shaped, smooth, less than 1 inch long, the lower with hairy stalks and the upper without stalks. The flowers are small with five white deeply-notched petals.

Chickweed starts to germinate in the autumn, grows throughout the winter, develops seeds from April until early summer, then dies. Occasionally some chickweed may continue to grow during the summer, but most of the plants die during late spring.

Fig. 9.— Poison ivy, *Rhus radicans*. Note fruiting cluster and leaf with three leaflets.

Poison Ivy (*Rhus radicans* L.)

Other common names are poison oak, poison creeper, and three-leaved ivy.

DESCRIPTION: Poison ivy is a woody-stemmed perennial that is quite variable in its growth habits and shape of leaflets. It grows as a vine that climbs by aerial rootstocks or creeps along the ground by underground stems, or as an erect shrub. Each leaf is arranged alternately along the stem and consists of three somewhat egg-shaped leaflets. The leaflet margins vary from no teeth to toothed, to somewhat lobed. The small, one-seeded fruits are white or cream colored, about ¼ inch in diameter and grow in clusters. They mature in late summer or autumn.

Poison ivy is sometimes separated into different species according to the variation in growth habits and leaf shape. However, since the condition resulting from contact with plants of all forms is similar and since the control measures are the same, such plants will be treated as one species in this publication.

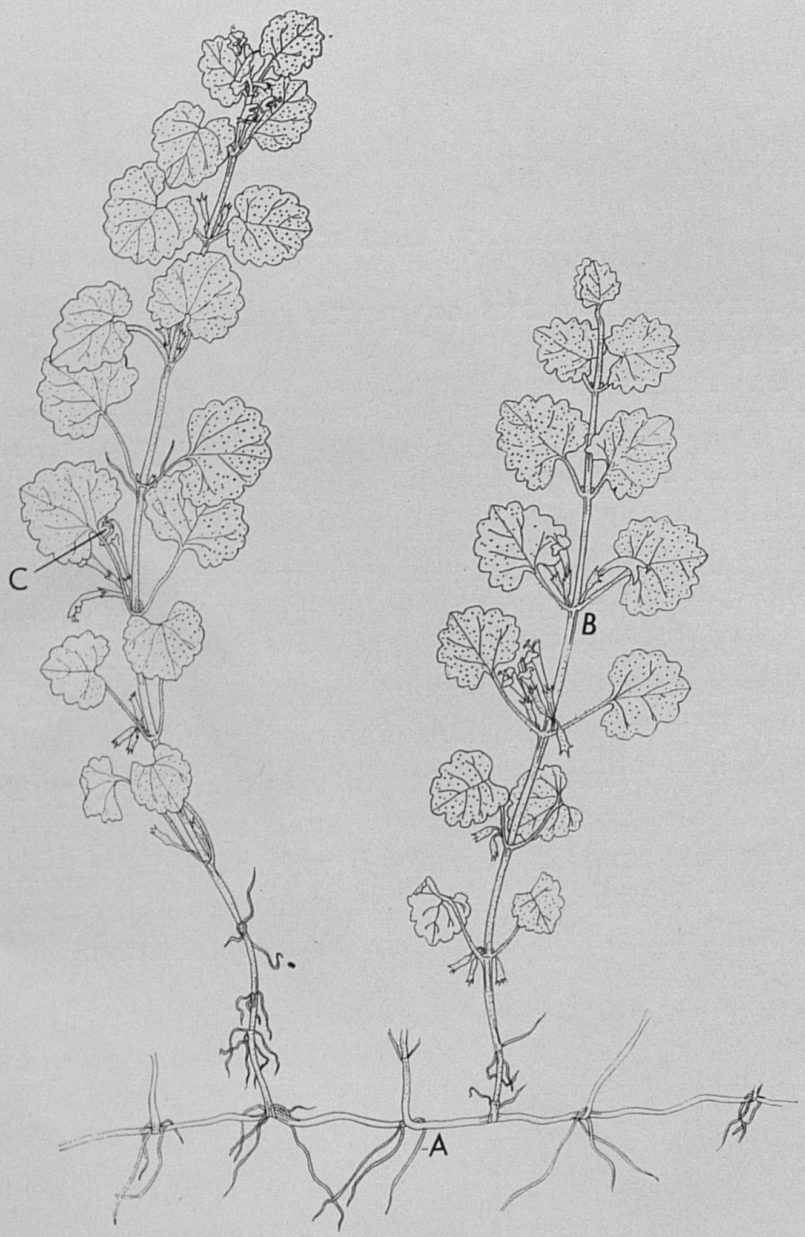

Fig. 10.— Ground ivy, *Glecoma hederacea*. A. creeping stems with roots at the joints. B. pair of opposite circular leaves with scalloped margins. C. flower showing two lips.

Ground Ivy (*Glecoma hederacea* L.)

Other common names are creeping Charlie, gill-over-the-ground, and catsfoot.

DESCRIPTION: Ground ivy is a perennial that reproduces by seed and underground stems. The creeping stems are square, smooth to slightly hairy, and take root at the lower joints. The leaves are circular with rounded or scalloped edges, no hairs, and arranged in pairs along the stem. The purplish flowers are two-lipped and are arranged in clusters at the base of the leaf stalks.

Ground ivy is more commonly found in shaded areas near a building or under shrubbery or trees. It is more of a weed problem in states north of Kentucky than in the southern states.

Fig. 11.— Henbit, *Lamium* spp. A. pair of opposite somewhat circular leaves with rounded teeth or lobes. B. flower whorl at base of leaves.

Henbit (*Lamium* spp.)

Other common names are dead nettle, winter mint, blind nettle and bee nettle.

DESCRIPTION: Henbit is a winter annual that reproduces by seeds and stems rooting at the lower joints. The stems are 4 to 16 inches tall, square, and branch close to the ground. The plants are erect and have very few or no hairs. The leaves are opposite (two leaves at each stem joint), almost circular with the edges having rounded teeth or lobes. The flowers are pink to purple, two-lipped and arranged in whorls at the base of the leaves.

The growth habits of henbit are like those of chickweed.

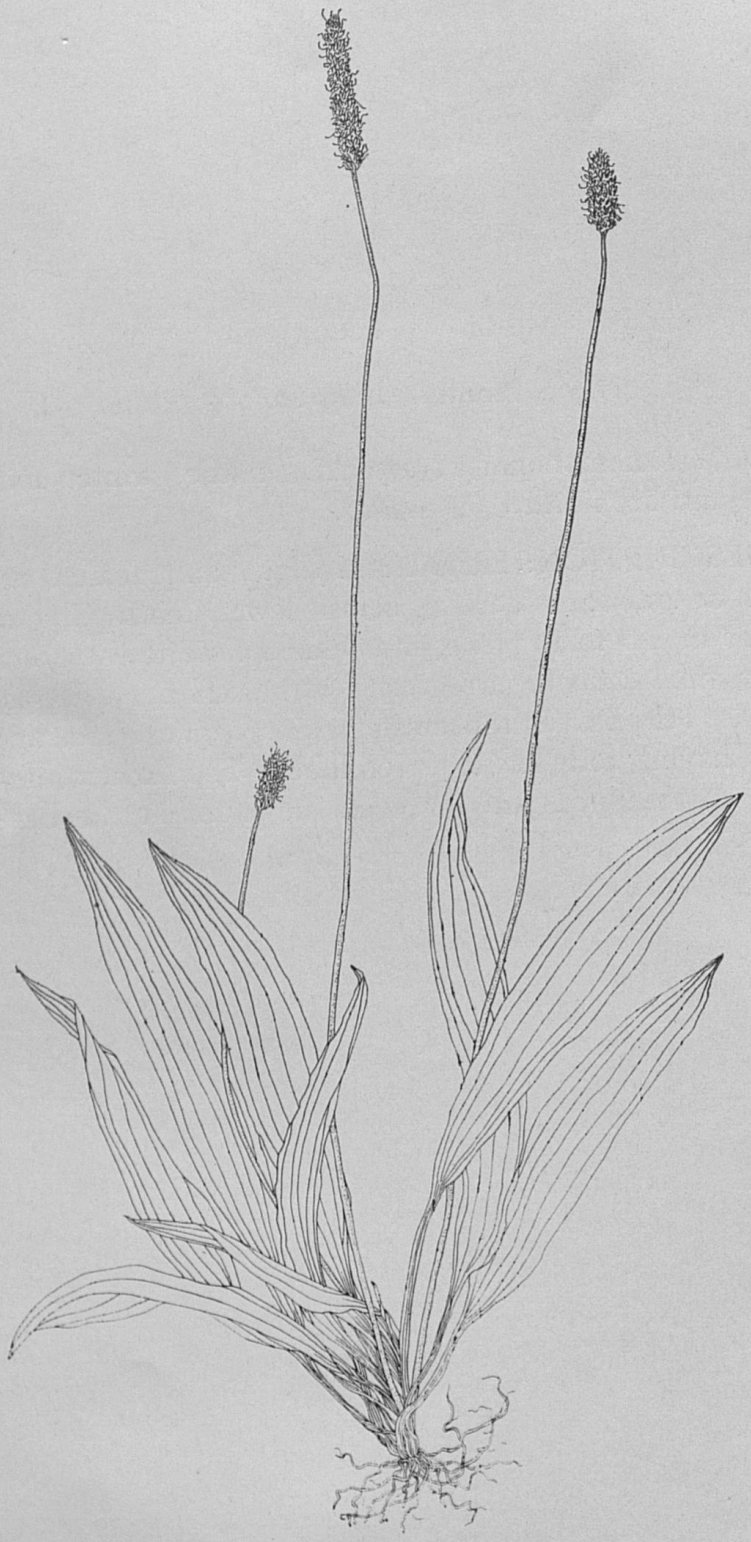

Fig. 12.— Buckhorn plantain, *Plantago lanceolata*. Note leafless stem with short, dense flower spike at top and narrow, prominently veined leaves arising from basal rosette.

Buckhorn Plantain (*Plantago lanceolata* L.)

Other common names are buckhorn, English plantain, narrow-leaved plantain and buck plantain.

DESCRIPTION: Buckhorn plantain is a perennial that reproduces by seed and new shoots from the roots. The stems are usually from 8 to 16 inches high, leafless, and bear a short, dense flower spike at the top from 1 to 3 inches long. The narrow leaves arise from the base of the flower stems; they are 4 to 8 inches long, lance-shaped with several prominent veins running lengthwise and are arranged in a basal rosette at the surface of the soil.

Buckhorn plantain produces mature seed from June to September.

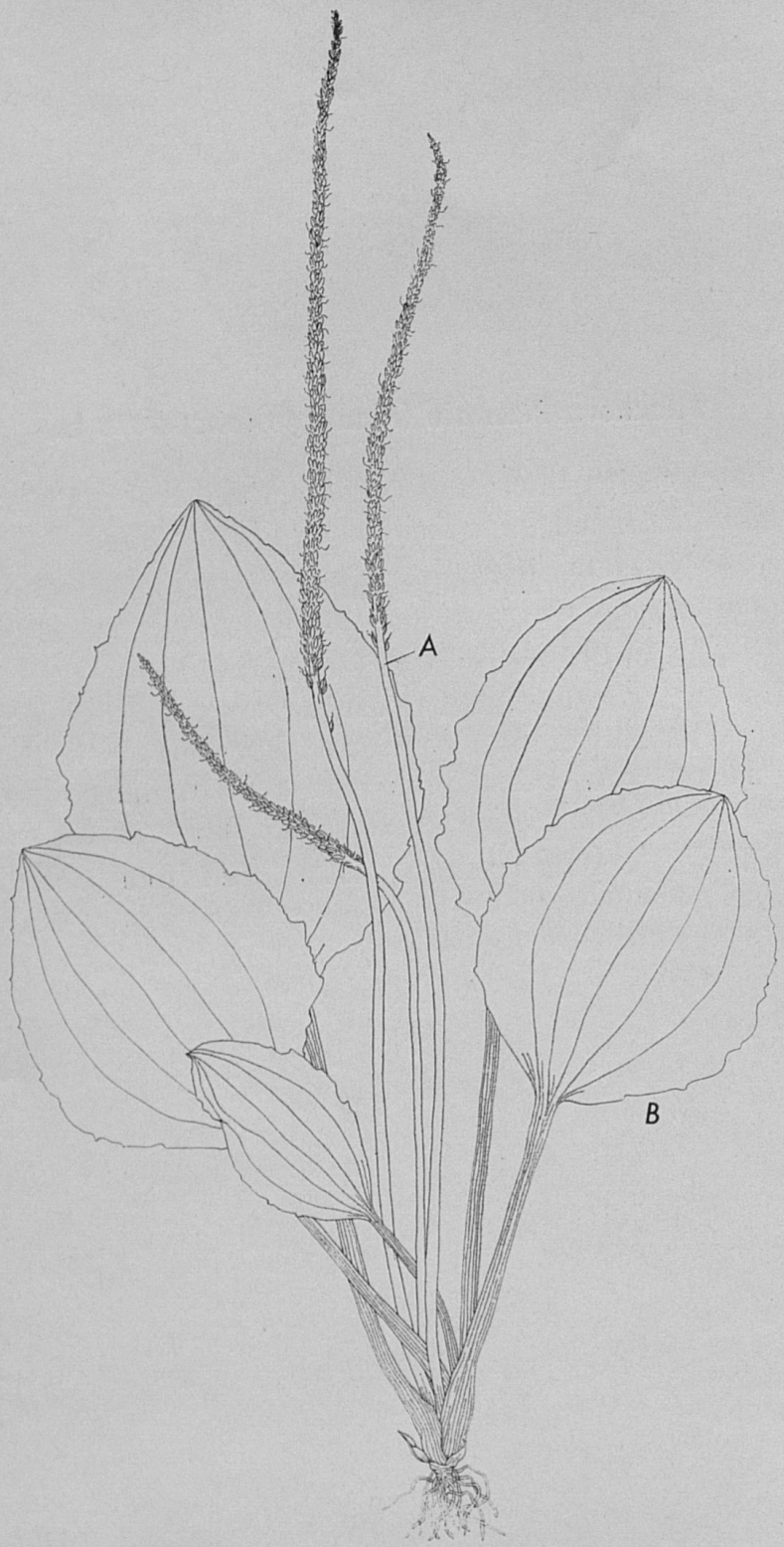

Fig. 13.— Broad-leaved plantain, *Plantago major*. A. stem with long slender flower spike. B. broad, somewhat egg-shaped leaves arising from basal rosette.

Broad-leaved Plantain (*Plantago major* L.)

Other common names are common plantain, whiteman's-foot, and dooryard plantain.

DESCRIPTION: Broad-leaved plantain is a perennial that reproduces by seeds and new shoots from the roots. The stems are usually 4 to 12 inches high, leafless, with a long slender flower spike at the top from 2 to 10 inches in length. The leaves arising from the base of the stem are broad, somewhat egg-shaped, with several prominent veins, and are arranged in a basal rosette at the surface of the soil.

Broad-leaved plantain produces seed from June to September.

Rugel's plantain (*Plantago Rugelii*) looks very much like *P. major;* and since control measures are the same for both species, they are treated as broad-leaved plantain in this publication.

Fig. 14.— Dandelion, *Taraxacum officinalis*. A. upper section of long taproot. B. coarsely toothed leaves from basal rosette. C. flower head on long, hollow stem.

Dandelion (*Taraxacum officinalis* Weber)

Other common names are lion's-tooth, blow-ball, and canker-wort.

DESCRIPTION: Dandelion is a perennial that reproduces by seeds and new shoots from the roots. The stems contain a milky juice and arise from a long, thick, fleshy taproot. The leaves vary in shape, are usually oblong and more or less tapering in outline. They vary from having no teeth to coarse teeth, usually are covered with short soft hairs, and arranged in a basal rosette. The yellow flowers are arranged in a single head on a long hollow stalk.

Dandelions produce most of their flowers in May and June.

CONTROL RECOMMENDATIONS OF MOST COMMON WEEDS IN ESTABLISHED LAWNS

Weed	Herbicide*	Suggested Time of Application	Comments
Buckhorn plantain Wild garlic Broad-leaved plantain Ground ivy Dandelion	2,4-D 2,4-D + 2,4,5-T	Spring—late March or early April Autumn—October or early November	Repeated spot treatments following first application may be necessary. Clover may be severely injured or killed.
Chickweed Henbit	Neburon Potassium cyanate Disodium methyl arsonate Ammonium sulfate (1½-2 lb per 100 sq ft); 2,4-D + 2,4,5-T	*Chickweed:* Neburon—any time ground is not frozen from October until flowers develop in the spring. 2,4-D + 2,4,5-T—when plants are very young. Other chemicals after chickweed begins flowering in spring. *Henbit:* Neburon—October before seeds germinate or when plants are in early seedling stage. Use other chemicals in late autumn or spring before seeds develop.	Neburon, disodium methyl arsonate and potassium cyanate are the active ingredients in many "crabgrass killers" sold under various trade names. Potassium cyanate, disodium methyl arsonate, and ammonium sulfate kill only the tops of the weeds, thus reducing competition for desirable plants. These three chemicals will also cause top injury to desirable grasses such as Kentucky bluegrass. However, the bluegrass will recover. Apply ammonium sulfate when the foliage is moist. 2,4-D + 2,4,5-T is less effective on chickweed than the other herbicides mentioned.
Annual Bluegrass	Neburon	Early to mid-spring before seeds develop	Neburon, when used at the rates recommended, does not cause severe injury to Kentucky bluegrass.
Crabgrass Foxtail Goosegrass	Dacthal Zytron Calcium arsenate	In spring before April 15. (Pre-emergence to the weedy grasses)	Dacthal, zytron, and calcium arsenate are pre-emergence herbicides and should be applied before seeds germinate.
	Disodium methyl arsonate; Potassium cyanate	After germination	Repeated treatments with these two herbicides will be necessary throughout the growing season as regrowth occurs. Get best results by making treatments when the plants are tender and actively growing.

CONTROL RECOMMENDATIONS OF MOST COMMON WEEDS IN ESTABLISHED LAWNS (Continued)

Weed	Herbicide*	Suggested Time of Application	Comments
Nimblewill	Maleic hydrazide—6 oz of 30% MH in 1 qt of water per 100 sq ft	From May until mid-July	Apply when plants are actively growing following a rain. *Severe top injury or top kill of Kentucky bluegrass will occur,* but the bluegrass will recover from the roots when fall growth starts.
Star-of-Bethlehem	Sodium TCA 90% ¼ lb per 100 sq ft	March or April	Apply in enough water to permit uniform coverage of the infested area. TCA will kill all vegetation and prevent plant growth in the soil for two or three months. Seed areas treated in the spring to desirable grass in September.
Poison ivy**	Ammate Amitrol	Spring or early summer for foliage application	These herbicides are non-volatile and can be used safely near flowers, vegetables and ornamental plants.

* Unless otherwise stated, *use according to directions on label of container* in which you buy the herbicide. Many different formulations of these materials are sold under various trade names, and the quantity to use will vary with the formulation obtained.

** For more detailed information on poison ivy control, see your county agricultural extension agent.

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