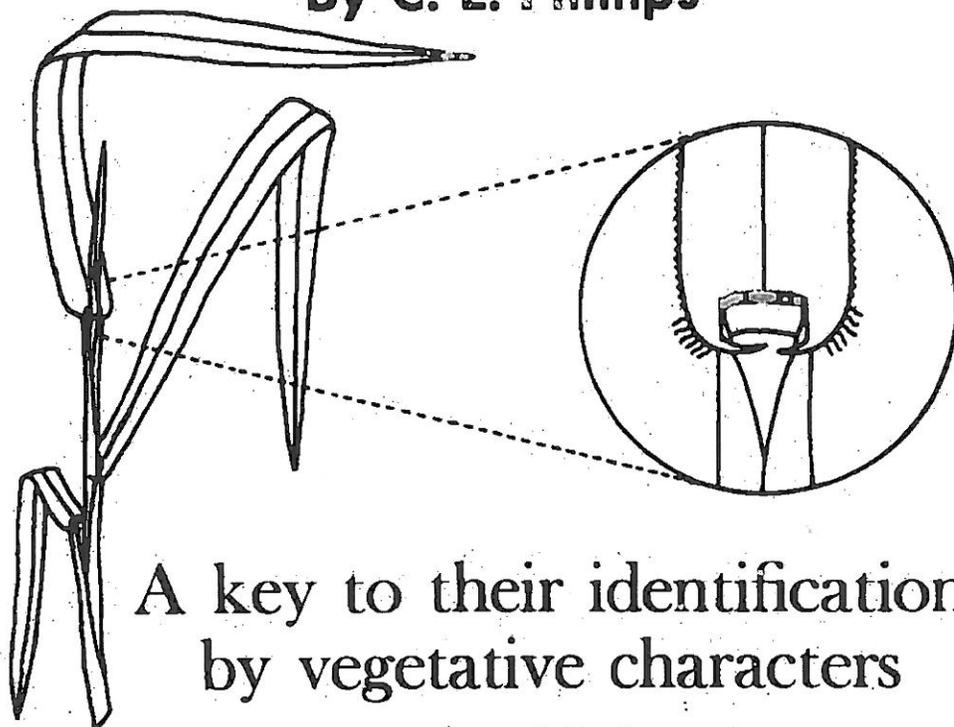


Field Manual No. 2

# Some Grasses of the Northeast

By C. E. Phillips



A key to their identification  
by vegetative characters

**University of Delaware**

Agricultural Experiment Station

Newark, Delaware

# SOME GRASSES OF THE NORTHEAST

## A KEY TO THEIR IDENTIFICATION BY VEGETATIVE CHARACTERS

by

C. E. PHILLIPS<sup>1</sup>

In the last few years an increasing interest in weed-free turf and the wide acceptance of chemical herbicides has sharply focused attention on the necessity of identifying grasses by their vegetative characters. A European worker is credited with doing the basic work on the use of vegetative characters in an identification key about 80 years ago. Carrier (3) in 1917 developed the first in North America. Since then a number of such keys have been developed by various workers in the United States and Canada (see bibliography). None of these keys, however, included anywhere near all the grasses of economic importance in the Northeastern states.

The key presented here is an outgrowth of 15 years of teaching students to identify pasture grasses and some common weed grasses in their vegetative (non-flowering) state. Using descriptions of grasses from several publications, a number of tentative keys were constructed and tried with unsatisfactory results. Many of the grasses were found to show great variation from region to region in the detailed description of their vegetative characters. It was apparent that if a key was to be useful it would have to be based on vegetative descriptions made of the grasses growing in the region. Approximately 800 vegetative descriptions were made and used in the development of the key. Most of these were of grasses collected in the 12 Northeastern states and Virginia. In order to get a better idea of variations, however, some collections were made in a total of 34 states and one Canadian province. To assure uniformity, all descriptions were recorded on key-sort punch cards printed with a standard legend. Most of the key has been field checked by students and co-workers in Delaware and adjoining states.

No effort was made to include all the grasses of the Northeast in the key. An effort was made, however, to include most of those having economic importance. Most of those included are either species cultivated for various purposes or weed grasses of mostly agricultural situations. In addition to these, a number of grasses of interest to conservationists and wildlife people were also added.

*Scientific names* of the grasses are those given by Hitchcock (6). *Common names*, in most cases, are those used most frequently by many authorities. In a few cases the author found it necessary to coin a common name that seemed appropriate.

### DISTINGUISHING THE GRASSES FROM THE GRASS-LIKE PLANTS

There are a number of the grass-like plants that may be easily confused with the true grasses. Not many of these are to be found in agricultural situations except in wet pastures and meadows. One sedge, however, nutgrass (*Cyperus esculentus*), is a common weed in cultivated fields in the Northeast, and the path rush (*Juncus tenuis*) is found in a variety of situations, particularly on compacted soil.

Since the key presented here deals only with the grasses, it is necessary to be able to distinguish

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the true grasses (Gramineae) from the sedges (Cyperaceae) and the rushes (Juncaceae). Study of the points presented in the following table will show how to separate them quickly.

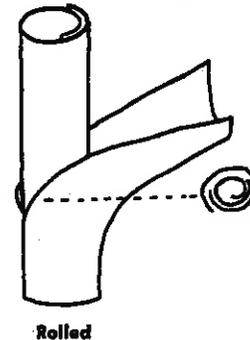
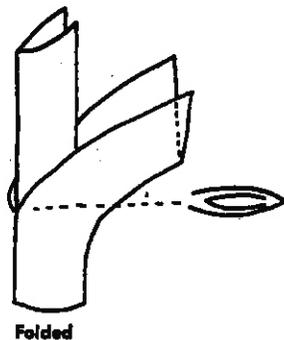
	Grasses	Sedges	Rushes
<b>Stem</b>	Usually hollow, cylindrical or flattened	Filled with pith, rarely hollow, usually 3-sided	Filled with sponge-like pith, cylindrical
<b>Nodes</b>	Conspicuous	Indistinct	Indistinct
<b>Leaf arrangement</b>	In 2 vertical rows or ranks	In 3 vertical rows or ranks	In 3 vertical rows or ranks
<b>Leaf sheath</b>	Usually split, closed in a few species	Usually closed	Open or closed
<b>Collar</b>	Mostly distinct	Indistinct	Indistinct
<b>Auricles</b>	Present or absent	Absent	Absent
<b>Ligule</b>	Present, rarely absent	Absent or weakly developed	Absent or weakly developed
<b>Leaf blade</b>	Usually flat, often folded, rolled or bristle-like, frequently hairy	Flat, multi-folded or bristle-like, rarely hairy	Channeled or round, usually wiry and without hairs
<b>Leaf margins</b>	Smooth, rough or hairy	Usually rough	Smooth

## CHARACTERS USED IN IDENTIFICATION<sup>2</sup>

The characters found to be most reliable are discussed below with drawings to illustrate the principal variations used in the key. The descriptions and points of separation are based on the characters as found on the vegetative or lower leaves of the plant. Leaves high on the stem frequently have longer ligules and blades that are wider or less hairy.

### 1. Bud-shoot

The arrangement of leaves in the growing point or bud-shoot may be folded or rolled as shown below. The folded arrangement is usually found in flattened shoots and the rolled arrangement in round or cylindrical shoots. However, in some grasses, such as yellow foxtail and barnyard grass, the leaves are rolled in flattened shoots and in others, such as poverty oatgrass, folded leaves are in round shoots.



<sup>2</sup> This section mostly follows the general form first used by Nowosad, Swales and Dore. (8)

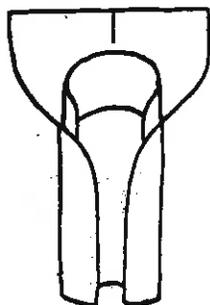
The rolled or folded character of the bud-shoot is very difficult to accurately determine (without special equipment) for the grasses with narrow leaves (2 to 4 mm.), such as the fine-leaved fescues, many of the bluegrasses and the bents. The use of this character as a point of separation for such grasses has therefore been avoided in so far as possible.

The arrangement of the leaves in the bud-shoot may be determined by cutting the shoot across below the ligule of the uppermost leaf and examining the section with a magnifier.

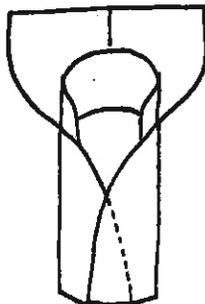
## 2. Sheath

The sheath is the tubular basal portion of the leaf surrounding the stem or the young growing leaves. Sheaths looked at in cross-section may range from distinctly flattened, as in orchard grass, to round, as in timothy.

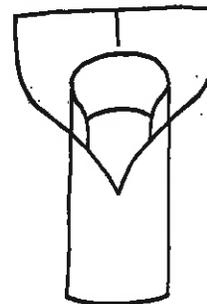
Sometimes the midrib extends downward into the sheath and the sheath is said to be keeled. The sheath is generally split to the base or node and the margins are overlapping as illustrated below. Some grasses, notably the bromegrass and cheats (*Bromus* spp.), are closed to near the top. This character needs careful examination for in some cases a closed sheath is easily split by rough handling.



Split



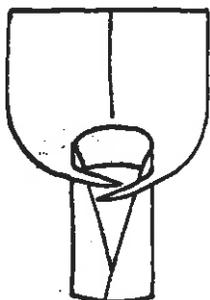
Split, margins overlapping



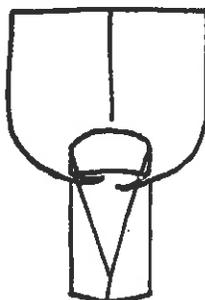
Closed

The surface of the sheath may be rough to the touch or more or less covered with hairs or it may be smooth (without roughness or hairs). Frequently we find sheaths with purple or reddish tints. These tints, except in a few cases, are not reliable as a means of identification. Where color is used the lowermost sheaths should be examined at or just below the soil surface. In some cases the margins of split sheaths are helpful in distinguishing one grass from another. Most grasses have margins that are thin and hyaline or paper-like while in some, one or both margins may be distinctly hairy.

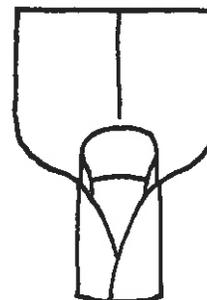
## 3. Auricles



Large



Small

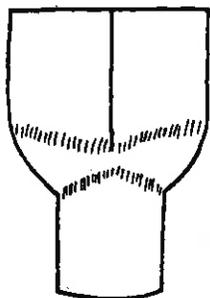


Absent

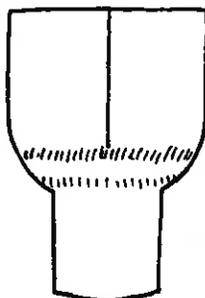
Auricles are claw-like appendages which project from the collar, one from each side. When present they may be large and conspicuous, as in barley, or small and slender as in the ryegrasses and quackgrass. The auricles of wheat and tall fescue generally are more or less hairy.

#### 4. Collar

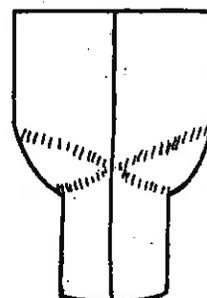
The collar is a band, generally much lighter in color, marking the division between the sheath and the blade. It may be a broad or narrow band continuous from one margin to the other or it may be divided by a darker green midrib. Broad collars, whether continuous or divided, are most



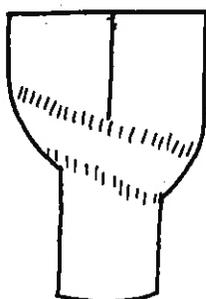
Broad



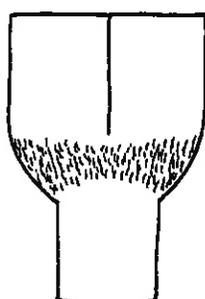
Narrow



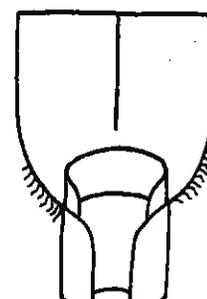
Divided



Oblique



Hairy



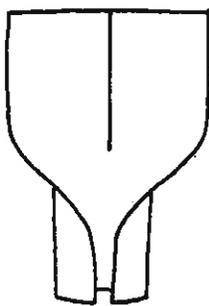
Margins hairy

generally narrow in the midrib area and may be said to resemble two letter V's placed point to point. The surface of the collar, viewed with the bottom of the blade upward, is generally smooth but may be rather uniformly hairy or have long or short hairs only on the margins. The hairs on the collar margins are sometimes conspicuously long or dense.

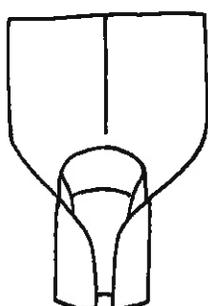
#### 5. Ligule

The ligule is an upward-pointing growth found on the inside of the leaf at the junction of the blade and sheath. It may be a thin membrane or a fringe of hairs or may be absent as in barnyard

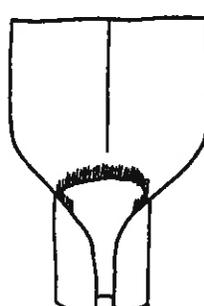
##### Ligule Types



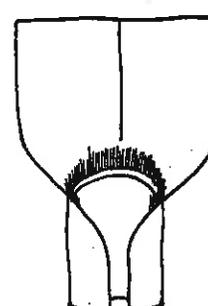
Absent



Membranous



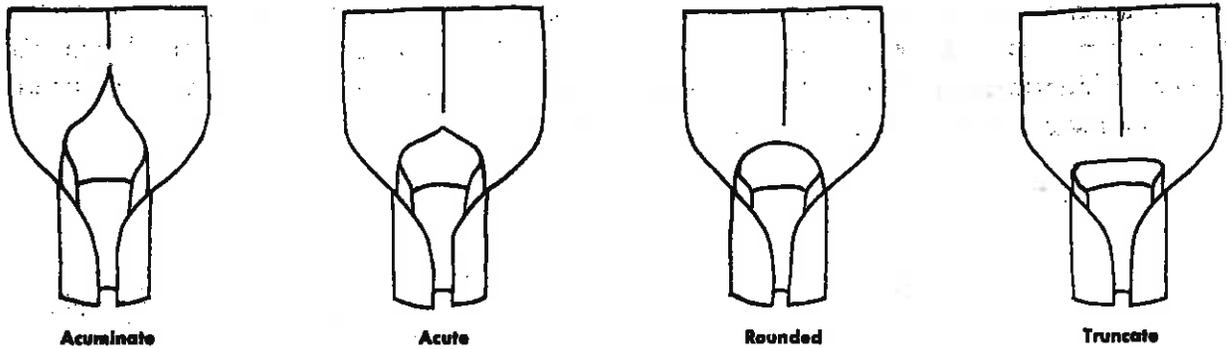
Fringe of hairs



Fringe of hairs fused at base

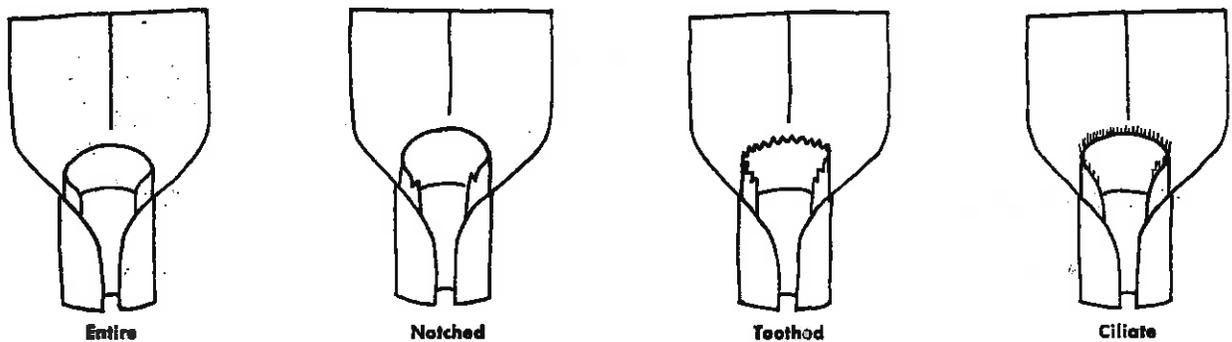
grass. A special type sometimes found is a fringe of hairs fused at base. This is essentially a fringe of relatively long hairs on a short membrane. Careful examination of this membrane will show that many or all of the hairs can be distinguished as continuing to the base but are apparently fused or cemented together. This could appear to be a short membrane that is long ciliate (see ligule margins below). To avoid confusion in this key those ligules where the membranous portion is much shorter than the fringe of hairs has been described as a "fringe of hairs fused at base". Where the membranous portion is much longer than the hairs, the ligule is described as "membranous ciliate".

#### Ligule Shapes



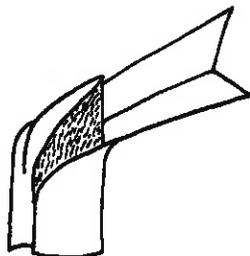
The shape of the ligule (illustrated above) and the ligule margins (illustrated below) apply only to the membranous types. Both shape and margin in most species may vary considerably but in

#### Ligule Margins



some cases, as the notched margin in timothy, are quite helpful in identification. Margins of ligules often become split or frayed in older leaves, so care should be taken to examine only young fresh blades.

The length of the ligule may vary from minute (.2mm. long or less) to more than 10 mm. The outer surface of the ligule is usually smooth but careful examination of some ligules with a good magnifier will show them to be minutely hairy on the back. This appears to be a somewhat inconsistent character, or at least difficult to accurately determine and has not been used in the key.



Ligule hairy on back

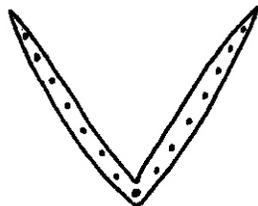
## 6. Blade

The blade is the upper, non-clasping part of the leaf above the collar and ligule. It is usually long and flat but sometimes narrow leaves are so tightly folded as to appear solid or bristle-like. Broad blades may be flat, V-shaped, rolled, or have both margins rolled inward. The width of the blades, although variable within a certain limit in a species or on a single plant, are of considerable value in separating many grasses. The shape of the blade is of considerable value in a few cases.

The blade surfaces and the blade margins may be smooth, rough or hairy. In some cases the veins are so prominent on the upper surface as to form ridges. On the lower surface, the midrib may be prominent and form a keel. The partially closed blade tip that is shaped like the prow of a boat is common to the bluegrasses and is valuable in identification. The shade of green color in the blade is so dependent on the conditions of moisture, fertility and light that it is not dependable as a character in identification. Some species, however, have a definite blue-green color (glaucous) and this characteristic can be used in distinguishing them.



Flat  
Keeled below



V-shaped



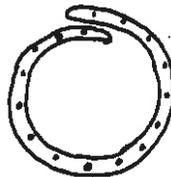
Folded



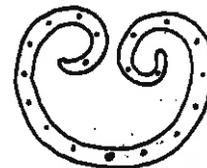
Bristle-like



Flat  
Ridged above



Rolled



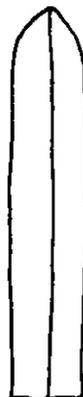
Margins  
Rolled in



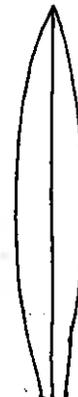
Tapering to Tip



Boat-shaped Tip



Parallel-sided



Narrowed to Base

## 7. Rhizomes and Stolons

Grasses have fine fibrous root systems. Many grasses have a thickened, generally whitish, creeping underground stem or rhizome. These rhizomes send up new shoots from the nodes and enable the plant to spread vegetatively. Other grasses have prostrate, above-ground, creeping stems or stolons which also root at the nodes or tips. The presence or absence of rhizomes or stolons frequently is a great help in distinguishing one species from another.

## 8. Inflorescence

The common forms of grass inflorescence (flowering parts) are the spike (quackgrass), raceme (crabgrass) and panicle (redtop). The character of the inflorescence is not used as a basis of separation in this vegetative key. A simplified description of the inflorescence of each species is given, however, as an aid in establishing positive identification whenever inflorescence is present.

## 9. Geographical Range

The geographical range of the various grasses in the states of the Northeast is that given by Hitchcock (6) with such modifications as were indicated by the author's collections. The range given is meant to be only that of general occurrence and for most grasses would also include the area of the Northeast west of the state named. Some species may be occasionally found considerably north of their general range. Geographical range is not used as a point of separation of species in the key but in some cases may be valuable information to help in positive identification.

## 10. Where Found

Most grasses are found over a wide range of situations such as cultivated fields, meadows, open ground and waste places. Others, however, are found only in rather specific locations such as bogs, salt marshes and on dune sand. Where the conditions of growth are quite specific, it is a valuable characteristic that can be used in separating species.

## USING THE KEY

Many grasses are highly variable in their vegetative characters. There may be great differences in the vegetative descriptions of the same species grown under different climatic conditions. Frequently there is considerable variation among plants growing close together. For this reason, when collecting a specimen for identification, it is well to gather plants from several different spots.

In using the key, a 10X magnifier is essential. A Pocket Comparator or other device for making fine measurements will also be very helpful.

Where separations are based on width of blade or length of ligule, reference is to the widest blades or the longest ligules (unless otherwise specified) present on the specimens.

The characters given in the key are arranged in pairs bearing the same number but different letters as 1a, 1b; or 12a, 12b. The two parts of any pair are opposing or partly opposing characters. No grass plant can fit both; every plant should fit one or the other.

With a given grass in hand read both parts of the first pair, "1a. Blade more than 3 mm. wide—1b. Blade less than 3 mm. wide." If this particular specimen has blades more than 3 mm. wide read next pair 4, as directed by the figure at the end of that line. If a ligule is present (4a) go next

to pair 5, if ligule is membranous (5b), go next to pair 9. Continue in this way to select the alternative which best agrees with the specimen in hand until reference is to a Group. Turn to this group and continue to a grass species. Check the specimen with the details of the description given under the species name and in the drawing at right (drawings are diagrammatic and not to scale). Where the inflorescence is present, the simplified description given may also be helpful in checking correct identification. In a few species geographical distribution and the information on occurrence may be of value.

### IDENTIFICATION KEY

1a. Blade 3 mm. or less wide .....	2
1b. Blade more than 3 mm. wide .....	4
2a. Sheath distinctly flattened or compressed .....	<i>Group 1, page 9</i>
2b. Sheath not distinctly flattened .....	3
3a. Ligule .5 mm. or less long .....	<i>Group 2, page 12</i>
3b. Ligule more than .5 mm. long .....	<i>Group 3, page 16</i>
4a. Ligule present .....	5
4b. Ligule absent .....	<i>Group 4, page 20</i>
5a. Ligule membranous .....	9
5b. Ligule a fringe of hairs .....	6
6a. Ligule 1 mm. or less long .....	7
6b. Ligule more than 1 mm. long .....	8
7a. Blade 5 mm. or less wide .....	<i>Group 5, page 21</i>
7b. Blade more than 5 mm. wide .....	<i>Group 6, page 23</i>
8a. At least one sheath margin hairy .....	<i>Group 7, page 29</i>
8b. Neither sheath margin hairy .....	<i>Group 8, page 33</i>
9a. Sheath closed to near top .....	<i>Group 9, page 38</i>
9b. Sheath split at least part way .....	10
10a. Sheath distinctly flattened .....	11
10b. Sheath not distinctly flattened .....	14
11a. Ligule 1 mm. or less long .....	<i>Group 10, page 41</i>
11b. Ligule more than 1 mm. long .....	12
12a. Leaves rolled in bud-shoot .....	<i>Group 11, page 45</i>
12b. Leaves folded in bud-shoot .....	13
13a. Ligule 2 mm. or less long .....	<i>Group 12, page 48</i>
13b. Ligule more than 2 mm. long .....	<i>Group 13, page 50</i>
14a. Ligule 3 mm. or more long .....	15
14b. Ligule less than 3 mm. long .....	16
15a. Blade 10 mm. or less wide .....	<i>Group 14, page 52</i>
15b. Blade more than 10 mm. wide .....	<i>Group 15, page 55</i>
16a. Auricles present .....	<i>Group 16, page 59</i>
16b. Auricles absent .....	17
17a. Blade 10 mm. or less wide .....	18
17b. Blade more than 10 mm. wide .....	20
18a. Ligule 1 mm. or less long .....	<i>Group 17, page 62</i>
18b. Ligule more than 1 mm. long .....	19
19a. Sheath hairy at least at top or throat .....	<i>Group 18, page 65</i>
19b. Sheath not hairy .....	<i>Group 19, page 66</i>
20a. Ligule 2 mm. or less long .....	<i>Group 20, page 68</i>
20b. Ligule more than 2 mm. long .....	<i>Group 21, page 71</i>

## GROUP 1

- 1a. Blade hairy above ..... 2
- 1b. Blade not hairy above ..... 5

### 2a. Blade about 1 mm. wide



#### 1. *Aristida dichotoma*—Poverty Grass

*Leaves* folded in bud-shoot; *sheath* distinctly flattened and keeled, smooth or sometimes sparsely long hairy, split; *auricles* absent; *collar* narrow, divided; *ligule* a minute fringe of hairs; *blade* about 1 mm. wide, rough and sparsely long hairy above, smooth below, margins rough. *Inflorescence*—few-flowered, narrow, terminal and axillary panicles. Common throughout. Dry open ground.

### 2b. Blade more than 1 mm. wide ..... 3

#### 3a. Collar hairy at least on margins ..... 4

#### 3b. Collar not hairy



#### 2. *Festuca octoflora*—Six-weeks Fescue

*Leaves* folded in bud-shoot; *sheath* distinctly flattened, smooth or sometimes rough or short hairy, split with overlapping margins; *auricles* absent; *collar* narrow; *ligule* membranous, .2 to .3 mm. long, truncate, sometimes lacerate or ciliate; *blade* to 2 mm. wide, short hairy above and below and on margins. *Inflorescence*—a narrow panicle with short branches. New York south. Open sterile ground.

### 4a. Ligule about .2 mm. long



#### 3. *Sporobolus clandestinus*—Scratch Dropseed

*Leaves* folded in bud-shoot; *sheath* distinctly flattened, dense long hairy or hairy at throat, split with overlapping margins; *auricles* absent; *collar* broad with a narrow band of hairs; *ligule* a fringe of hairs about .2 mm. long; *blade* about 3 mm. wide, long hairy above and below, margins rough. *Inflorescence*—a narrow contracted panicle. Connecticut south. Sandy fields.

### 4b. Ligule 2 to 3 mm. long



#### 4. *Cynodon dactylon*—Bermuda Grass

*Leaves* rolled in bud-shoot; *sheath* loose, distinctly flattened, sparsely short hairy with a tuft of hairs at throat, split with overlapping margins; *auricles* absent; *collar* narrow, hairy on margins; *ligule* a fringe of hairs, 2 to 3 mm. long; *blade* 2 to 3 mm. wide, sparsely short hairy above, smooth below, margins rough. *Inflorescence*—4 or 5 digitate spikes. Maryland south. Common in fields and grasslands.

5a. Ligule more than 1 mm. long



5. *Poa annua*—Annual Bluegrass

*Leaves* folded in bud-shoot; *sheath* distinctly flattened, smooth, generally split with overlapping margins; *auricles* absent; *collar* narrow to medium broad, divided; *ligule* membranous, mostly 1 to 2 mm. long, rounded to acute; *blade* 2 to 3 mm. wide, smooth above and below and on margins, blade-tip boat-shaped. *Inflorescence*—a small, open, few-branched panicle. Common throughout. Lawns, pastures, open ground and waste places.

5b. Ligule 1 mm. or less long . . . . . 6

6a. Blade 2 mm. or less wide . . . . . 7

6b. Blade more than 2 mm. wide . . . . . 11



7a. Blade rolled, very narrow (about .5 mm. wide), bristle-like

6. *Festuca capillata*—Hair Fescue

*Leaves* folded in bud-shoot; *sheath* flattened, smooth, split; *auricles* absent; *collar* narrow, divided, indistinct; *ligule* membranous, .2 to .4 mm. long, truncate; *blade* bristle-like (about .5 mm. wide), smooth. *Inflorescence*—a very slender panicle. Throughout. Lawns and waste places.

7b. Blade not as above (1 mm. or more wide), may be bristle-like 8



8a. Ligule a fringe of hairs

7. *Aristida oligantha*—Prairie Three-awn Grass

*Leaves* folded in bud-shoot; *sheath* distinctly flattened, smooth, split with overlapping hyaline margins; *auricles* absent; *collar* narrow, divided; *ligule* a fringe of hairs, about .2 mm. long; *blade* 1 to 2 mm. wide, rough and sometimes sparsely long hairy above, smooth below, margins rough. *Inflorescence*—a narrow, loosely flowered panicle. Massachusetts south. Open dry ground.

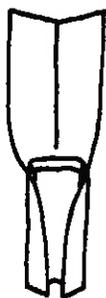
8b. Ligule membranous . . . . . 9

9a. Plants densely tufted, base of stems not usually decumbent . . . 10

9b. Plants not densely tufted, base of stems usually decumbent

8. *Festuca rubra*—Red Fescue

*Leaves* folded in bud-shoot; *sheath* distinctly flattened, smooth or very short hairy, split; *auricles* absent; *collar* mostly broad; *ligule* membranous, .2 to .3 mm. long, truncate; *blade* about 2 mm. wide, smooth above and below, margins smooth or slightly rough. *Inflorescence*—a narrow, contracted panicle. Common throughout. Lawns, meadows and waste places.



10a. Plant pale bluish green



9. *Festuca ovina*—Sheep Fescue

*Leaves* folded in bud-shoot; *sheath* distinctly flattened, smooth, split; *auricles* absent; *collar* medium broad, divided, indistinct; *ligule* membranous, about .3 mm. long, rounded; *blade* 1 to 1.5 mm. wide, bristle-like, smooth above and below and on margins. *Inflorescence*—a narrow panicle, sometimes almost spike-like. Throughout. Occasionally cultivated.

10b. Plant dark green



10. *Festuca rubra* var. *commutata*—Chewings Fescue

*Leaves* folded in bud-shoot; *sheath* distinctly flattened, smooth or very short hairy, split; *auricles* absent; *collar* broad; *ligule* membranous, .2 to .4 mm. long; *blade* 1 to 2 mm. wide, smooth above and below and on margins. *Inflorescence*—a narrow contracted panicle. Cultivated for lawns.

11a. Blade tip boat-shaped



11. *Poa pratensis*—Kentucky Bluegrass

*Leaves* folded in bud-shoot; *sheath* distinctly flattened, smooth, split with overlapping hyaline margins; *auricles* absent; *collar* broad, divided, may have fine hairs on margins; *ligule* membranous, mostly .2 to .3 mm. long but to .6 mm., truncate; *blade* 2 to 3 mm. wide, smooth to slightly rough above, smooth and keeled below, margins smooth to slightly rough or occasionally short hairy near base, tip boat-shaped. *Inflorescence*—an open, pyramidal panicle. Common throughout. Lawns, meadows, open ground and waste places.

11b. Blade tip not boat-shaped ..... 12

12a. Auricles present



12. *Lolium perenne*—Perennial Ryegrass

*Leaves* folded in bud-shoot; *sheath* distinctly flattened, smooth, split with overlapping hyaline margins; *auricles* small, slender; *collar* broad, divided, indistinct; *ligule* membranous, .4 to .6 mm. long, truncate; *blade* 2 to 3 mm. wide, smooth above and on margins, smooth and glossy below. *Inflorescence*—long, narrow, flat spikes with unawned spikelets placed edge to rachis. Common throughout. Cultivated.

12b. Auricles absent



13. *Muhlenbergia schreberi*—Nimblewill

*Leaves* rolled in bud-shoot; *sheath* distinctly flattened, smooth, split; *auricles* absent; *collar* broad, hairy on margins; *ligule* membranous, .4 to .6 mm. long, rounded; *blade* 2 to 2.5 mm. wide, smooth above and hairy near base, smooth below, margins rough and sparsely long hairy. *Inflorescence*—numerous, slender panicles. New Hampshire south. Lawns, pastures and waste places.

## GROUP 2

- 1a. Blade hairy above at least near base ..... 2
- 1b. Blade not hairy above ..... 7
- 2a. Collar hairy at least on margins ..... 5
- 2b. Collar not hairy ..... 3
- 3a. Blade flat, 2 to 3 mm. wide ..... 4
- 3b. Blade rolled and bristle-like, to 1.5 mm. wide



**14. *Aristida purpurascens*—Arrow-feather**

*Leaves* rolled in bud-shoot; *sheath* round, smooth, split with overlapping margins; *auricles* absent; *collar* broad; *ligule* membranous, to .3 mm. long, truncate, short ciliate; *blade* rolled and bristle-like, to 1.5 mm. wide, smooth above with a few hairs near base, smooth below, margins rough. *Inflorescence*—a narrow, lax and nodding panicle, one-third to half entire length of plant. Massachusetts south. Dry sandy soil.



**4a. Blade short hairy above**

**15. *Festuca myuros*—Rattail Fescue**

*Leaves* folded in bud-shoot; *sheath* round, smooth split with overlapping hyaline margins; *auricles* absent; *collar* narrow; *ligule* membranous, .2 to .4 mm. long, truncate; *blade* 2 to 3 mm. wide, short hairy above, smooth below and on margins. *Inflorescence*—a narrow panicle with appressed branches. Coastal Plain, Massachusetts south. Open ground.



**4b. Blade rough above, hairy behind ligule**

**16. *Muhlenbergia schreberi*—Nimblewill**

*Leaves* rolled in bud-shoot; *sheath* round, sharply keeled, smooth, split with overlapping hyaline margins; *auricles* absent; *collar* narrow; *ligule* membranous, about .2 mm. long, truncate; *blade* 2 to 3 mm. wide, rough above and hairy behind ligule, smooth below, margins slightly rough. *Inflorescence*—numerous, slender panicles. New Hampshire south. Lawns, pastures and waste places.



**5a. Sheath hairy at least near top ..... 6**

**5b. Sheath smooth**

**17. *Sporobolus asper*—Tall Dropseed**

*Leaves* rolled in bud-shoot; *sheath* round, smooth, split with overlapping margins; *auricles* absent; *collar* broad, sparsely hairy on margins; *ligule* a fringe of hairs, .2 to .3 mm. long; *blade* about 2 mm. wide, sparse long hairy near base above, smooth below, margins rough. *Inflorescence*—a pale or whitish or purplish, contracted, spike-like panicle. Vermont south. Sandy meadows.

6a. Plant tufted



18. *Danthonia spicata*—Poverty Oatgrass

*Leaves* folded in bud-shoot; *sheath* round, usually long hairy with a tuft of long hairs at throat, split with overlapping hyaline margins; *auricles* absent; *collar* narrow, generally with long hairs on margins; *ligule* a fringe of hairs, .2 to .4 mm. long; *blade* .2 to .3 mm. wide, short hairy above, rough below at least near tip, margins rough or short hairy. *Inflorescence*—a narrow panicle with stiff, short branches bearing one spikelet. Common throughout. Dry and sterile or rocky soil.

6b. Plants with slender creeping rhizomes or stolons

19. *Zoysia matrella*—Japanese Lawngrass

*Zoysia* spp.—Emerald Zoysia

*Leaves* rolled in bud-shoot; *sheath* round or somewhat flattened, smooth but mostly with a tuft of hairs at throat, split with overlapping margins; *auricles* absent; *collar* hairy at least on margins; *ligule* a fringe of hairs about .2 mm. long; *blade* 2 to 3 mm. wide, hairy above at least near base, smooth below, margins smooth to rough. *Inflorescence*—short, terminal, spike-like. Maryland and Delaware south. Cultivated for lawns.



7a. Ligule membranous . . . . . 13

7b. Ligule a fringe of hairs . . . . . 8

8a. Plants extensively creeping by strong, flat stolons

20. *Cynodon* spp.—U 3 Bermuda Grass

*Leaves* rolled in bud-shoot; *sheath* round to somewhat flattened, smooth with a tuft of hairs at throat, split with overlapping hyaline margins; *auricles* absent; *collar* medium broad to narrow, sometimes with a few long hairs on margins; *ligule* a fringe of hairs, .2 to .3 mm. long; *blade* 1.5 to 2 mm. wide, smooth to somewhat rough above, smooth below at least near base, margins rough. *Inflorescence*—4 or 5 digitate spikes. Maryland and Delaware south. Cultivated.



8b. Plants not creeping by stolons . . . . . 9

9a. Collar hairy on margins . . . . . 11

9b. Collar not hairy on margins . . . . . 10

10a. Blade bristle-like, 1 to 1.5 mm. wide

21. *Aristida dichotoma*—Poverty Grass

*Leaves* folded in bud-shoot; *sheath* round, smooth, split with overlapping hyaline margins; *auricles* absent; *collar* narrow, divided; *ligule* a fringe of hairs about .4 mm. long; *blade* 1 to 1.5 mm. wide, bristle-like, rough above, smooth below, margins slightly rough. *Inflorescence*—few-flowered, narrow, terminal and axillary panicles. Common throughout. Dry open ground.





**10b. Blade flat, 2 to 3 mm. wide**

**22. Eragrostis pectinacea—Pink Lovegrass**

*Leaves* rolled in bud-shoot; *sheath* round, smooth, sometimes long hairy at top, split with overlapping margins; *auricles* absent; *collar* medium broad to narrow, sometimes divided; *ligule* a fringe of hairs, .2 to .4 mm. long; *blade* 2 to 3 mm. wide, smooth to rough above, smooth below, margins at least slightly rough. *Inflorescence*—a delicate, open panicle. Throughout. Fields, open ground and waste places.

**11a. Sheath not hairy . . . . . 12**

**11b. Sheath with a tuft of hairs at throat**



**23. Danthonia spicata—Poverty Oatgrass**

*Leaves* folded in bud-shoot; *sheath* round to somewhat flattened, smooth with a tuft of hairs at throat, split with overlapping hyaline margins; *auricles* absent; *collar* medium broad, indistinct, hairy on margins; *ligule* a fringe of hairs, .2 to .3 mm. long; *blade* 2 to 3 mm. wide, rough above, smooth below, margins rough and hyaline. *Inflorescence*—a narrow panicle with stiff, short branches bearing one spikelet. Common throughout. Dry and sterile or rocky soil.

**12a. Collar narrow, continuous**

**24. Eragrostis poaeoides—Low Lovegrass**

*Leaves* rolled in bud-shoot; *sheath* round, smooth, split with overlapping hyaline margins; *auricles* absent; *collar* narrow, hairy on margins; *ligule* a fringe of hairs about .2 mm. long; *blade* 1.5 to 2.5 mm. wide, smooth above, smooth and glossy below, margins rough. *Inflorescence*—an erect, open panicle. Throughout, not common. Waste places.



**12b. Collar broad, divided**

**25. Sporobolus vaginiflorus—Dropseed**

*Leaves* rolled in bud-shoot; *sheath* round, smooth, split with overlapping hyaline margins; *auricles* absent; *collar* broad, divided, hairy on margins; *ligule* a minute fringe of hairs; *blade* 1.5 to 2.5 mm. wide, smooth above and below, margins slightly rough. *Inflorescence*—a short, slender panicle. Throughout. Sandy soil or open waste ground.



**13a. Low plants growing in dense colonies at edges of brackish marshes and streams**

**26. Distichlis spicata—Seashore Saltgrass**

*Leaves* rolled in bud-shoot; *sheath* round, smooth, split with overlapping hyaline margins; *auricles* absent; *collar* narrow to broad, may be hairy on margins; *ligule* membranous, about .2 mm. long; *blade* 2 to 3 mm. wide, smooth above and below and on margins, frequently bristle-like. *Inflorescence*—a pale or greenish, short, condensed panicle. Maine south. Seashores, forming dense colonies.



**13b. Plants not growing as above . . . . . 14**

14a. Sheath smooth ..... 16

14b. Sheath short hairy ..... 15

15a. Leaves glaucous, blue-green; plant densely tufted



27. *Festuca ovina*—Sheep Fescue

*Leaves* folded in bud-shoot; *sheath* round, short hairy, split with overlapping margins; *auricles* absent; *collar* narrow, indistinct; *ligule* membranous, to .5 mm. long, truncate; *blade* 1 to 2 mm. wide, bristle-like, rough above, smooth to rough below, margins smooth. *Inflorescence*—a narrow panicle, sometimes almost spike-like. Throughout. Occasionally cultivated.

15b. Leaves not glaucous, dark green; plant not densely tufted



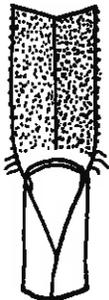
28. *Festuca rubra*—Red Fescue

*Leaves* folded in bud-shoot; *sheath* round, short hairy, split part-way only; *auricles* absent; *collar* narrow, indistinct; *ligule* membranous, about .5 mm. long, truncate; *blade* 1.5 to 3 mm. wide, bristle-like, smooth above and below and on margins. *Inflorescence*—a narrow, contracted panicle. Common throughout. Lawns, meadows and waste places.

16a. Collar narrow, leaves mostly bristle-like ..... 18

16b. Collar medium broad, leaves flat ..... 17

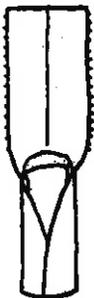
17a. Collar hairy



29. *Sporobolus clandestinus*—Scratch Dropseed

*Leaves* folded in bud-shoot; *sheath* round, smooth, split with overlapping hyaline margins; *auricles* absent; *collar* medium broad, hairy with a few long hairs on margins; *ligule* membranous, minute; *blade* to 3 mm. wide, rough above, smooth and glossy below, margins rough and hyaline. *Inflorescence*—a narrow, contracted panicle. Connecticut south. Sandy fields.

17b. Collar not hairy



30. *Agrostis tenuis*—Colonial Bent

*Leaves* rolled in bud-shoot; *sheath* round, smooth, split with overlapping hyaline margins; *auricles* absent; *collar* medium broad, may be divided; *ligule* membranous, to .4 mm. long, truncate; *blade* 1 to 3 mm. wide, flat, smooth to rough above, smooth below at least near base, margins rough and hyaline. *Inflorescence*—an open, delicate panicle. Common throughout. Pastures, lawns and waste places.

18a. Basal sheaths reddish, shining, perennials



31. *Festuca rubra*—Red Fescue

*Leaves* folded in bud-shoot; *sheath* mostly somewhat flattened, smooth, split with overlapping hyaline margins; *auricles* absent; *collar* narrow, generally divided; *ligule* membranous, .2 to .5 mm. long, truncate; *blade* 1 to 3 mm. wide, generally bristle-like, smooth to rough above and on margins, smooth below. *Inflorescence*—a narrow, contracted panicle. Common throughout. Lawns, meadows and waste places.

18b. Basal sheaths not reddish, annuals ..... 19

19a. Blade margins smooth



32. *Festuca myuros*—Rattail Fescue

*Leaves* folded in bud-shoot; *sheath* round, smooth, split with overlapping hyaline margins; *auricles* absent; *collar* narrow, may be divided; *ligule* membranous, about .2 mm. long, truncate; *blade* 1 to 2 mm. wide, bristle-like, smooth above and below and on margins. *Inflorescence*—a narrow panicle with appressed branches. Coastal Plain, Massachusetts south. Open ground.

19b. Blade margins at least slightly rough



33. *Festuca octoflora*—Six-weeks Fescue

*Leaves* folded in bud-shoot; *sheath* round, smooth, split with overlapping hyaline margins; *auricles* absent; *collar* narrow; *ligule* membranous, .2 to .4 mm. long, truncate; *blade* 1 to 2 mm. wide, bristle-like, smooth above and below, margins rough to slightly rough. *Inflorescence*—a narrow panicle with short branches. New York south. Open, sterile ground.

GROUP 3

1a. Collar hairy at least on margins ..... 2

1b. Collar not hairy ..... 5

2a. Sheath hairy at least at top or throat ..... 3

2b. Sheath not hairy

34. *Eragrostis poaeoides*—Low Lovegrass

*Leaves* rolled in bud-shoot; *sheath* round, smooth, split with overlapping margins; *auricles* absent; *collar* broad, hairy near margins, margins hairy; *ligule* a fringe of hairs, 1 to 1.5 mm. long; *blade* to 3 mm. wide, smooth above and below, margins rough. *Inflorescence*—an erect, open panicle. Throughout, not common. Waste places.



3a. Ligule to 1 mm. or more long ..... 4



3b. Ligule not more than .6 mm. long

35. *Eragrostis pectinacea*—Pink Lovegrass

*Leaves* rolled in bud-shoot; *sheath* round to somewhat flattened, smooth, hairy at top or throat, split with overlapping hyaline margins; *auricles* absent; *collar* narrow, hairy on margins; *ligule* a fringe of hairs, about .6 mm. long; *blade* to 3 mm. wide, rough above, smooth below and keeled near base, margins rough and hyaline. *Inflorescence*—a delicate, open panicle. Throughout. Fields, open ground and waste places.

4a. Sheath closed to near top



36. *Bromus mollis*—Soft Chess

*Leaves* rolled in bud-shoot; *sheath* round, soft dense long hairy, closed to near top; *auricles* absent; *collar* narrow, divided, hairy, margins hairy; *ligule* membranous, 1.2 to 1.7 mm. long, rounded, toothed; *blade* to 3 mm. wide, long white hairy above, long hairy below, margins rough and long hairy. *Inflorescence*—an erect, contracted crowded panicle. Throughout, not common. Waste places and cultivated soil.

4b. Sheath split to base



37. *Danthonia spicata*—Poverty Oatgrass

*Leaves* folded in bud-shoot; *sheath* round, long hairy, split; *auricles* absent; *collar* narrow, often indistinct, long hairy on margins; *ligule* a fringe of hairs, to 1.2 mm. long; *blade* 2 to 3 mm. wide, smooth or sparsely long hairy above and below, sometimes glossy below, margins at least slightly rough. *Inflorescence*—a narrow panicle with stiff, short branches bearing one spikelet. Common throughout. Dry and sterile or rocky soil.

5a. Ligule 1 mm. or less long . . . . . 6

5b. Ligule more than 1 mm. long . . . . . 12

6a. Ligule membranous . . . . . 7

6b. Ligule a fringe of hairs

38. *Spartina patens*—Salt-meadow Cordgrass

*Leaves* rolled in bud-shoot; *sheath* round, smooth, split with overlapping hyaline margins; *auricles* absent; *collar* broad; *ligule* a fringe of hairs, .4 to 1 mm. long; *blade* 2 to 3 mm. wide, bristle-like, rough above and on margins, smooth below. *Inflorescence*—2 to several comb-like spikes forming an appressed to open panicle. Maine south. Brackish marshes and beach sand along coast.



7a. Blade 1 to 2 mm. wide . . . . . 8

7b. Blade 2 to 3 mm. wide . . . . . 11

8a. Blade flat . . . . . 9

9a. Blade margins smooth



39. *Agrostis palustris*—Creeping Bent

*Leaves* rolled in bud-shoot; *sheath* round, smooth, split with overlapping hyaline margins; *auricles* absent; *collar* narrow; *ligule* membranous, .6 to .8 mm. long, rounded, toothed; *blade* about 1 mm. wide, flat, smooth above and below and on margins. *Inflorescence*—a narrow, dense, pale or purple panicle. Marshes along coast, also cultivated for putting green.

9b. Blade margins rough



40. *Agrostis canina*—Velvet Bent

*Leaves* rolled in bud-shoot; *sheath* round, smooth, split with overlapping hyaline margins; *auricles* absent; *collar* medium broad; *ligule* membranous, .4 to .8 mm. long, rounded to acute; *blade* about 1 mm. wide, flat, smooth above and below, margins rough and hyaline. *Inflorescence*—a loose, spreading panicle. Maine to Delaware. Meadows and open ground. Cultivated for putting greens.

10a. Lower sheaths slightly longer than the internodes



41. *Festuca myuros*—Rattail Fescue

*Leaves* folded in bud-shoot; *sheath* round, smooth, split with overlapping hyaline margins; *auricles* absent; *collar* narrow to broad; *ligule* membranous, .4 to .8 mm. long, truncate, sometimes toothed; *blade* 1 to 2 mm. wide, bristle-like, smooth or rough or very short hairy above, smooth below and on margins. *Inflorescence*—a narrow panicle with appressed branches. Coastal Plain. Massachusetts south. Open ground.

10b. Lower sheaths shorter than the internodes



42. *Festuca octoflora*—Six-weeks Fescue

*Leaves* folded in bud-shoot; *sheath* round, smooth, split with overlapping hyaline margins; *auricles* absent; *collar* narrow; *ligule* membranous, .4 to .8 mm. long, truncate; *blade* 1 to 2 mm. wide, bristle-like, smooth above or sometimes short hairy, smooth below, margins smooth to slightly rough. *Inflorescence*—a narrow panicle with short branches. New York south. Open sterile ground.

11a. Sheath hairy



43. *Digitaria filiformis*—Slender Crabgrass

*Leaves* rolled in bud-shoot; *sheath* round, long hairy (upper smooth), split; *auricles* absent; *collar* narrow, divided; *ligule* membranous, .6 to 1 mm. long, truncate; *blade* 2 to 3 mm. wide, smooth above and below, margins smooth and hyaline. *Inflorescence*—1 to 5 digitate, spike-like branches. New Hampshire south. Sandy fields and sterile open ground.



**11b. Sheath smooth**

**44. Agrostis tenuis—Colonial Bent**

*Leaves* rolled in bud-shoot; *sheath* round, smooth, split with overlapping hyaline margins; *auricles* absent; *collar* narrow to medium broad, divided; *ligule* membranous, .4 to 1 mm. long, truncate; *blade* 2 to 3 mm. wide, smooth to rough above and below, margins rough. *Inflorescence*—an open, delicate panicle. Common throughout. Pastures, lawns and waste places.

**12a. Ligule more than 3 mm. long . . . . . 13**

**12b. Ligule 3 mm. or less long . . . . . 14**

**13a. Blade rough above and below**

**45. Agrostis stolonifera—Meadow Bent**

*Leaves* rolled in bud-shoot; *sheath* round, smooth, split with overlapping hyaline margins; *auricles* absent; *collar* narrow, divided, indistinct; *ligule* membranous, 3 to 4.5 mm. acute; *blade* about 1.5 mm. wide, bristle-like, rough above and below and on margins. *Inflorescence*—a pale or purple, somewhat open panicle. Throughout. Moist, grassy places.



**13b. Blade smooth above and below**

**46. Alopecurus carolinianus—Field Foxtail**

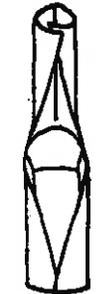
*Leaves* rolled in bud-shoot; *sheath* round, smooth, split with overlapping hyaline margins; *auricles* absent; *collar* narrow, divided; *ligule* membranous, 4 to 5 mm. long, acuminate; *blade* 2 to 3 mm. wide, smooth above and below, margins rough. *Inflorescence*—soft, dense, cylindrical, spike-like. Long Island south. Moist ground and wet places.



**14a. Blades thread-like**

**47. Deschampsia flexuosa—Crinkled Hairgrass**

*Leaves* folded in bud-shoot; *sheath* round, smooth, split with overlapping hyaline margins; *auricles* absent; *collar* narrow; *ligule* membranous, 1.4 to 2 mm. long, rounded; *blade* rolled, thread-like, about .4 mm. wide, smooth. *Inflorescence*—a loose, open, nodding panicle with capillary branches. Throughout. Dry or rocky places.



**14b. Blades not thread-like . . . . . 15**

**15a. Plants spreading by stolons**

**48. Agrostis palustris—Creeping Bent**

*Leaves* rolled in bud-shoot; *sheath* round, smooth, split with overlapping hyaline margins; *auricles* absent; *collar* narrow to medium broad; *ligule* membranous, 1 to 2 mm. long, acute; *blade* 2 to 3 mm. wide, smooth to rough above and below and on margins. *Inflorescence*—a narrow, dense, pale or purple panicle. Marshes along coast. Also cultivated for putting greens.



16a. Collar narrow, divided



49. *Agrostis hiemalis*—Spring Hairgrass

*Leaves* rolled in bud-shoot; *sheath* round, smooth, split with overlapping hyaline margins; *auricles* absent; *collar* narrow, divided, sometimes indistinct; *ligule* membranous, 1 to 3 mm. long, rounded to acute; *blade* 1 to 3 mm. wide, smooth to rough above and below, margins at least slightly rough. *Inflorescence*—a purplish, spreading, slender-branched panicle. Massachusetts south. Open ground, fields and waste places.

16b. Collar broad, not divided



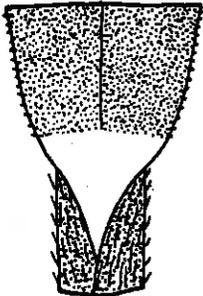
50. *Eragrostis capillaris*—Lacegrass

*Leaves* rolled in bud-shoot; *sheath* round, smooth, split with overlapping hyaline margins; *auricles* absent; *collar* broad; *ligule* membranous, 1 to 2 mm. long, rounded, lacerate or toothed; *blade* 2 to 3 mm. wide, rough above and below and on margins. *Inflorescence*—an open, diffuse panicle two-thirds entire height of plant. Throughout. Dry, open ground and fields.

GROUP 4

1a. Sheath long hairy, at least at top or throat

51. *Echinochloa walteri*—Walter's Millet

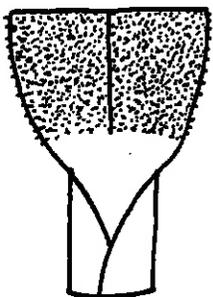


*Leaves* rolled in bud-shoot; *sheath* round to somewhat flattened, rough and long hairy at least at top or throat, split with overlapping hyaline margins; *auricles* absent; *collar* narrow to medium broad; *ligule* absent; *blade* 10 to 20 mm. wide (sometimes to 30 mm.), rough above and below at least near tip, margins rough to very rough and hyaline. *Inflorescence*—a compact panicle with short, bristly, densely flowered, spike-like branches. Coastal Plain. Massachusetts south. Wet places, often in shallow water or brackish marshes.

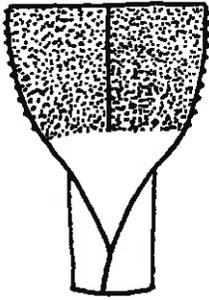
1b. Sheath not hairy . . . . . 2

2a. A common weed

52. *Echinochloa crusgalli*—Barnyard Grass



*Leaves* rolled in bud-shoot; *sheath* somewhat to distinctly flattened, mostly smooth but occasionally somewhat rough or short hairy, split to base with overlapping hyaline margins; *auricles* absent; *collar* narrow to broad; *ligule* absent; *blade* mostly 10 to 20 mm. wide (occasionally to 30 mm.), generally rough above at least near tip, margins rough. *Inflorescence*—a compact panicle with short, densely flowered, spike-like branches. Throughout. Moist, open ground, fields and ditches.



**2b. A cultivated annual**

**53. Echinochloa crusgalli var. frumentacea—Japanese Millet**

*Leaves* rolled in bud-shoot; *sheath* round to somewhat flattened, smooth, split with overlapping hyaline margins; *auricles* absent; *collar* narrow; *ligule* absent; *blade* to 30 mm. wide, rough above and below at least near tip, margins very rough and hyaline. *Inflorescence*—a compact panicle with short, densely flowered, spike-like branches. Occasionally cultivated as a forage grass.

**GROUP 5**

**1a. Plant with creeping rhizomes or stolons . . . . . 2**

**1b. Plant without creeping rhizomes or stolons . . . . . 4**

**2a. Blade rolled and bristle-like**

**54. Spartina patens—Salt-meadow Cordgrass**

*Leaves* rolled in bud-shoot; *sheath* round, smooth, split with overlapping hyaline margins; *auricles* absent; *collar* narrow to broad; *ligule* a fringe of hairs, .4 to 1 mm. long; *blade* 2 to 4 mm. wide, bristle-like, smooth to rough above, smooth below, margins smooth to rough. *Inflorescence*—2 to several comb-like spikes forming an appressed to open panicle. Maine south. Brackish marshes and beach sand along coast.



**2b. Blade not rolled and bristle-like . . . . . 3**

**3a. Plant with creeping rhizomes and strong flat stolons**

**55. Cynodon dactylon—Bermuda Grass**

*Leaves* rolled in bud-shoot; *sheath* round to distinctly flattened, mostly smooth but may be short hairy or have a tuft of hairs at throat, split with margins hyaline and mostly overlapping; *auricles* absent; *collar* narrow to broad, hairy at least on margins; *ligule* a fringe of hairs, mostly .2 to .4 mm. long (may be longer); *blade* 2 to 5 mm. wide, smooth to rough or short hairy above but mostly with at least a few hairs near base, smooth to rough or short hairy below, margins rough and hyaline. *Inflorescence*—4 or 5 digitate spikes. Maryland south. Common in fields and grasslands.



**3b. Plants with creeping rhizomes but without stolons**

**56. Zoysia japonica—Meyer Zoysia**

*Leaves* rolled in bud-shoot; *sheath* round to somewhat flattened, smooth but may have a tuft of hairs at throat, split with overlapping hyaline margins; *auricles* absent; *collar* mostly broad, hairy at least on margins; *ligule* a fringe of hairs, to .2 mm. long; *blade* 2 to 5 mm. wide, smooth or occasionally short hairy above with at least a few long hairs near base, smooth below, margins smooth to rough and occasionally long hairy near base. *Inflorescence*—short, terminal, spike-like. Maryland and Delaware south. Cultivated for lawns.



4a. Sheath hairy at least at top or base ..... 5

4b. Sheath not hairy ..... 7

5a. Sheath distinctly flattened



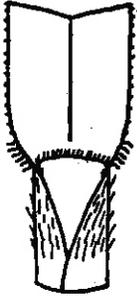
57. *Cenchrus pauciflorus*—Field Sandbur

*Leaves* rolled in bud-shoot; *sheath* distinctly flattened, smooth with a tuft of hairs at throat, split with overlapping hyaline margins; *auricles* absent; *collar* narrow to broad, hairy on margins; *ligule* a fringe of hairs, .6 to 1 mm. long; *blade* 3 to 5 mm. wide, rough above, smooth near base and rough near tip below, margins slightly rough to rough and hyaline. *Inflorescence*—a nearly round, hairy bur with sharp spines. Throughout. Sandy open ground.

5b. Sheath not distinctly flattened ..... 6

6a. Blade generally rough above

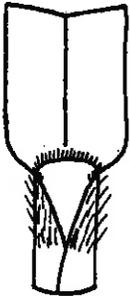
58. *Danthonia spicata*—Poverty Oatgrass



*Leaves* folded in bud-shoot; *sheath* round to somewhat flattened, hairy at least at top or base, split with overlapping hyaline margins; *auricles* absent; *collar* mostly narrow and hairy at least on margins; *ligule* a fringe of hairs, mostly .2 to .6 mm. long (occasionally to 1 mm.), sometimes with longer hairs to 3 mm. long; *blade* 3 to 5 mm. wide, smooth to rough above, mostly smooth and glossy below but occasionally short hairy, margins rough and hyaline. *Inflorescence*—a narrow panicle with stiff, short branches bearing one spikelet. Common throughout. Sandy and sterile or rocky soil.

6b. Blade generally smooth above

59. *Danthonia compressa*—Mountain Oatgrass



*Leaves* folded in bud-shoot; *sheath* round to somewhat flattened, hairy at least at top, split with overlapping hyaline margins; *auricles* absent; *collar* narrow, may be hairy at least on margins; *ligule* a fringe of hairs, .2 to .4 mm. long but occasionally with longer hairs; *blade* 2 to 5 mm. wide, mostly smooth above at least near base but may be long hairy, smooth to occasionally long hairy below, margins smooth to rough and somewhat long hairy. *Inflorescence*—a narrow panicle with stiff, short branches bearing 2 or 3 spikelets. Throughout. Meadows and open woods.

7a. Blade long hairy below at least near base

60. *Danthonia sericea*—Downy Oatgrass

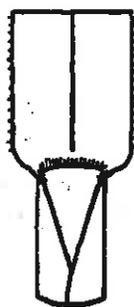


*Leaves* folded in bud-shoot; *sheath* round, smooth, split with overlapping hyaline margins; *auricles* absent; *collar* broad, may be hairy; *ligule* a fringe of hairs, .6 to 1 mm. long; *blade* 3 to 5 mm. wide, smooth to rough above, long hairy below at least near base, margins rough or long hairy. *Inflorescence*—a narrow panicle with stiff, short branches bearing 2 to 6 spikelets. Massachusetts south, chiefly Coastal Plain. Sand barrens.

7b. Blade smooth below

61. *Eragrostis pectinacea*—Pink Lovegrass

*Leaves* rolled in bud-shoot; *sheath* round to somewhat flattened, smooth, split with overlapping hyaline margins; *auricles* absent; *collar* narrow to broad, may be hairy on margins; *ligule* a fringe of hairs, .2 to .6 mm. long; *blade* 3 to 5 mm. wide, smooth to rough above, smooth and sometimes glossy below, margins rough and hyaline. *Inflorescence*—a delicate, open panicle. Throughout. Fields, open ground and waste places.



GROUP 6

1a. Collar not hairy ..... 2

1b. Collar hairy, at least on margins ..... 9

    2a. Sheath hairy, at least at top or throat ..... 3

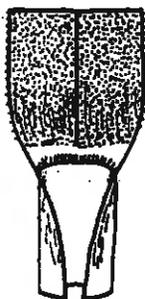
    2b. Sheath smooth ..... 6

3a. Blade margins at least sparse hairy ..... 4

3b. Blade margins not hairy

62. *Eragrostis capillaris*—Lacegrass

*Leaves* rolled in bud-shoot; *sheath* slightly flattened, hairy at top at least near margins, split with hyaline margins; *auricles* absent; *collar* medium broad; *ligule* a fringe of hairs, about .2 mm. long; *blade* to 8 mm. wide, rough above and hairy near base, smooth below, margins rough. *Inflorescence*—an open diffuse panicle two-thirds entire height of plant. Throughout. Dry open ground and fields.

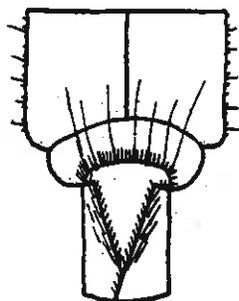


    4a. Blade hairy above ..... 5

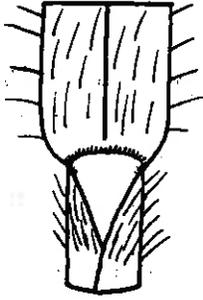
    4b. Blade smooth above

63. *Phragmites communis*—Common Reed

*Leaves* rolled in bud-shoot; *sheath* round, smooth and hairy at throat, split with margins hairy; *auricles* absent; *collar* broad; *ligule* a fringe of hairs, about 1 mm. long with scattered hairs to as much as 6 to 7 mm. long, fused at base; *blade* to 25 mm. wide, smooth above and below, margins rough and sparsely short hairy. *Inflorescence*—a large, densely flowered, tawny or purple panicle. South to Maryland. Mostly wet land and marshes.



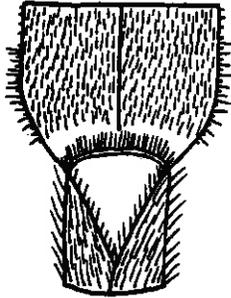
5a. Sheath margins hyaline



64. *Eragrostis spectabilis*—Purple Lovegrass

*Leaves* rolled in bud-shoot; *sheath* round, smooth with upper half long hairy, split with overlapping hyaline margins; *auricles* absent; *collar* broad; *ligule* a minute fringe of hairs; *blade* 5 to 8 mm. wide, long sparse hairy above, smooth below, margins smooth and sparsely long hairy near base. *Inflorescence*—a diffuse, bright purple panicle two-thirds entire height of plant. Throughout. Sandy soil.

5b. Sheath margins hairy



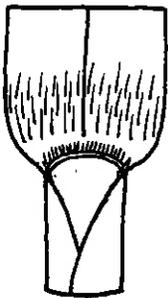
65. *Panicum capillare*—Witchgrass

*Leaves* rolled in bud-shoot; *sheath* somewhat flattened, stiff long hairy, split with overlapping margins hairy; *auricles* absent; *collar* narrow; *ligule* a fringe of hairs, about 1 mm. long, fused at base; *blade* to 17 mm. wide, short hairy above and below, margins rough and short hairy near base. *Inflorescence*—a very diffuse, densely flowered panicle, about half entire height of plant. Throughout. Cultivated fields, open ground and waste places.

6a. Plants with large creeping rhizomes ..... 7

6b. Plants without creeping rhizomes

66. *Setaria lutescens*—Yellow Foxtail

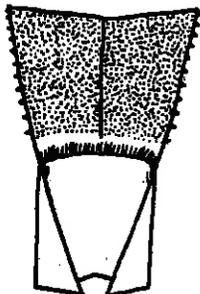


*Leaves* rolled in bud-shoot; *sheath* distinctly flattened, smooth, split with overlapping hyaline margins; *auricles* absent; *collar* narrow to broad; *ligule* a fringe of hairs, about 1 mm. long, fused at base; *blade* to 12 mm. wide, long hairy near base above, smooth to somewhat rough below, margins smooth to rough. *Inflorescence*—dense, bristly, cylindrical, yellow, erect, spike-like. Common throughout. Cultivated soil and waste places.

7a. Sheath round ..... 8

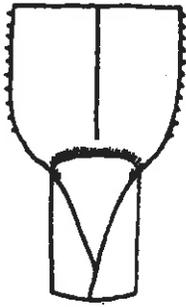
7b. Sheath distinctly flattened

67. *Tripsacum dactyloides*—Eastern Gamagrass



*Leaves* rolled in bud-shoot; *sheath* distinctly flattened, smooth, split with overlapping margins; *auricles* absent; *collar* narrow to broad, sometimes divided; *ligule* a fringe of hairs, .4 to 1 mm. long, sometimes fused at base; *blade* 20 to 25 mm. wide, rough above and below at least near tip, margins very rough. *Inflorescence*—1 to 3 terminal, unisexual spikes. Massachusetts south. Moist places and banks near water.

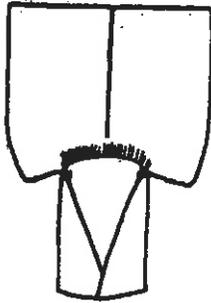
**8a. Blade margin very rough**



**68. *Spartina pectinata*—Prairie Cordgrass**

*Leaves* rolled in bud-shoot; *sheath* round, smooth, split with overlapping hyaline margins; *auricles* absent; *collar* medium broad, divided; *ligule* a fringe of hairs, .4 to .6 mm. long; *blade* 8 to 15 mm. wide, smooth near base and rough near tip above, margins very rough. *Inflorescence*—a series of comb-like spikes forming an appressed panicle. Throughout. Fresh water marshes.

**8b. Blade margin smooth**



**69. *Panicum hemitomen*—Maidencane**

*Leaves* rolled in bud-shoot; *sheath* round, smooth, split with overlapping hyaline margins; *auricles* absent, *collar* broad; *ligule* a fringe of hairs, .8 to 1 mm. long; *blade* 10 to 20 mm. wide, smooth above and below, margins smooth and hyaline. *Inflorescence*—a narrow panicle with erect, distant branches. New Jersey south on Coastal Plain. Moist soil, often in water.

**9a. Blade hairy above, at least near base** ..... 16

**9b. Blade not hairy above** ..... 10

**10a. Ligule more than .5 mm. long** ..... 12

**10b. Ligule less than .5 mm. long** ..... 11

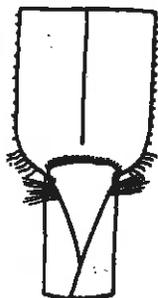
**11a. Sheath distinctly flattened**



**70. *Uniola laxa*—Slender Uniola**

*Leaves* rolled in bud-shoot; *sheath* distinctly flattened, smooth and hairy at top, split with overlapping hyaline margins; *auricles* absent; *collar* broad, hairy behind ligule; *ligule* a fringe of hairs, about .4 mm. long; *blade* 4 to 7 mm. wide, rough above, smooth and keeled below, margins rough. *Inflorescence*—a slender, nodding panicle. Coastal Plain, Long Island south. Moist shady places.

**11b. Sheath round to somewhat flattened**



**71. *Eragrostis hirsuta* var. *laevivaginata*—Smooth Lovegrass**

*Leaves* rolled in bud-shoot; *sheath* round to somewhat flattened, smooth, mostly with a tuft of hairs at throat, split with margins hyaline or one hairy; *auricles* absent; *collar* broad, hairy at least on margins; *ligule* a fringe of hairs, .2 to .4 mm. long; *blade* 5 to 10 mm. wide (occasionally wider), smooth above and below, margins rough. *Inflorescence*—a diffuse panicle more than one-half entire height of plant. Maryland south. Dry soil.

12a. Blade not more than 10 mm. wide . . . . . 13

12b. Blade usually much more than 10 mm. wide . . . . . 15

13a. Plants spreading by stolons

72. *Cynodon dactylon*—Bermuda Grass

*Leaves* rolled in bud-shoot; *sheath* round, smooth, hairy at throat, split with hyaline margins; *auricles* absent; *collar* broad, hairy on margins; *ligule* a fringe of hairs, .4 to .6 mm. long, fused at base; *blade* 5 to 6 mm. wide, rough above, smooth near base and rough near tip below, margins rough and hyaline. *Inflorescence*—4 or 5 digitate spikes. Maryland south. Common in fields and grasslands.

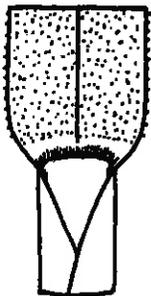


13b. Plants not spreading by stolons . . . . . 14

14a. Sheath margins hyaline

73. *Eragrostis cilianensis*—Stinkgrass

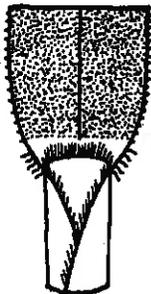
*Leaves* rolled in bud-shoot; *sheath* round to somewhat flattened, smooth and occasionally hairy at throat, split with overlapping hyaline margins; *auricles* absent; *collar* narrow to broad, hairy or hairy on margins; *ligule* a fringe of hairs, .4 to 1 mm. long; *blade* 5 to 10 mm. wide, at least slightly rough above, glossy below and smooth at least near base, margins at least somewhat rough. *Inflorescence*—an erect, rather condensed, dark gray-green to tawny panicle. Throughout. Cultivated ground, fields and waste places.



14b. Sheath margins hairy

74. *Setaria viridis*—Green Foxtail

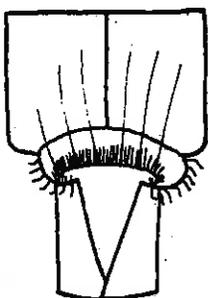
*Leaves* rolled in bud-shoot; *sheath* round to somewhat flattened, smooth, split with overlapping margins hairy; *auricles* absent; *collar* broad, divided, hairy at least on margins; *ligule* a fringe of hairs, .8 to 1 mm. long; *blade* 5 to 10 mm. wide, rough above, smooth to slightly rough and keeled below, margins rough and hyaline. *Inflorescence*—dense, bristly, cylindrical, green or purplish, erect, spike-like. Common throughout. Cultivated soil and waste places.



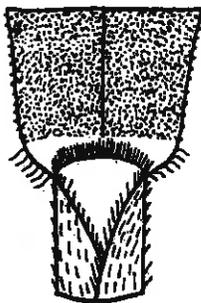
15a. Plants with large creeping rhizomes

75. *Phragmites communis*—Common Reed

*Leaves* rolled in bud-shoot; *sheath* round, smooth to somewhat rough or sparsely short hairy or hairy at top, split with overlapping scarious margins; *auricles* absent; *collar* narrow to broad, hairy at least on margins; *ligule* a fringe of hairs, .6 to 1 mm. long, usually with a few to 6 to 12 mm. long; *blade* 15 to as much as 50 mm. wide, smooth above and below, margins smooth to rough. *Inflorescence*—a large, densely flowered, tawny or purple panicle. South to Maryland. Mostly wet land and marshes.



15b. Plant without creeping rhizomes



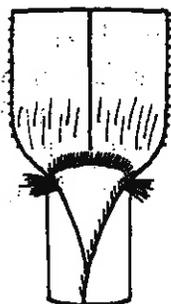
76. *Setaria italica*—Foxtail Millet

*Leaves* rolled in bud-shoot; *sheath* round, at least sparsely short hairy, split with overlapping hairy margins; *auricles* absent; *collar* medium broad to broad, hairy and hairy on margin; *ligule* a fringe of hairs, .6 to 1 mm. long, sometimes fused at base; *blade* 12 to 20 mm. wide, rough above, smooth below at least near base, margins rough and hyaline. *Inflorescence*—dense, bristly, cylindrical, yellowish or purplish, spike-like. Cultivated for forage.

16a. Sheath margins hairy (at least one) ..... 17

16b. Sheath margins hyaline ..... 19

17a. Ligule less than .5 mm. long

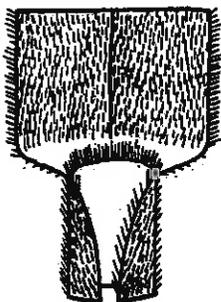


77. *Eragrostis hirsuta* var. *laevivaginata*—Smooth Lovegrass

*Leaves* rolled in bud-shoot; *sheath* round, smooth with a tuft of hairs at throat, split with one margin hyaline and one hairy; *auricles* absent; *collar* broad, ring of hairs at base; *ligule* a fringe of hairs, .3 to .4 mm. long, fused at base; *blade* 8 to 12 mm. wide, smooth above with a few long hairs near base, smooth and glossy below, margins rough. *Inflorescence*—a diffuse panicle more than one-half entire height of plant. Maryland south. Dry soil.

17b. Ligule about 1 mm. long ..... 18

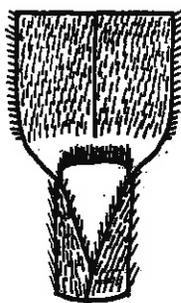
18a. Plants with a bare sticky ring just below node



78. *Panicum scoparium*—Velvety Panicum

*Leaves* rolled in bud-shoot; *sheath* round, dense velvety white hairy, split with at least one margin hairy; *auricles* absent; *collar* narrow to broad, dense white hairy; *ligule* a fringe of hairs, about 1 mm. long; *blade* 15 to 25 mm. wide, velvety short hairy above and below, margins short hairy. *Inflorescence*—an open, many branched panicle with sticky blotches on axis and branches. Massachusetts south. Wet or damp soil.

18b. Plants without bare ring below nodes



79. *Panicum capillare*—Witchgrass

*Leaves* rolled in bud-shoot; *sheath* somewhat flattened, long stiff white hairy, split with overlapping hairy margins; *auricles* absent; *collar* narrow, hairy; *ligule* a fringe of hairs, about 1 mm. long; *blade* 10 to 15 mm. wide, short hairy above and below, keeled below, margins rough and short hairy. *Inflorescence*—a very diffuse, densely flowered panicle, about half entire height of plant. Throughout. Cultivated fields, open ground and waste places.

19a. Ligule about .2 mm. long



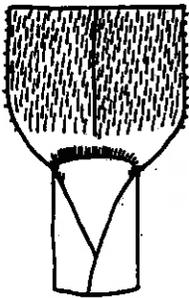
80. *Eragrostis spectabilis*—Purple Lovegrass

*Leaves* rolled in bud-shoot; *sheath* round, smooth with a tuft of hairs at throat, split with overlapping hyaline margins; *auricles* absent; *collar* broad, ring of hairs at base; *ligule* a fringe of hairs, about .2 mm. long; *blade* 8 to 10 mm. wide, long hairy near base above, smooth below, margin rough and hyaline. *Inflorescence*—a diffuse, bright purple panicle two-thirds entire height of plant. Throughout. Sandy soil.

19b. Ligule at least .4 mm. long . . . . . 20

20a. Sheath distinctly flattened . . . . . 21

20b. Sheath not distinctly flattened



81. *Tridens flavus*—Purpletop

*Leaves* rolled in bud-shoot; *sheath* round, smooth, sometimes hairy at top, split with overlapping margins; *auricles* absent; *collar* broad, hairy; *ligule* a fringe of hairs, .4 to .8 mm. long; *blade* 8 to 17 mm. wide, hairy above, smooth at least near base below, margins at least slightly rough. *Inflorescence*—an open purple or nearly black panicle. New Hampshire south. Old fields.

21a. Plants with short knotty branching rhizomes

82. *Setaria geniculata*—Knotroot Foxtail

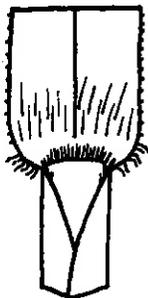
*Leaves* rolled in bud-shoot; *sheath* distinctly flattened, smooth, split with overlapping hyaline margins; *auricles* absent; *collar* medium broad, hairy on margins; *ligule* a fringe of hairs, .4 to .8 mm. long; *blade* 5 to 11 mm. wide, hairy above at least on lower half, keeled and smooth below at least near base, margins smooth to slightly rough and hyaline. *Inflorescence*—dense, bristly, cylindrical, yellow or purplish, erect, spike-like. Massachusetts south. Open ground, cultivated soil, pastures, moist ground and salt marshes.



21b. Plants without rhizomes

83. *Setaria lutescens*—Yellow Foxtail

*Leaves* rolled in bud-shoot; *sheath* distinctly flattened, keeled, smooth, sometimes sparsely hairy at base, split with overlapping hyaline margins; *auricles* absent; *collar* narrow to broad, divided, hairy on margins; *ligule* a fringe of hairs, .5 to 1 mm. long; *blade* 5 to 10 mm. wide, smooth to slightly rough above and mostly with a few long hairs near base, smooth below at least near base, margins at least slightly rough. *Inflorescence*—dense, bristly, cylindrical, yellow, erect, spike-like. Common throughout. Cultivated soil and waste places.



## GROUP 7

- 1a. Sheath distinctly flattened . . . . . 2
- 1b. Sheath not distinctly flattened . . . . . 5

### 2a. Sheath hairy

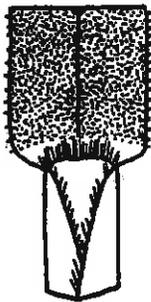


#### 84. *Cenchrus tribuloides*—Dune Sandbur

*Leaves* rolled in bud-shoot; *sheath* distinctly flattened, keeled, sparsely long or short hairy, split with margins hairy; *auricles* absent; *collar* narrow, sometimes hairy; *ligule* a fringe of hairs, 1 to 2 mm. long; *blade* 4 to 7 mm. wide, smooth to rough above, smooth and keeled below, margins smooth to rough and hyaline. *Inflorescence*—a nearly round, hairy bur with sharp spines. Staten Island, N. Y., south. Loose sands of coast.

- 2b. Sheath not hairy . . . . . 3

### 3a. Sheath loose or inflated

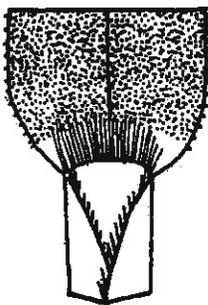


#### 85. *Cenchrus pauciflorus*—Field Sandbur

*Leaves* rolled in bud-shoot; *sheath* loose, distinctly flattened, keeled, smooth, split with overlapping margins hairy; *auricles* absent; *collar* narrow; *ligule* a fringe of hairs, 1 to 1.6 mm. long; *blade* 5 to 10 mm. wide, rough above, keeled and rough below at least near tip, margins rough. *Inflorescence*—a nearly round, hairy bur with sharp spines. Throughout. Sandy open ground.

- 3b. Sheath not loose or inflated . . . . . 4

### 4a. Ligule more than 2 mm. long



#### 86. *Setaria magna*—Giant Millet

*Leaves* rolled in bud-shoot; *sheath* distinctly flattened, keeled, smooth, split with overlapping hairy margins; *auricles* absent; *collar* narrow; *ligule* a fringe of hairs, 2.5 to 3.5 mm. long; *blade* 15 to 45 mm. wide, rough above and below and on margins, keeled below. *Inflorescence*—dense, bristly, cylindrical, nodding, spike-like, to 20 in. long. New Jersey south. Marshes and wet places along coast.

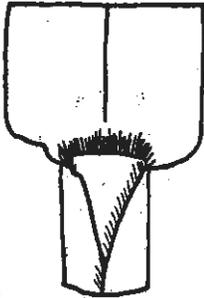
### 4b. Ligule less than 2 mm. long



#### 87. *Setaria verticillata*—Bristly Foxtail

*Leaves* rolled in bud-shoot; *sheath* distinctly flattened, keeled, smooth, split with overlapping hairy margins; *auricles* absent; *collar* narrow, divided; *ligule* a fringe of hairs, 1 to 1.4 mm. long; *blade* to 8 mm. wide, rough above, smooth near base and rough near tip below, margins rough and hyaline. *Inflorescence*—dense, bristly, cylindrical, erect, spike-like, with barbed bristles. Massachusetts south. Cultivated soil and waste places.

- 5a. Ligule not more than 2 mm. long . . . . . 6
- 5b. Ligule more than 2 mm. long . . . . . 11
- 6a. Blade generally more than 15 mm. wide . . . . . 7
- 6b. Blade generally 15 mm. or less wide . . . . . 8



7a. Plants with large creeping rhizomes

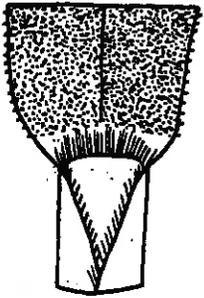
88. *Panicum hemitomen*—Maidencane

*Leaves* rolled in bud-shoot; *sheath* round, smooth or sometimes densely hairy, split with one margin hairy; *auricles* absent; *collar* broad; *ligule* a fringe of hairs, 1 to 1.6 mm. long; *blade* to 22 mm. wide, smooth above and below, margins smooth to slightly rough. *Inflorescence*—a narrow panicle with erect, distant branches. New Jersey south on Coastal Plain. Moist soil, often in water.

7b. Plants without creeping rhizomes

89. *Setaria italica*—Foxtail Millet

*Leaves* rolled in bud-shoot; *sheath* round to somewhat flattened, mostly smooth but may be short hairy or slightly rough, split with overlapping margins hairy; *auricles* absent; *collar* narrow to broad, sometimes divided, hairy; *ligule* a fringe of hairs, 1 to 2 mm. long; *blade* to 40 mm. wide, rough above, rough below at least near tip, margins rough to very rough. *Inflorescence*—dense, bristly, cylindrical, yellowish or purplish, spike-like. Cultivated for forage.

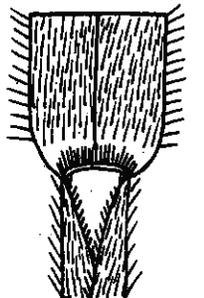


- 8a. Sheath hairy . . . . . 9
- 8b. Sheath not hairy . . . . . 10

9a. Sheath dense long hairy

90. *Panicum capillare*—Witchgrass

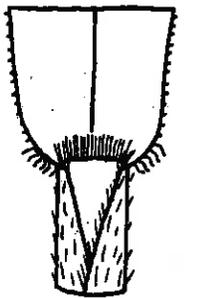
*Leaves* rolled in bud-shoot; *sheath* round, dense long hairy, split with overlapping hairy margins; *auricles* absent; *collar* broad, hairy; *ligule* a fringe of hairs, 1.4 to 1.6 mm. long, fused at base; *blade* 10 to 13 mm. wide, dense long hairy above, short hairy below, margins long hairy. *Inflorescence*—a very diffuse, densely flowered panicle, about half entire height of plant. Throughout. Cultivated fields, open ground and waste places.



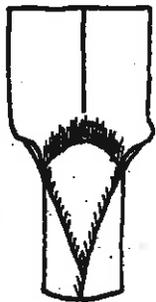
9b. Sheath sparsely short hairy

91. *Setaria viridis*—Green Foxtail

*Leaves* rolled in bud-shoot; *sheath* round, sparsely short hairy, split with at least one margin hairy; *auricles* absent; *collar* narrow to broad, hairy at least on margins; *ligule* a fringe of hairs, 1 to 2 mm. long; *blade* 8 to 15 mm. wide, smooth to rough above and below, midrib prominent below, margins rough. *Inflorescence*—dense, bristly, cylindrical, green or purplish, erect, spike-like. Common throughout. Cultivated soil and waste places.



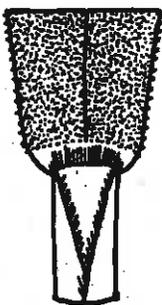
10a. Plants with large creeping rhizomes, only in salt marshes



92. *Spartina alterniflora*—Smooth Cordgrass

*Leaves* rolled in bud-shoot; *sheath* round, smooth, split with overlapping margins hairy; *auricles* absent; *collar* broad, indistinct; *ligule* a fringe of hairs, 1 to 2 mm. long; *blade* 10 to 12 mm. wide, smooth above and below, margins smooth and hyaline. *Inflorescence*—a series of comb-like spikes forming an appressed panicle. Maine south along coast. Salt marshes, often in water.

10b. Plants without creeping rhizomes



93. *Setaria viridis*—Green Foxtail

*Leaves* rolled in bud-shoot; *sheath* round to somewhat flattened, smooth, split with overlapping margins hairy; *auricles* absent; *collar* narrow to broad, divided, sometimes hairy; *ligule* a fringe of hairs, 1 to 2 mm. long; *blade* 8 to 15 mm. wide, rough above, smooth to somewhat rough below, margins rough and hyaline. *Inflorescence*—dense, bristly, cylindrical, green or purplish, erect, spike-like. Common throughout. Cultivated soil and waste places.

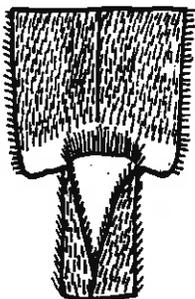
11a. Ligule 3 mm. or less long . . . . . 12

11b. Ligule more than 3 mm. long . . . . . 17

12a. Sheath hairy at least at top . . . . . 13

12b. Sheath not hairy . . . . . 15

13a. Sheath dense velvety short hairy

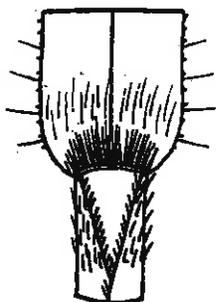


94. *Panicum scoparium*—Velvety Panicum

*Leaves* rolled in bud-shoot; *sheath* round, dense velvety short hairy, split with overlapping margins hairy; *auricles* absent; *collar* medium broad to broad, hairy; *ligule* a fringe of hairs, 1.5 to 3 mm. long; *blade* 10 to 20 mm. wide, short velvety hairy above and below, margins short hairy. *Inflorescence*—an open, many branched panicle with sticky blotches on axis and branches. Massachusetts south. Wet or damp soil.

13b. Sheath smooth, hairy at top only . . . . . 14

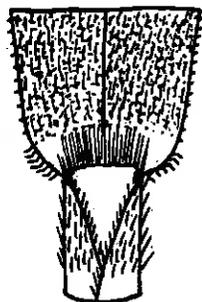
14a. Blade smooth above, long hairy near base



95. *Panicum amarulum*—Bitter Panicgrass

*Leaves* rolled in bud-shoot; *sheath* round, smooth and hairy at top, split with overlapping margins hairy; *auricles* absent; *collar* broad, divided; *ligule* a fringe of hairs, 2 to 3 mm. long, fused at base; *blade* 10 to 13 mm. wide, smooth above with long hairs near base, smooth and midrib prominent below, margins rough and hyaline with a few long hairs. *Inflorescence*—a large, compact, densely flowered, slightly nodding panicle. New Jersey south. Sandy shores and coast dunes.

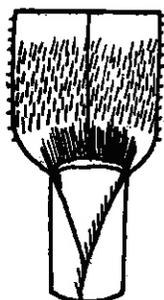
14b. Blade rough and short hairy above



96. *Setaria faberii*—Giant Foxtail

*Leaves* rolled in bud-shoot; *sheath* round, smooth and hairy at top, split with overlapping margins hairy; *auricles* absent; *collar* broad, hairy on margins; *ligule* a fringe of hairs, 2 to 3 mm. long; *blade* 10 to 20 mm. wide, rough and short hairy above, smooth and keeled below, margins rough and hyaline. *Inflorescence*—dense, bristly, cylindrical, nodding, spike-like. New York south. Common. Waste and cultivated ground.

15a. Blade not more than 15 mm. wide

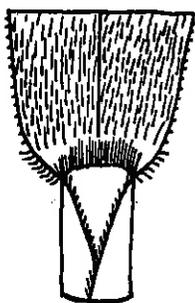


97. *Panicum virgatum*—Switchgrass

*Leaves* rolled in bud-shoot; *sheath* round, smooth, split with at least one margin hairy; *auricles* absent; *collar* broad, may be hairy on margins; *ligule* a fringe of hairs 2 to 3 mm. long, fused at base; *blade* 7 to 15 mm. wide, mostly hairy above at least near base but may be smooth, smooth below at least near base, margins at least slightly rough and hyaline or scarious. *Inflorescence*—an open, widely spreading panicle. Common throughout. Open ground and brackish marshes.

15b. Blade to 20 mm. or more wide ..... 16

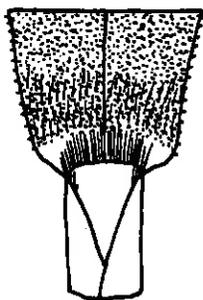
16a. Blade short hairy above



98. *Setaria faberii*—Giant Foxtail

*Leaves* rolled in bud-shoot; *sheath* round, smooth, split with overlapping margins hairy; *auricles* absent; *collar* broad, may be divided, hairy on margins; *ligule* a fringe of hairs, 2 to 3 mm. long, may be fused at base; *blade* 10 to 20 mm. wide, short hairy above, smooth below at least near base with midrib prominent, margins rough to very rough. *Inflorescence*—dense, bristly, cylindrical, nodding, spike-like. New York south. Common. Waste and cultivated ground.

16b. Blade rough or short hairy near base only

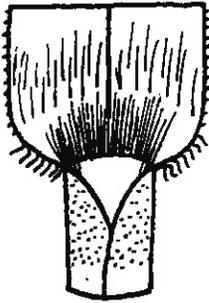


99. *Setaria italica*—Foxtail Millet

*Leaves* rolled in bud-shoot; *sheath* round, smooth to somewhat rough, split with overlapping hairy margins; *auricles* absent; *collar* narrow to broad, sometimes divided, hairy; *ligule* a fringe of hairs, 2 to 3 mm. long; *blade* to 30 mm. wide, rough above and short hairy near base, slightly rough below with midrib prominent, margins rough and hyaline. *Inflorescence*—dense, bristly, cylindrical, yellowish or purplish, spike-like. Cultivated for forage.

17a. Blade not more than 15 mm. wide ..... 18

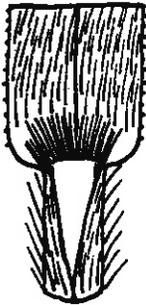
17b. Blade 20 to 40 mm. wide



100. *Pennisetum* spp.—Gahi No. 1 Millet

*Leaves* rolled in bud-shoot; *sheath* somewhat flattened, slightly rough or hairy at top, split with overlapping margins hyaline or hairy; *auricles* absent; *collar* broad, may be divided, hairy at least on margins; *ligule* a fringe of hairs, 3 to 6 mm. long; *blade* 20 to 40 mm. wide, smooth to slightly rough above and long hairy near base, smooth to rough below, margins rough and hyaline. *Inflorescence*—a stiff, cylindrical, very dense panicle. May be cultivated in southern part for forage.

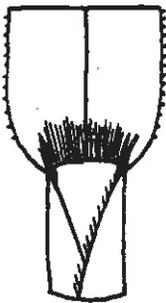
18a. Blade long hairy above and below



101. *Panicum villosissimum*—White-haired Panicgrass

*Leaves* rolled in bud-shoot; *sheath* loose, round, long hairy, split with overlapping hairy margins; *auricles* absent; *collar* broad, hairy, *ligule* a fringe of hairs, 3 to 5 mm. long; *blade* 5 to 12 mm. wide, long hairy above and below, margins rough. *Inflorescence*—a loosely flowered panicle with branches stiffly ascending or spreading. Massachusetts south. Dry or sterile soil.

18b. Blade not long hairy above and below



102. *Panicum virgatum*—Switchgrass

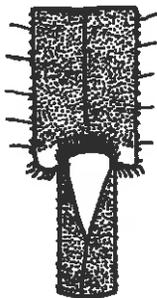
*Leaves* rolled in bud-shoot; *sheath* round, smooth or somewhat hairy, split with margins overlapping and at least one hairy; *auricles* absent; *collar* medium broad to broad, may be divided, sometimes hairy on margins; *ligule* a fringe of hairs, 3 to 6.5 mm. long, may be fused at base; *blade* 7 to 15 mm. wide, mostly smooth above but may be long hairy near base, smooth below, margins rough. *Inflorescence*—an open, widely spreading panicle. Common throughout. Open ground and brackish marshes.

**GROUP 8**

1a. Ligule 2 mm. or less long . . . . . 2

1b. Ligule more than 2 mm. long . . . . . 12

2a. Blade 5 mm. or less wide

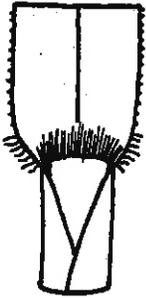


103. *Triplasis purpurea*—Purple Sandgrass

*Leaves* rolled in bud-shoot; *sheath* round, rough, purplish, split with overlapping margins, hairy at nodes; *auricles* absent; *collar* medium broad, hairy on margins; *ligule* a fringe of hairs, 1 to 1.4 mm. long; *blade* 3 to 4.5 mm. wide, very rough above and below, margins rough with a few long hairs near base. *Inflorescence*—a short, few-branched, spreading panicle. Maine south. Dry sand.

2b. Blade more than 5 mm. wide . . . . . 3

- 3a. Sheath hairy ..... 11
- 3b. Sheath not hairy ..... 4
- 4a. Sheath distinctly flattened ..... 9
- 4b. Sheath not distinctly flattened ..... 5



5a. Collar hairy on margins

104. *Spartina pectinata*—Prairie Cordgrass

*Leaves* rolled in bud-shoot; *sheath* round, smooth, split with overlapping hyaline margins; *auricles* absent; *collar* broad, hairy on margins; *ligule* a fringe of hairs, 1.5 to 2 mm. long; *blade* 6 to 10 mm. wide, smooth near base and rough near tip above and below, midrib prominent below, margins rough and hyaline. *Inflorescence*—a series of comb-like spikes forming an appressed panicle. Throughout. Fresh-water marshes.

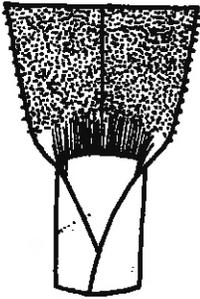
- 5b. Collar not hairy on margins ..... 6

- 6a. Plants with large creeping rhizomes ..... 7

- 6b. Plants without creeping rhizomes

105. *Setaria faberii*—Giant Foxtail

*Leaves* rolled in bud-shoot; *sheath* round to somewhat flattened, smooth, split with overlapping hyaline margins; *auricles* absent; *collar* broad; *ligule* a fringe of hairs, about 2 mm. long; *blade* to 25 mm. wide, rough above, smooth and keeled below, margins rough and hyaline. *Inflorescence*—dense, bristly, cylindrical, nodding spike-like. New York south. Common. Waste and cultivated ground.

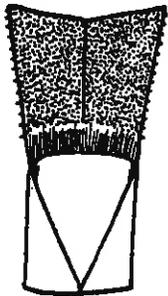


- 7a. Blade smooth above and below ..... 8

- 7b. Blade rough above and below at least near tip

106. *Tripsacum dactyloides*—Eastern Gamagrass

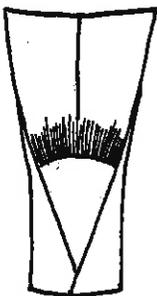
*Leaves* rolled in bud-shoot; *sheath* round, smooth, split with overlapping margins; *auricles* absent; *collar* narrow to medium broad, divided; *ligule* a fringe of hairs, 1 to 1.5 mm. long, may be fused at base; *blade* 15 to 30 mm. wide, rough above and below at least near tip, margins rough to very rough and hyaline. *Inflorescence*—1 to 3 terminal, unisexual spikes. Massachusetts south. Moist places and banks near water.



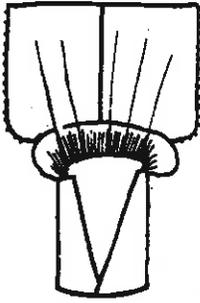
- 8a. Widest blades less than 20 mm. wide

107. *Spartina alterniflora*—Smooth Cordgrass

*Leaves* rolled in bud-shoot; *sheath* round, smooth, split with overlapping hyaline margins; *auricles* absent; *collar* broad, indistinct; *ligule* a fringe of hairs, to 2 mm. long, may be fused at base and appear membranous; *blade* 10 to 18 mm. wide, smooth above and below, margins smooth to slightly rough and hyaline. *Inflorescence*—a series of comb-like spikes forming an appressed panicle. Maine south along coast. Salt marshes, often in water.



8b. Widest blades more than 20 mm. wide



108. *Phragmites communis*—Common Reed

*Leaves* rolled in bud-shoot; *sheath* round, smooth, split with overlapping scarious margins; *auricles* absent; *collar* broad; *ligule* a fringe of hairs, to 1.2 mm. long, mostly with a few hairs to 6 mm. or more long; *blade* 20 mm. or more wide, smooth above and below, margins slightly rough. *Inflorescence*—a large, densely flowered, tawny or purple panicle. South to Maryland. Mostly wet land and marshes.

9a. Blade long hairy near base above



109. *Setaria lutescens*—Yellow Foxtail

*Leaves* rolled in bud-shoot; *sheath* distinctly flattened, keeled, smooth, split with overlapping hyaline margins; *auricles* absent; *collar* broad, may be divided or hairy on margins; *ligule* a fringe of hairs, 1 to 1.8 mm. long, may be fused at base; *blade* 7 to 12 mm. wide, long hairy near base above, smooth below at least near base, margins at least slightly rough and hyaline. *Inflorescence*—dense, bristly, cylindrical, yellow, erect, spike-like. Common throughout. Cultivated soil and waste places.

9b. Blade rough above . . . . . 10

10a. Margins of collar hairy



110. *Cenchrus pauciflorus*—Field Sandbur

*Leaves* rolled in bud-shoot; *sheath* distinctly flattened, smooth, split with overlapping margins hyaline; *auricles* absent; *collar* broad, hairy on margins; *ligule* a fringe of hairs, 1 to 1.4 mm. long; *blade* to 6 mm. wide, rough above, keeled and smooth near base but rough near tip below, margins rough and hyaline. *Inflorescence*—a nearly round, hairy bur with sharp spines. Throughout. Sandy, open ground.

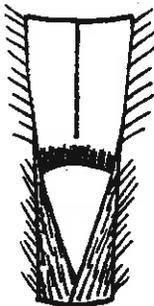
10b. Margins of collar not hairy



111. *Setaria verticillata*—Bristly Foxtail

*Leaves* rolled in bud-shoot; *sheath* distinctly flattened, keeled, smooth, split with overlapping hyaline margins; *auricles* absent; *collar* medium broad, divided; *ligule* a fringe of hairs, 1 to 1.6 mm. long, fused at base; *blade* 5 to 10 mm. wide, rough above, smooth below, margins rough and hyaline. *Inflorescence*—dense, bristly, cylindrical, erect, spike-like, with barbed bristles. Massachusetts south. Cultivated soil and waste places.

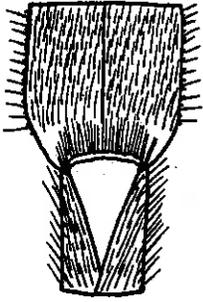
11a. Blade 5 to 6 mm. wide



112. *Danthonia sericea*—Downy Oatgrass

*Leaves* folded in bud-shoot; *sheath* round, long hairy, split with overlapping margins; *auricles* absent; *collar* broad, hairy; *ligule* a fringe of hairs, .8 to 1.2 mm. long; *blade* 5 to 6 mm. wide, smooth above, long hairy below, margins long hairy. *Inflorescence*—a narrow panicle with stiff, short branches bearing 2 to 6 spikelets. Massachusetts south. Chiefly Coastal Plain. Sand barrens.

**11b. Blade 8 to 15 mm. wide**



**113. Panicum capillare—Witchgrass**

*Leaves* rolled in bud-shoot; *sheath* round, long hairy, split with overlapping hyaline margins; *auricles* absent; *collar* broad, hairy; *ligule* a fringe of hairs, 1 to 2 mm. long, fused at base; *blade* 8 to 15 mm. wide, hairy above and below, margins rough and long hairy at least near base. *Inflorescence*—a very diffuse, densely flowered panicle, about half entire height of plant. Throughout. Cultivated fields, open ground and waste places.

**12a. Sheath hairy at least at top or throat . . . . . 13**

**12b. Sheath not hairy . . . . . 16**

**13a. Blade not more than 5 mm. wide**



**114. Danthonia spicata—Poverty Oatgrass**

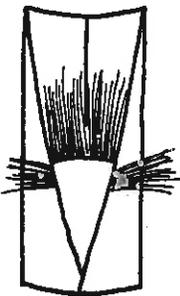
*Leaves* folded in bud-shoot; *sheath* round to somewhat flattened, smooth with a tuft of hairs at throat, split with overlapping hyaline margins; *auricles* absent; *collar* broad, divided; *ligule* a fringe of hairs, 4 to 6 mm. long; *blade* 3 to 5 mm. wide, rough above, smooth near base and rough near tip below, margins rough. *Inflorescence*—a narrow panicle with stiff, short branches bearing one spikelet. Throughout. Sandy and sterile or rocky soil.

**13b. Blade more than 5 mm. wide . . . . . 14**

**14a. Blade hairy above at least near base . . . . . 15**

**14b. Blade not hairy above**

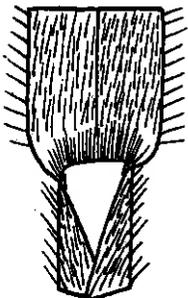
**115. Uniola paniculata—Sea Oats**



*Leaves* rolled in bud-shoot; *sheath* round, smooth with a tuft of hairs at throat, split with overlapping hyaline margins; *auricles* absent; *collar* broad, indistinct; *ligule* a fringe of hairs, 2.5 to 3 mm. long; *blade* 7 to 10 mm. wide, smooth to rough above, smooth below, margins smooth and hyaline. *Inflorescence*—a pale, condensed, heavy, nodding panicle. Eastern shore of Virginia south. Sand dunes of sea coast.

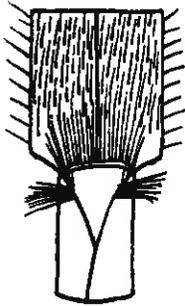
**15a. Ligule to 3 mm. long**

**116. Paspalum pubescens—Hairy Paspalum**



*Leaves* rolled in bud-shoot; *sheath* distinctly flattened, keeled, long hairy, split with overlapping hyaline margins; *auricles* absent; *collar* narrow, hairy; *ligule* a fringe of hairs, 2 to 3 mm. long; *blade* 8 to 12 mm. wide, long hairy above and below, margins long hairy and hyaline. *Inflorescence*—1 to 3 one-sided, spike-like branches with flat, round to oval seed. Vermont south. Common in old fields and pastures.

15b. Ligule more than 3 mm. long



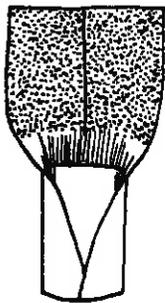
117. *Panicum amaralum*—Bitter Panicgrass

*Leaves* rolled in bud-shoot; *sheath* round, smooth with a tuft of hairs at throat, split with overlapping hyaline margins; *auricles* absent; *collar* broad, divided; *ligule* a fringe of hairs, 3 to 8 mm. long, fused at base; *blade* 8 to 13 mm. wide, smooth above and long hairy near base, smooth below with midrib prominent, margins long hairy and hyaline. *Inflorescence*—a large, compact, densely flowered, slightly nodding panicle. New Jersey south. Sandy shores and coast dunes.

16a. Widest blades to 15 mm. wide . . . . . 17

16b. Widest blades more than 15 mm. wide . . . . . 18

17a. Blade rough above at least near tip



118. *Spartina pectinata*—Prairie Cordgrass

*Leaves* rolled in bud-shoot; *sheath* round, smooth, split with overlapping margins; *auricles* absent; *collar* medium broad to broad, may be hairy on margins; *ligule* a fringe of hairs, 2 to 4 mm. long, may be fused at base; *blade* commonly 10 to 15 mm. wide, rough to very rough above, smooth and mostly glossy below, margin smooth to very rough. *Inflorescence*—a series of comb-like spikes forming an appressed panicle. Throughout. Fresh water marshes.

17b. Blade smooth above.



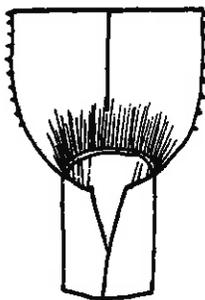
119. *Panicum virgatum*—Switchgrass

*Leaves* rolled in bud-shoot; *sheath* round, smooth, split with overlapping hyaline margins; *auricles* absent; *collar* broad, may be divided; *ligule* a fringe of hairs, 2 to 4 mm. long; *blade* 10 to 15 mm. wide, smooth above and mostly hairy near base, smooth below, margins smooth to somewhat rough. *Inflorescence*—an open, widely spreading panicle. Common throughout. Open ground and brackish marshes.

18a. Blade margins very rough, a plant of salt or brackish marshes

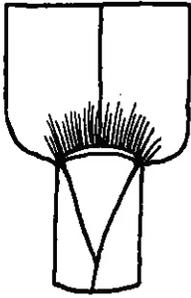
120. *Spartina cynosuroides*—Big Cordgrass

*Leaves* rolled in bud-shoot; *sheath* round, smooth, split with overlapping hyaline margins; *auricles* absent; *collar* broad, divided; *ligule* a fringe of hairs, 3 to 3.5 mm. long, fused at base; *blade* to 30 mm. wide, smooth above at least near base, smooth below with midrib prominent, margins very rough and hyaline. *Inflorescence*—a series of comb-like spikes forming a somewhat open panicle. Massachusetts south. Salt or brackish marshes along coast.



18b. Blade margins smooth to rough, not of salt or brackish marshes . . . . . 19

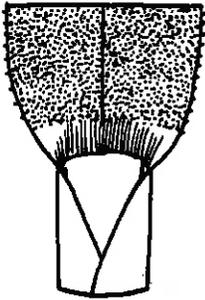
19a. Collar not hairy



121. *Panicum dichotomiflorum*—Fall Panicum

*Leaves* rolled in bud-shoot; *sheath* round, smooth, split with overlapping hyaline margins; *auricles* absent; *collar* broad; *ligule* a fringe of hairs, 2 to 3 mm. long, mostly fused at base; *blade* 15 to 20 mm. wide, mostly smooth above but sometimes slightly rough near tip or sparsely hairy near base, smooth and glossy below, margins smooth to rough. *Inflorescence*—widely spreading terminal and axillary panicles. Common throughout. Cultivated fields, moist ground and waste places.

19b. Collar hairy



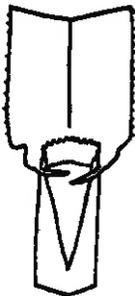
122. *Setaria faberii*—Giant Foxtail

*Leaves* rolled in bud-shoot; *sheath* round, smooth, split with overlapping hyaline margins; *auricles* absent; *collar* broad, may be divided, hairy; *ligule* a fringe of hairs, 1.5 to 3 mm. long; *blade* 15 to 25 mm. wide, rough above, smooth near base and rough near tip below, margins rough and hyaline. *Inflorescence*—dense, bristly, cylindrical, nodding, spike-like. New York south. Common. Waste and cultivated ground.

GROUP 9

- 1a. Sheath rolled in bud-shoot . . . . . 3
- 1b. Sheath folded in bud-shoot . . . . . 2

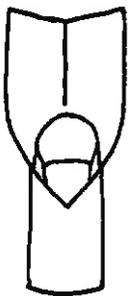
2a. Auricles present



123. *Lolium perenne*—Perennial Ryegrass

*Leaves* folded in bud-shoot; *sheath* distinctly flattened to almost round, smooth, closed to near top; *auricles* small; *collar* narrow; *ligule* membranous, to 2 mm. long, rounded, toothed; *blade* to 6 mm. wide, smooth above and below, glossy and keeled below, margins slightly rough. *Inflorescence*—a long, narrow, flat spike with unawned spikelets placed edge to rachis. Cultivated throughout.

2b. Auricles absent



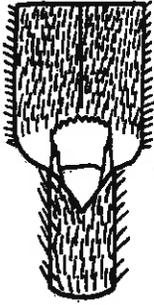
124. *Glyceria striata*—Fowl Mannagrass

*Leaves* folded in bud-shoot; *sheath* round to distinctly flattened, smooth to slightly rough, closed to near top; *auricles* absent; *collar* medium broad to broad, may be divided; *ligule* membranous, generally 2 to 5 mm. long but may be shorter, rounded to acute; *blade* 4 to 8 mm. wide, smooth above and below at least near base, margins smooth to rough, tip boat-shaped. *Inflorescence*—an open, nodding panicle. Throughout. Moist meadows and wet places.

- 3a. Ligule more than 3 mm. long . . . . . 4

3b. Ligule 3 mm. or less long ..... 5

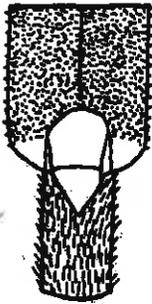
4a. Blade margins hairy



125. *Bromus rigidus*—Ripgut Grass

*Leaves* rolled in bud-shoot; *sheath* round, hairy, closed to near top; *auricles* absent; *collar* narrow, mostly hairy; *ligule* membranous, 3 to 5 mm. long, rounded, toothed; *blade* 5 to 10 mm. wide, hairy above and below, margins short hairy or sometimes very rough. *Inflorescence*—an open, nodding, few-flowered panicle with stout awns to 6 in. long. Maryland south, rare. Open ground and waste places.

4b. Blade margins not hairy

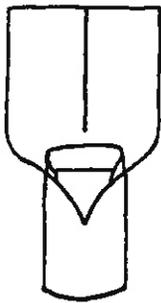


126. *Bromus catharticus*—Rescue Grass

*Leaves* rolled in bud-shoot; *sheath* round to somewhat compressed, short hairy, closed to near top; *auricles* absent; *collar* medium broad to broad, divided; *ligule* membranous, 3 to 6 mm. long, rounded, sometimes toothed; *blade* 7 to about 12 mm. wide, mostly rough above and below but sometimes hairy on one or both surfaces, margin rough or occasionally short hairy. *Inflorescence*—an open, nodding panicle. Only rarely north of Virginia. Waste places.

5a. Blade hairy above ..... 6

5b. Blade not hairy above



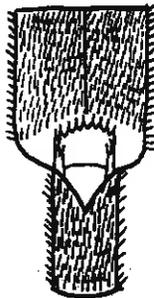
127. *Bromus inermis*—Smooth Bromegrass

*Leaves* rolled in bud-shoot; *sheath* round, smooth or frequently short hairy on lower sheaths, closed to near top; *auricles* absent; *collar* mostly medium broad to broad and divided; *ligule* membranous, mostly less than 1 mm. long, truncate to rounded; *blade* generally to 10 to 15 mm. wide, smooth above and below (rarely short hairy), margins smooth to rough. *Inflorescence*—an erect, dense panicle. South to Maryland. Fields and waste places.

6b. Sheath densely soft white hairy ..... 9

6b. Sheath not densely soft white hairy ..... 7

7a. Collar hairy at least on margins

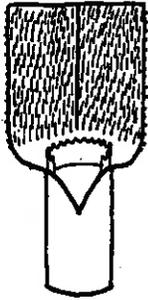


128. *Bromus sterilis*—Barren Chess

*Leaves* rolled in bud-shoot; *sheath* round, short hairy, closed to near top; *auricles* absent; *collar* narrow to medium broad, divided, hairy; *ligule* membranous, 2 to about 3 mm. long, rounded, toothed, may be ciliate; *blade* 5 to 9 mm. wide, short hairy above and below, margins hairy. *Inflorescence*—an open, nodding few-flowered panicle with awns to about 1 in. long. Throughout. Not common. Fields and waste places.

NOTE: The bromegrasses are quite variable in their vegetative characteristics and it is not possible to always readily separate the species. The key given here is based on the characteristics most commonly found.

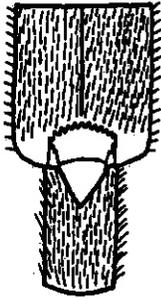
8a. Sheath smooth or sparsely hairy



129. *Bromus secalinus*—Cheat

*Leaves* rolled in bud-shoot; *sheath* round, mostly smooth but sometimes sparsely hairy, closed to near top; *auricles* absent; *collar* narrow to medium broad, divided; *ligule* membranous, 1.2 to 2.5 mm. long, rounded, toothed; *blade* 5 to 10 mm. wide, mostly hairy above and below but occasionally smooth, margins rough or short hairy. *Inflorescence*—an open panicle. Throughout. Not common in southern part. Grain fields and waste places.

8b. Sheath evenly hairy



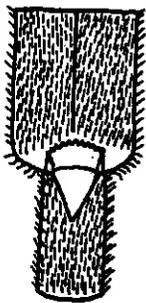
130. *Bromus commutatus*—Hairy Cheat

*Leaves* rolled in bud-shoot; *sheath* round, short hairy, closed to near top; *auricles* absent; *collar* narrow to broad, divided; *ligule* membranous, mostly 1 to 2 mm. long but at times to 3 mm., rounded, toothed; *blade* mostly 5 to 10 mm. wide but occasionally to 12 mm., hairy above and below and on margins. *Inflorescence*—an open panicle. Throughout. Common in southern part. Fields and waste places.

9a. Ligule not more than 1.5 mm. long ..... 10

9b. Ligule more than 1.5 mm. long ..... 11

10a. Collar hairy at least on margins



131. *Bromus japonicus*—Japanese Chess

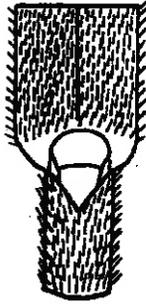
*Leaves* rolled in bud-shoot; *sheath* round, densely soft white hairy, closed to near top; *auricles* absent; *collar* mostly narrow and divided, generally hairy at least on margins; *ligule* membranous, mostly .8 to 1.5 mm. long but occasionally longer, rounded and toothed, sometimes ciliate; *blade* mostly to 6 to 8 mm. wide, dense hairy above and below, margins generally hairy. *Inflorescence*—open, diffuse, somewhat drooping panicle. Vermont south. Common. Waste places.

10b. Collar not hairy



132. *Bromus mollis*—Soft Chess

*Leaves* rolled in bud-shoot; *sheath* round, densely soft white hairy, closed to near top; *auricles* absent; *collar* narrow, divided; *ligule* membranous, .6 to 1.5 mm. long, rounded, toothed; *blade* 5 to 9 mm. wide, hairy above and below and on margins. *Inflorescence*—an erect, contracted, crowded panicle. Throughout. Not common. Waste places and cultivated soil.



**11a. Collar hairy at least on margins**

**133. Bromus tectorum—Downy Chess**

*Leaves* rolled in bud-shoot; *sheath* round, densely soft white hairy, frequently purplish, closed to near top; *auricles* absent; *collar* narrow to medium broad, divided, mostly hairy; *ligule* membranous, 1.5 to 3 mm. long, rounded to acute, may be toothed and ciliate; *blade* mostly 5 to 8 mm. wide, hairy above and below and on margins. *Inflorescence*—a rather dense, soft, drooping, often purple panicle. Throughout. Waste places.



**11b. Collar not hairy**

**134. Bromus arvensis—Field Bromegrass**

*Leaves* rolled in bud-shoot; *sheath* round, densely soft white hairy, closed to near top; *auricles* absent; *collar* narrow to medium broad; *ligule* membranous, 1.5 to 3 mm. long, rounded, sometimes toothed; *blade* 5 to 10 mm. wide, hairy above and below, margins rough or sparse long hairy. *Inflorescence*—an open, diffuse, somewhat drooping panicle. New York south. Cultivated.

**GROUP 10**

<b>1a. Leaves rolled in bud-shoot</b> . . . . .	<b>2</b>
<b>1b. Leaves folded in bud-shoot</b> . . . . .	<b>8</b>
<b>2a. Sheath hairy at least at top</b> . . . . .	<b>6</b>
<b>2b. Sheath not hairy</b> . . . . .	<b>3</b>
<b>3a. Collar hairy on margins</b> . . . . .	<b>5</b>
<b>3b. Collar not hairy</b> . . . . .	<b>4</b>

**4a. Blade hairy above, at least near base**

**135. Setaria geniculata—Knotroot Foxtail**

*Leaves* rolled in bud-shoot; *sheath* distinctly flattened, smooth, split with overlapping hyaline margins; *auricles* absent; *collar* narrow; *ligule* membranous, about .6 mm. long, truncate, short ciliate; *blade* 5 to 8 mm. wide, rough above and sparse long hairy near base, smooth below at least near base, margins slightly rough at least near tip and hyaline. *Inflorescence*—dense, bristly, cylindrical, yellow or purplish, erect, spike-like. Massachusetts south. Open ground, cultivated soil, pastures, moist ground and salt marshes.



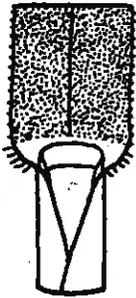
4b. Blade not hairy above



136. *Uniola laxa*—Slender Uniola

*Leaves* rolled in bud-shoot; *sheath* distinctly flattened, smooth, split with overlapping hyaline margins; *auricles* absent; *collar* narrow; *ligule* membranous, .2 to .4 mm. long, truncate; *blade* to 8 mm. wide, rough above, smooth below and keeled, margins rough. *Inflorescence*—a slender, nodding panicle. Coastal Plain, Long Island south. Moist, shady places.

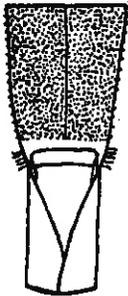
5a. Plants with creeping rhizomes, blades to 4 in. long



137. *Muhlenbergia frondosa*—Wirestem Muhly

*Leaves* rolled in bud-shoot; *sheath* distinctly flattened, smooth, split with overlapping hyaline margins; *auricles* absent; *collar* medium broad, hairy on margins; *ligule* membranous, about 1 mm. long; *blade* 3 to 8 mm. wide, rough above, rough below at least near tip, margins rough. *Inflorescence*—numerous, slender panicles. Throughout. Not common. Low ground and waste places.

5b. Plants without creeping rhizomes, blades not over 2½ in. long



138. *Muhlenbergia schreberi*—Nimblewill

*Leaves* rolled in bud-shoot; *sheath* distinctly flattened, smooth, split with overlapping hyaline margins; *auricles* absent; *collar* medium broad to broad, hairy on margins; *ligule* membranous, .4 to .8 mm. long, truncate to rounded; *blade* to 7 mm. wide, rough above, rough below at least near tip, margins rough and hyaline. *Inflorescence*—numerous, slender panicles. New Hampshire south. Lawns, pastures and waste places.

6a. Collar hairy at least on margins ..... 7

6b. Collar not hairy



139. *Hordeum jubatum*—Squirrel-tail Barley

*Leaves* rolled in bud-shoot; *sheath* distinctly flattened, short hairy, split with overlapping hyaline margins; *auricles* absent; *collar* narrow, divided; *ligule* membranous, about .6 mm. long, truncate; *blade* 3 to 5 mm. wide, rough above and below and on margins. *Inflorescence*—a dense, very bushy, nodding spike. South to Maryland. Meadows and waste places.

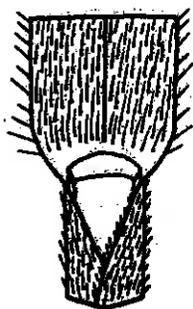
7a. Ligule .2 to .4 mm. long

140. *Panicum anceps*—Flat-stemmed Panicgrass

*Leaves* rolled in bud-shoot; *sheath* distinctly flattened, long hairy at least near top, split with overlapping margins mostly hyaline but sometimes one hairy; *auricles* absent; *collar* narrow to broad, hairy; *ligule* membranous, .2 to .4 mm. long, truncate, may be ciliate; *blade* 10 to 18 mm. wide, short hairy above at least on lower half, smooth below with midrib prominent, margins rough and hyaline. *Inflorescence*—a very loose, open panicle. New Jersey south. Moist sandy soil.



7b. Ligule .6 to 1 mm. long



**141. Paspalum pubescens—Hairy Paspalum**

*Leaves* rolled in bud-shoot; *sheath* distinctly flattened, hairy at least at top, split with at least one overlapping margin hairy; *auricles* absent; *collar* narrow, hairy; *ligule* membranous, .6 to 1 mm. long, rounded; *blade* 10 to 18 mm. wide, long hairy above, hairy below with midrib prominent, margins long hairy and hyaline. *Inflorescence*—1 to 3 one-sided, spike-like branches with flat round to oval seed. Vermont south. Pastures, open ground and old fields.

8a. Blade tips boat-shaped . . . . . 9

8b. Blade tips not boat-shaped . . . . . 11

9a. Plants with slender creeping rhizomes . . . . . 10

9b. Plants tufted, without creeping rhizomes



**142. Poa annua—Annual Bluegrass**

*Leaves* folded in bud-shoot; *sheath* distinctly flattened, smooth, split with overlapping hyaline margins; *auricles* absent; *collar* medium broad, divided; *ligule* membranous, .8 to 1 mm. long, rounded; *blade* to 4 mm. wide, smooth above and below, margins smooth at least near base, tips boat-shaped. *Inflorescence*—a small, open, few-branched panicle. Common throughout. Lawns, pastures, open ground and waste places.

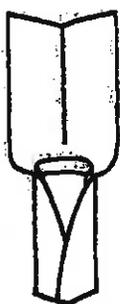
10a. Plant bluish-green, somewhat glaucous



**143. Poa compressa—Canada Bluegrass**

*Leaves* folded in bud-shoot; *sheath* distinctly flattened, keeled, smooth, split with overlapping hyaline margins; *auricles* absent; *collar* narrow to broad, divided, occasionally hairy; *ligule* membranous, mostly .6 to 1 mm. long, truncate; *blade* glaucous, to 6 mm. wide, smooth above and below, keeled below, margins at least slightly rough and hyaline, tips boat-shaped. *Inflorescence*—a narrow, short-branched panicle. Common throughout. Meadows, open ground and waste places.

10b. Plant dark green, not glaucous



**144. Poa pratensis—Kentucky Bluegrass**

*Leaves* folded in bud-shoot; *sheath* distinctly flattened, smooth, split with overlapping hyaline margins; *auricles* absent; *collar* narrow to broad, divided, sometimes hairy on margins; *ligule* membranous, .2 to 1 mm. long (mostly .4 to .6), truncate; *blade* to 5 mm. wide, smooth above but occasionally short hairy, smooth and keeled below, margins smooth to slightly rough, tip boat-shaped. *Inflorescence*—an open pyramidal panicle. Common throughout. Lawns, meadows, open ground and waste places.



**11a. Auricles present**

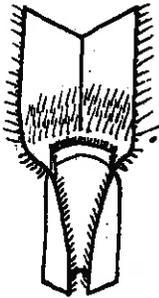
**145. *Lolium perenne*—Perennial Ryegrass**

*Leaves* folded in bud-shoot; *sheath* distinctly flattened, smooth, split with overlapping hyaline margins; *auricles* small; *collar* narrow to broad, divided; *ligule* membranous, to .8 or 1 mm. long, truncate to rounded; *blade* to 4 mm. wide, smooth above, smooth and glossy below, margins smooth to rough and hyaline. *Inflorescence*—long, narrow, flat spikes with unawned spikelets placed edge to rachis. Cultivated throughout.

**11b. Auricles absent . . . . . 12**

**12a. Sheath hairy at least at top . . . . . 13**

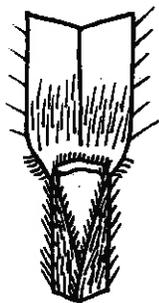
**12b. Sheath not hairy**



**146. *Andropogon virginicus*—Broomsedge**

*Leaves* folded in bud-shoot; *sheath* distinctly flattened, smooth, split with margins hairy; *auricles* absent; *collar* narrow, divided, mostly hairy on margins; *ligule* membranous, .4 to .8 mm. long, truncate to rounded, ciliate; *blade* 3 to 7 mm. wide, hairy near base above, smooth to rough below, margins rough and long hairy. *Inflorescence*—a narrow panicle with feathery branches. New York south. Mostly old fields.

**13a. Ligule about .4 mm. long**



**147. *Andropogon ternarius*—Silver Beardgrass**

*Leaves* folded in bud-shoot; *sheath* distinctly flattened, long hairy, split with overlapping margins hairy; *auricles* absent; *collar* narrow, divided, hairy on margins; *ligule* membranous, about .4 mm. long, truncate, ciliate; *blade* 4 to 7 mm. wide, long hairy near base above, rough and keeled below, margins sparsely long hairy and hyaline. *Inflorescence*—a narrow panicle with silver to creamy or grayish feathery branches. Delaware south. Dry sandy soil.

**13b. Ligule .6 to 1 mm. long**

**148. *Eleusine indica*—Goosegrass**

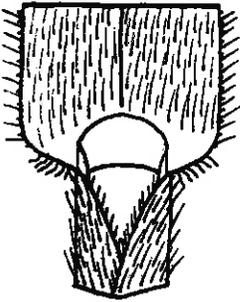


*Leaves* folded in bud-shoot; *sheath* distinctly flattened, hairy at top, split with overlapping margins sometimes hairy; *auricles* absent; *collar* broad, hairy on margins; *ligule* membranous, .6 to 1 mm. long, truncate, sometimes short ciliate; *blade* 5 to 10 mm. wide, sparsely long hairy near base above, smooth and keeled below, margins smooth to rough or sometimes long hairy. *Inflorescence*—2 to 10 flat spikes at or near summit. Massachusetts south, common. Cultivated fields, open ground and waste places.

## GROUP 11

- 1a. Blade blue-green (glaucous) above and below . . . . . 2
- 1b. Blade not blue-green . . . . . 3

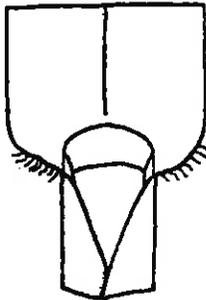
### 2a. Sheath long hairy



#### 149. *Paspalum floridanum*—Florida Paspalum

*Leaves* rolled in bud-shoot; *sheath* distinctly flattened, long hairy, split with overlapping margins hairy; *auricles* absent; *collar* narrow, hairy at least on margins; *ligule* membranous, 2 to 3 mm. long, truncate to rounded; *blade* to 20 mm. wide, glaucous, long hairy above and below, margins rough and mostly long hairy. *Inflorescence*—2 to 5 one-sided spike-like branches with flat, round to oval seed. Coastal Plain, Delaware south. Low moist sandy soil.

### 2b. Sheath smooth or with a few hairs at top

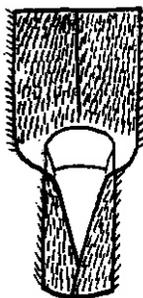


#### 150. *Paspalum floridanum* var. *glabratum*—Smooth Florida Paspalum

*Leaves* rolled in bud-shoot; *sheath* distinctly flattened, mostly smooth but may be sparsely hairy near top, split with overlapping margins at times hairy; *auricles* absent; *collar* narrow to medium broad, mostly hairy on margins; *ligule* membranous, 1 to 2 mm. long but sometimes to about 3 mm., rounded; *blade* 10 to 22 mm. wide, glaucous, smooth above and may be long hairy near base, smooth and keeled below, margins smooth to rough and sometimes sparsely long hairy. *Inflorescence*—2 to 5 one-sided, spike-like branches with flat, round to oval seed. New Jersey south. Brackish marshes and low sandy ground.

- 3a. Blade hairy above and below . . . . . 4
- 3b. Blade not hairy on both surfaces . . . . . 5

### 4a. Plant dense velvety hairy



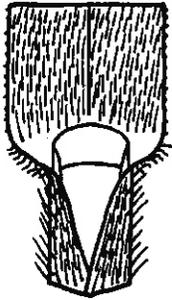
#### 151. *Holcus lanatus*—Velvet Grass

*Leaves* rolled in bud-shoot; *sheath* distinctly flattened, dense velvety short hairy, split with overlapping margins hairy; *auricles* absent; *collar* medium broad, divided, hairy; *ligule* membranous, to 3 mm. long, rounded; *blade* 5 to 10 mm. wide, dense velvety short hairy above and below, keeled below, margins short hairy. *Inflorescence*—A long, contracted, pale, purple-tinged panicle. Throughout. Open ground, meadows and moist places.

**4b. Plant not velvety hairy**

**152. Digitaria sanguinalis—Common Crabgrass**

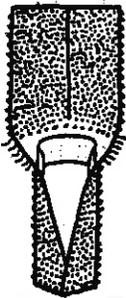
*Leaves* rolled in bud-shoot; *sheath* distinctly flattened, long hairy, split with overlapping hyaline margins; *auricles* absent; *collar* medium broad to broad, mostly divided, hairy at least on margins; *ligule* membranous, 1 to 2 mm. long, rounded to acute, sometimes toothed, often reddish or purplish; *blade* 5 to 15 mm. wide, hairy above and below, keeled below, margins rough and occasionally hairy. *Inflorescence*—3 to 12 digitate spike-like branches. Common throughout. Fields, gardens and waste places.



**5a. Sheath and blade very rough**

**153. Leersia oryzoides—Rice Cut-grass**

*Leaves* rolled in bud-shoot; *sheath* distinctly flattened, very rough, split with overlapping margins; *auricles* absent; *collar* broad divided, hairy on margins, generally dark; *ligule* membranous, about 1.5 mm. long, truncate; *blade* to 8 mm. wide, very rough above and below and on margins, few hairs near base above. *Inflorescence*—a spreading, flexuous-branched panicle. Throughout. Marshes, river banks and wet places.

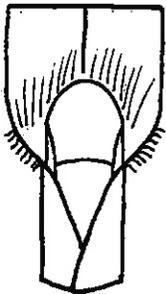


**5b. Sheath and blade not very rough . . . . . 6**

**6a. Ligule to more than 3 mm. long**

**154. Paspalum dilitatum—Dallis Grass**

*Leaves* rolled in bud-shoot; *sheath* distinctly flattened, smooth, split with overlapping hyaline margins; *auricles* absent; *collar* narrow to broad, hairy at least on margins; *ligule* membranous, to 5 mm. long, rounded to acute; *blade* 7 to 15 mm. wide, smooth above and mostly long hairy behind ligule, smooth and keeled below, margins smooth to rough and hyaline. *Inflorescence*—3 to 5 one-sided, spike-like branches with flat, round to oval seed. New Jersey south. Pastures, moist fields and waste ground.

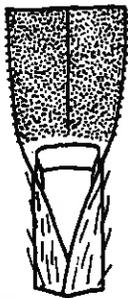


**6b. Ligule 3 mm. or less long . . . . . 7**

**7a. Plants with creeping rhizomes**

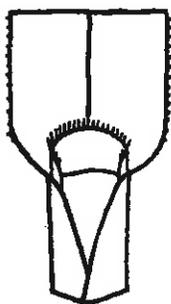
**155. Leersia virginica—Whitegrass**

*Leaves* rolled in bud-shoot; *sheath* distinctly flattened, sparsely long hairy, split with overlapping hyaline margins; *auricles* absent; *collar* narrow, divided; *ligule* membranous, 1 to 1.5 mm. long, truncate; *blade* to 8 mm. wide, rough above and below, midrib prominent below and white, margins rough and hyaline. *Inflorescence*—an open panicle with capillary branches distant. Throughout. Moist places.



**7b. Plants without creeping rhizomes . . . . . 8**

8a. Blades to 15 mm. or more wide



156. *Erianthus contortus*—Bent-awn Plumegrass

*Leaves* rolled in bud-shoot; *sheath* distinctly flattened, smooth, split with overlapping margins hyaline; *auricles* absent; *collar* medium broad, divided, hairy; *ligule* membranous, 1.5 to 2 mm. long, rounded, ciliate; *blade* 10 to 15 mm. wide, smooth above and below, keeled below, margins rough and hyaline. *Inflorescence*—a narrow, dense, silky, brownish panicle. Coastal Plain, Delaware south. Moist sandy ground.

8b. Blades not more than 12 mm. wide . . . . . 9

9a. Usually growing in large tufts



157. *Andropogon gerardi*—Big Bluestem

*Leaves* rolled in bud-shoot; *sheath* distinctly flattened, smooth or hairy, split with overlapping hyaline margins; *auricles* absent; *collar* narrow to broad, sometimes divided, may be hairy on margins; *ligule* membranous, 1 to 2.5 or 3 mm. long, truncate to rounded, mostly ciliate; *blade* 7 to 12 mm. wide, usually with at least a few hairs near base above, smooth and keeled below, margins smooth to rough. *Inflorescence*—2 or 3 terminal spike-like branches. Throughout. Dry soil and old fields.

9b. Not usually growing in large tufts . . . . . 10

10a. Blade V-shaped to folded, at least at base



158. *Paspalum laeve*—Field Paspalum

*Leaves* rolled in bud-shoot; *sheath* distinctly flattened, smooth but may be hairy at top, split with overlapping hyaline margins (occasionally hairy); *auricles* absent; *collar* narrow, may be hairy on margins; *ligule* membranous, mostly 1 to 2.5 mm. long, truncate; *blade* 8 to 12 mm. wide, smooth above and mostly long hairy near base, smooth and keeled below, margins rough and hyaline. *Inflorescence*—3 to 4 spreading, one-sided, spike-like branches with flat, round to oval seed. New Jersey south. Meadows, old fields and waste ground.

10b. Blade flat



159. *Digitaria ischaemum*—Smooth Crabgrass

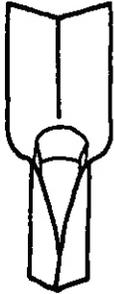
*Leaves* rolled in bud-shoot; *sheath* distinctly flattened, smooth or occasionally sparsely hairy, split with overlapping hyaline margins; *auricles* absent; *collar* narrow to broad, often divided, may be hairy on margins; *ligule* membranous, 1.5 to 3 mm. long, truncate to rounded; *blade* 5 to 10 mm. wide, smooth above but mostly with a few hairs at least near base, smooth and keeled below, margins smooth to rough and sometimes sparsely long hairy. *Inflorescence*—2 to 6 digitate spike-like branches. Common throughout. Lawns, fields and waste places.

GROUP 12

- 1a. Blade with boat-shaped tip . . . . . 2
- 1b. Blade tip not boat-shaped . . . . . 4

- 2a. Plants with slender, creeping rhizomes . . . . . 3

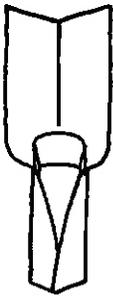
- 2b. Plants tufted, without creeping rhizomes



160. *Poa annua*—Annual Bluegrass

*Leaves* folded in bud-shoot; *sheath* distinctly flattened, smooth, split with overlapping hyaline margins; *auricles* absent; *collar* narrow to broad, divided; *ligule* membranous, 1 to 2 mm. long, rounded to acute; *blade* 3 to 6 mm. wide, smooth above, smooth and mostly keeled below, margins smooth and hyaline, tip boat-shaped. *Inflorescence*—a small, open, few-branched panicle. Common throughout. Lawns, pastures, open ground and waste places.

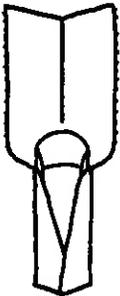
- 3a. Plant bluish-green, somewhat glaucous



161. *Poa compressa*—Canada Bluegrass

*Leaves* folded in bud-shoot; *sheath* distinctly flattened, smooth, split with overlapping hyaline margins; *auricles* absent; *collar* narrow to broad, divided; *ligule* membranous, 1 to 2 mm. long, truncate to rounded; *blade* to about 5 mm. wide (occasionally to 7 mm.), smooth above, smooth to somewhat rough and keeled below, margins smooth to rough and hyaline, tip boat-shaped. *Inflorescence*—a narrow, short-branched panicle. Common throughout. Meadows, open ground and waste places.

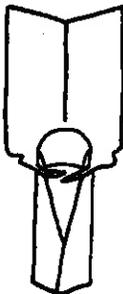
- 3b. Plant dark green, not glaucous



162. *Poa pratensis*—Kentucky Bluegrass

*Leaves* folded in bud-shoot; *sheath* distinctly flattened, smooth or rarely very short hairy, split with overlapping hyaline margins; *auricles* absent; *collar* medium broad, divided; *ligule* membranous, 1 to 1.5 mm. long, truncate; *blade* to 5 mm. wide, smooth above and below, margins slightly rough, tip boat-shaped. *Inflorescence*—an open, pyramidal panicle. Common throughout. Lawns, meadows, open ground and waste places.

- 4a. Blade glossy and shining below



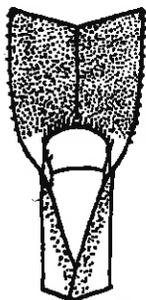
163. *Lolium perenne*—Perennial Ryegrass

*Leaves* folded in but-shoot; *sheath* distinctly flattened, smooth, split with overlapping hyaline margins; *auricles* small; *collar* narrow; *ligule* membranous, 1 to 2 mm. long, rounded to acute, may be toothed; *blade* to 6 mm. wide, smooth above, smooth and glossy below, margins smooth to slightly rough. *Inflorescence*—long, narrow, flat spikes with unawned spikelets placed edge to rachis. Cultivated throughout.

4b. Blade not glossy and shining below . . . . . 5

5a. Plants growing on low, wet soil

164. *Andropogon glomeratus*—Bushy Beardgrass

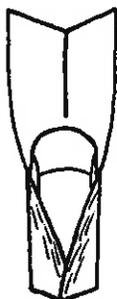


*Leaves* folded in bud-shoot; *sheath* distinctly flattened, rough or long hairy at least along margins, split with overlapping margins hyaline or sometimes hairy; *auricles* absent; *collar* narrow to medium broad, divided, may be hairy; *ligule* membranous, 1 to 2 mm. long, rounded, mostly ciliate, may be toothed; *blade* 5 to 9 mm. wide, rough above and may be sparsely long hairy near base, smooth to rough and keeled below, margins rough and sometimes sparsely long hairy. *Inflorescence*—a dense, brush-like, feathery panicle. Massachusetts south. Low wet soil.

5b. Plants not usually found on low, wet soil . . . . . 6

6a. Sheath long hairy, at least along margins

165. *Andropogon virginicus*—Broomsedge



*Leaves* folded in bud-shoot; *sheath* distinctly flattened, sparsely long hairy at least along margins, split with overlapping margins that may be sparsely long hairy; *auricles* absent; *collar* narrow, divided, may be hairy on margins; *ligule* membranous, 1 to 2 mm. long, rounded, may be ciliate; *blade* 4 to 6 mm. wide, smooth to rough above and sometimes long hairy near base, smooth and keeled below, margins smooth or long hairy. *Inflorescence*—a narrow panicle with feathery branches. New York south. Mostly old fields.

6b. Sheath not long hairy . . . . . 7

7a. Plant found only on dune sand along coast

166. *Andropogon littoralis*—Seashore Beardgrass



*Leaves* folded in bud-shoot; *sheath* distinctly flattened, smooth, split with overlapping hyaline margins; *auricles* absent; *collar* narrow, divided, may be reddish; *ligule* membranous, 1 to 2 mm. long, rounded, may be ciliate; *blade* 4 to 6 mm. wide, smooth to rough above, keeled and rough at least near tip below, margins rough and hyaline. *Inflorescence*—a narrow panicle with flexuous, feathery branches. Massachusetts south. Dune sand along coast.

7b. Plant not found on dune sand . . . . . 8

**8a. Ligule ciliate**

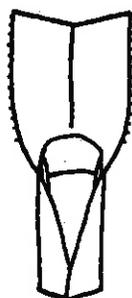
**167. Andropogon scoparius—Little Bluestem**



*Leaves* folded in bud-shoot; *sheath* distinctly flattened, mostly smooth, may be sparsely short hairy or hairy along margins, split with overlapping margins sometimes hairy; *auricles* absent; *collar* narrow to broad, may be divided or hairy; *ligule* membranous, 1 to 2 mm. long, truncate to rounded, ciliate; *blade* to 8 mm. wide, mostly rough above and may be hairy near base, keeled and smooth to rough below, margins rough and occasionally long hairy near base. *Inflorescence*—a narrow panicle with flexuous, feathery branches. Throughout. Dry hills and fields.

**8b. Ligule not ciliate**

**168. Andropogon ternarius—Silver Beardgrass**



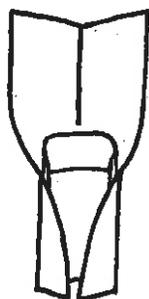
*Leaves* folded in bud-shoot; *sheath* distinctly flattened, smooth, often purplish, split with overlapping hyaline margins; *auricles* absent; *collar* mostly narrow, divided, may have a few long hairs on margins; *ligule* membranous, 1 to 1.6 mm. long, rounded; *blade* to 7 mm. wide, smooth to rough above and sometimes long hairy, smooth to slightly rough and keeled below, margins mostly rough but may be long hairy at least near base. *Inflorescence*—a narrow panicle with silvery to creamy or grayish, feathery branches. Delaware south. Dry sandy soil.

**GROUP 13**

- 1a. Plants growing in wet places and shallow water ..... 2
- 1b. Plants not generally found in wet places ..... 5

**2a. Ligule 3 mm. or less long**

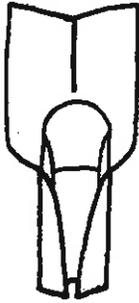
**169. Glyceria canadensis—Rattlesnake Mannagrass**



*Leaves* folded in bud-shoot; *sheath* distinctly flattened, smooth to rough, split with hyaline margins; *auricles* absent; *collar* narrow to medium broad, divided; *ligule* membranous, 2 to 3 mm. long, truncate to rounded; *blade* 5 to 10 mm. wide, smooth to rough above and below, keeled below, margins smooth to somewhat rough and hyaline. *Inflorescence*—an open panicle with branches distant and drooping. Throughout. Bogs and wet places.

- 2b. Ligule more than 3 mm. long ..... 3

3a. Ligule to 4 or 5 mm. long

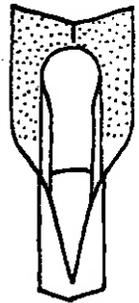


170. *Glyceria striata*—Fowl Mannagrass

*Leaves* folded in bud-shoot; *sheath* distinctly flattened, smooth to rough, split with hyaline margins; *auricles* absent; *collar* narrow to broad, may be divided; *ligule* membranous, 2 to 5 mm. long, rounded to acuminate; *blade* 5 to 10 mm. wide, smooth to slightly rough above, smooth and keeled below, margins smooth to rough, tip generally boat-shaped. *Inflorescence*—an open, nodding panicle. Throughout. Moist meadows and wet places.

3b. Ligule to 8 or 10 mm. long . . . . . 4

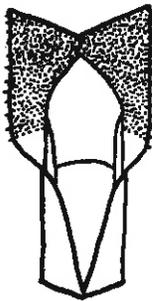
4a. Blade 3 to 6 mm. wide



171. *Glyceria acutiflora*—Creeping Mannagrass

*Leaves* folded in bud-shoot; *sheath* distinctly flattened, smooth, split part way with hyaline margins; *auricles* absent; *collar* narrow, divided; *ligule* membranous, 4 to 10 mm. long, rounded to acuminate; *blade* 3 to 6 mm. wide, slightly rough above, smooth and keeled below, margins smooth. *Inflorescence*—a narrow panicle with stiff branches bearing 1 to 3 spikelets. New Hampshire south. Wet soil and shallow water.

4b. Blade 7 to 12 mm. wide



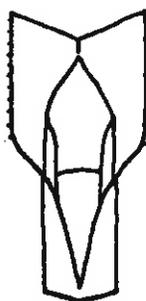
172. *Glyceria septentrionalis*—Eastern Mannagrass

*Leaves* folded in bud-shoot; *sheath* distinctly flattened, smooth, split part way with hyaline margins; *auricles* absent; *collar* broad, divided; *ligule* membranous, 4 to 8 mm. long, acute; *blade* 7 to 12 mm. wide, rough above, keeled and smooth below at least near base, margins rough. *Inflorescence*—a somewhat open panicle with a few long, slender branches. Throughout. Wet places and shallow water.

5a. Blade usually not more than 5 mm. wide, tip boat-shaped . . . 6

5b. Blade 6 to 12 mm. wide, tip not boat-shaped

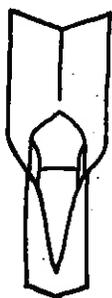
173. *Dactylis glomerata*—Orchard Grass



*Leaves* folded in bud-shoot; *sheath* distinctly flattened, smooth to somewhat rough or rarely short hairy, mostly split part way only with hyaline margins; *auricles* absent; *collar* broad, divided; *ligule* membranous, 3 to 10 mm. long, mostly acuminate; *blade* 6 to 12 mm. wide, mostly smooth near base and rough near tip above and below, keeled below, margins rough. *Inflorescence*—a panicle with spikelets crowded in dense clusters at end of the few, stiff branches. Common throughout. Fields, meadows and waste places.

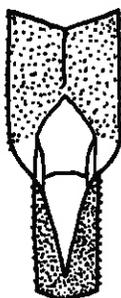
6a. Blade tapering to a narrow boat-shaped tip ..... 7

6b. Blade not tapering (parallel-sided), tip abruptly boat-shaped



174. *Poa annua*—Annual Bluegrass

*Leaves* folded in bud-shoot; *sheath* distinctly flattened, smooth, mostly split part way with hyaline margins; *auricles* absent; *collar* medium broad, divided; *ligule* membranous, 1 to 3 mm. long, acute; *blade* to 4 mm. wide, smooth above and below, margins mostly smooth but rough near tip. *Inflorescence*—a small open, few-branched panicle. Common throughout. Lawns, pastures, open ground and waste places.



7a. Sheath rough and split part way only

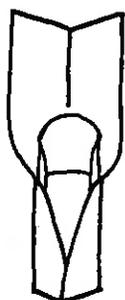
175. *Poa trivialis*—Rough Bluegrass

*Leaves* folded in bud-shoot; *sheath* distinctly flattened, rough, split part way; *auricles* absent; *collar* broad, divided; *ligule* membranous, 2 to 6 mm. long, acute, sometimes ciliate; *blade* 2 to 5 mm. wide, at least slightly rough above, keeled and smooth to rough below, margins rough at least near boat-shaped tip. *Inflorescence*—an oblong, open panicle. Throughout. Moist places.

7b. Sheath smooth to slightly rough and split to base

176. *Poa palustris*—Fowl Bluegrass

*Leaves* folded in bud-shoot; *sheath* distinctly flattened, smooth to slightly rough, split with overlapping hyaline margins; *auricles* absent; *collar* medium broad to broad, divided; *ligule* membranous, 2 to 6 mm. long, rounded to acute; *blade* 2 to 5 mm. wide (occasionally to 7 mm.), smooth to rough above and below, keeled below and sometimes glossy, margins smooth to rough and sometimes minutely hairy. *Inflorescence*—an open, nodding, yellowish-green or purplish panicle. Throughout. Meadows and moist open ground.

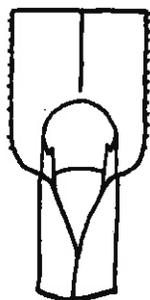


GROUP 14

1a. Ligule notched near front on one or both sides

177. *Phleum pratense*—Timothy

*Leaves* rolled in bud-shoot; *sheath* round, smooth, split with overlapping hyaline margins; *auricles* absent; *collar* medium broad to broad, may be divided, sometimes oblique; *ligule* membranous, to 4.5 mm. long, rounded, notched near front at least on one side; *blade* 5 to 10 mm. wide, mostly smooth near base and rough near tip above and below, margins rough. *Inflorescence*—densely flowered, cylindrical, spike-like. Common throughout. Fields and waste places.



1b. Ligule not notched as above ..... 2

- 2a. Blade not more than 5 mm. wide . . . . . 3
- 2b. Blade more than 5 mm. wide . . . . . 5

- 3a. Blade rough above and below . . . . . 4
- 3b. Blade smooth to very slightly rough above and below



**178. Alopecurus carolinianus—Field Foxtail**

*Leaves* rolled in bud-shoot; *sheath* round, smooth, split with overlapping hyaline margins; *auricles* absent; *collar* narrow to medium broad, divided; *ligule* membranous, to 4 or 5 mm. long, rounded to acuminate; *blade* to 4 mm. wide, smooth to slightly rough above and below, margins slightly rough to rough. *Inflorescence*—soft, dense, cylindrical, spike-like. Long Island south. Moist ground and wet places.

- 4a. Blade 1.3 to 2 in. long



**179. Agrostis hiemalis—Spring Hairgrass**

*Leaves* rolled in bud-shoot; *sheath* round, smooth to rough, split with overlapping hyaline margins; *auricles* absent; *collar* narrow, mostly divided, generally purple; *ligule* membranous, to 4 mm. long, rounded to acute, lacerate; *blade* to 3.5 mm. wide, rough above and below and on margins. *Inflorescence*—a purplish, spreading, slender-branched panicle. Massachusetts south. Open ground, fields and waste places.

- 4b. Blade 3 to 8 in. long



**180. Agrostis scabra—Fly-away Grass**

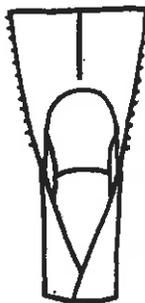
*Leaves* rolled in bud-shoot; *sheath* round, somewhat rough, split with overlapping hyaline margins; *auricles* absent; *collar* medium broad, divided; *ligule* membranous, to 5 mm. long, rounded to acute, lacerate; *blade* to 5 mm. wide, rough above and below and on margins. *Inflorescence*—a very diffuse, purple to green panicle. Throughout. Fields and meadows.

- 5a. Plants with creeping rhizomes . . . . . 6
- 5b. Plants without creeping rhizomes . . . . . 7

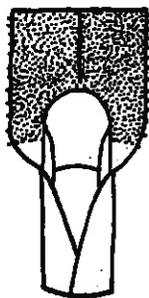
- 6a. Blade tapering to a narrow base

**181. Sorghastrum nutans—Indian Grass**

*Leaves* rolled in bud-shoot; *sheath* round, smooth, frequently hairy near base or at nodes, split with overlapping hyaline margins; *auricles* absent; *collar* narrow to broad, may be divided; *ligule* membranous, 3 to as much as 10 mm. long, rounded, may be 1- or 2-notched, mostly hairy on back, sometimes ciliate; *blade* 5 to 10 mm. wide, tapering to a narrow base, smooth to rough above and below, keeled below, margins rough. *Inflorescence*—a narrow, yellowish or reddish-brown panicle. Throughout. Waste places.



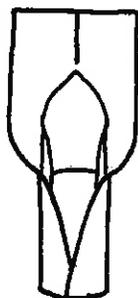
6b. Blade not tapering to a narrow base



182. *Agrostis alba*—Redtop

*Leaves* rolled in bud-shoot; *sheath* round, smooth, split with overlapping hyaline margins; *auricles* absent; *collar* narrow to broad, divided, may be oblique, sometimes minutely hairy; *ligule* membranous, to about 5 mm. long, rounded to acute, may be hairy on back; *blade* to 10 mm. wide, rough above and below, keeled below, margins rough and hyaline. *Inflorescence*—a reddish spreading panicle. Common throughout. Meadows, pastures, lawns and waste places.

7a. Leaves folded in bud-shoot

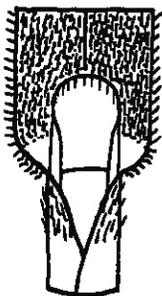


183. *Poa palustris*—Fowl Bluegrass

*Leaves* folded in bud-shoot; *sheath* round, keeled, smooth to slightly rough, split with overlapping hyaline margins; *auricles* absent; *collar* narrow to broad, divided; *ligule* membranous, to 9 mm. long, acute; *blade* to 9 mm. wide, smooth to somewhat rough above and below, keeled and sometimes glossy below, margins smooth to rough, tip narrowly boat-shaped. *Inflorescence*—an open, nodding, yellowish-green or purplish panicle. Throughout. Meadows and moist open ground.

7b. Leaves rolled in bud-shoot ..... 8

8a. Collar hairy on margins



184. *Anthoxanthum odoratum*—Sweet Vernalgrass

*Leaves* rolled in bud-shoot; *sheath* round, smooth, frequently hairy near top, split with overlapping hyaline margins; *auricles* absent; *collar* narrow to broad, mostly divided, hairy on margins; *ligule* membranous, to as much as 9 mm. long, mostly rounded, lacerate or toothed, may be short ciliate; *blade* to 10 mm. wide, rough and mostly short hairy above, mostly short hairy below, margins mostly short hairy. *Inflorescence*—short, narrow, brownish-yellow, spike-like. Throughout. Meadows, pastures and waste places.

8b. Collar not hairy on margins ..... 9

9a. Blade rough above and below



185. *Agrostis perennans*—Autumn Bent

*Leaves* rolled in bud-shoot; *sheath* round, smooth, split with overlapping hyaline margins; *auricles* absent; *collar* narrow, may be indistinct; *ligule* membranous, to 6 mm. long, rounded to acute; *blade* to 7 mm. wide, rough above and below, margins rough and hyaline. *Inflorescence*—a pale to tawny, open panicle. Throughout. Open ground and old fields.

9b. Blade smooth above and below



186. *Cinna arundinacea*—Stout Woodreed

*Leaves* rolled in bud-shoot; *sheath* round, smooth, split with overlapping hyaline margins; *auricles* absent; *collar* medium broad; *ligule* membranous, to 6 mm. long, rounded to acute; *blade* 5 to 8 mm. wide, smooth above with a few long hairs near base, smooth and keeled below, margins smooth to slightly rough and hyaline. *Inflorescence*—a many-flowered, nodding, grayish-green panicle with slender branches. Throughout. Moist places mostly in woods.

GROUP 15

1a. Ligule 10 mm. or more long



187. *Zizania aquatica*—Annual Wildrice

*Leaves* rolled in bud-shoot; *sheath* round, smooth, split with overlapping hyaline margins; *auricles* absent; *collar* broad, divided; *ligule* membranous, 10 to 17 mm. long, acute; *blade* 15 to 30 mm. wide, smooth above and below, midrib prominent below, margins rough and hyaline. *Inflorescence*—a large, open, unisexual panicle. Throughout. Usually in shallow water.

1b. Ligule less than 10 mm. long . . . . . 2

2a. Plants found only on sandy seashores and coast dunes



188. *Panicum amarum*—Seaside Panicum

*Leaves* rolled in bud-shoot; *sheath* round, smooth, split with overlapping hairy margins; *auricles* absent; *collar* broad, reddish; *ligule* membranous, 2 to 4 mm. long, ciliate; *blade* 10 to 12 mm. wide, smooth near base and rough near tip above, smooth below, margins rough and hyaline. *Inflorescence*—a narrow, appressed panicle, one-fourth to one-third entire height of plant. Connecticut south. Sandy seashores and coast dunes.

2b. Plants not found as above . . . . . 3

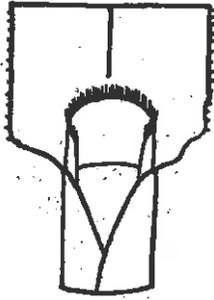
3a. Plants with creeping rhizomes . . . . . 4

3b. Plants without creeping rhizomes . . . . . 8

4a. Blade smooth above . . . . . 5

4b. Blade rough above . . . . . 7

5a. Blade green except for a conspicuously white midrib



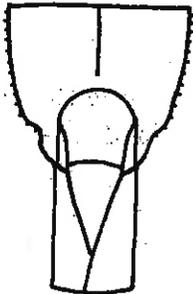
189. *Sorghum halepense*—Johnson Grass

*Leaves* rolled in bud-shoot; *sheath* round to somewhat flattened, smooth, split with overlapping hyaline margins; *auricles* absent; *collar* broad, sometimes divided, may be hairy; *ligule* membranous, 3 to 6 mm. long, rounded, ciliate; *blade* 20 to 35 mm. wide, smooth above and below at least near base, midrib white above and prominent below, margins generally rough and hyaline. *Inflorescence*—a large, loose, erect panicle. Massachusetts south. Open ground, fields and waste places.

5b. Blade not as above ..... 6

6a. Blade green

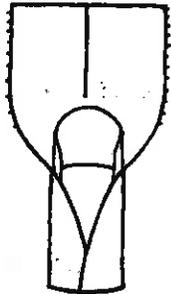
190. *Phalaris arundinacea*—Reed Canarygrass



*Leaves* rolled in bud-shoot; *sheath* round, smooth, split with overlapping hyaline margins; *auricles* absent; *collar* narrow to broad, may be divided; *ligule* membranous, 3 to 7 mm. long, rounded to acute, occasionally toothed, may be hairy on back; *blade* 10 to 20 mm. wide (occasionally to 30 mm.), smooth to slightly rough and rarely hairy near base above, keeled and smooth to rough below, margins usually rough and rarely short hairy near base. *Inflorescence*—a densely flowered, spreading to narrow panicle. Throughout. Marshes, rivers banks and moist places.

6b. Blade striped with white

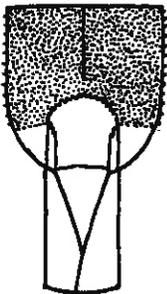
191. *Phalaris arundinacea* var. *picta*—Ribbon Grass



*Leaves* rolled in bud-shoot; *sheath* round, smooth, split with overlapping hyaline margins; *auricles* absent; *collar* medium broad, divided; *ligule* membranous, 2 to 4 mm. long, rounded; *blade* to 12 mm. wide, smooth near base and rough near tip above, rough below, margins rough. *Inflorescence*—a densely flowered, spreading to narrow panicle. Grown for ornament.

7a. Plants glaucous

192. *Calamagrostis cinnoides*—Reedgrass

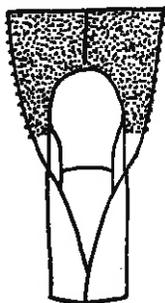


*Leaves* rolled in bud-shoot; *sheath* round, smooth or slightly rough at top, split with overlapping hyaline margins; *auricles* absent; *collar* narrow to medium broad, may be divided; *ligule* membranous, 3 to 6 mm. long, rounded, generally toothed; *blade* 8 to 15 mm. wide, rough above, keeled and rough below, margins rough and hyaline. *Inflorescence*—a contracted panicle with short, erect branches. Throughout. Bogs and moist ground.

**7b. Plants not glaucous**

**193. Calamagrostis canadensis—Bluejoint**

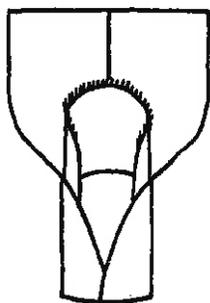
*Leaves* rolled in bud-shoot; *sheath* round, smooth to slightly rough, split with overlapping margins; *auricles* absent; *collar* medium broad to broad, divided; *ligule* membranous, 3 to 5 mm. long, rounded; *blade* to 12 mm. wide, rough above, keeled and smooth to rough below, margins rough and hyaline. *Inflorescence*—a loose, open, purple-tinged panicle. South to Maryland and West Virginia. Marshes and wet places.



**8a. Widest blades 25 mm. or more**

**194. Sorghum sudanense—Sudan Grass**

*Leaves* rolled in bud-shoot; *sheath* round, smooth, split with overlapping hyaline margins; *auricles* absent; *collar* broad, divided, sometimes hairy at base; *ligule* membranous, 3 to 4 mm. long, rounded, ciliate; *blade* 20 to 40 mm. wide, smooth above and below, midrib white above and prominent below, margins smooth to very rough and hyaline. *Inflorescence*—a large, loose, erect panicle. Cultivated for forage.

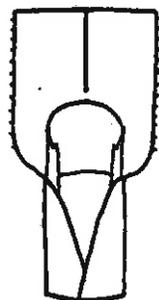


**8b. Widest blades not more than 20 mm. . . . . 9**

**9a. Ligule notched near front on one or both sides**

**195. Phleum pratense—Timothy**

*Leaves* rolled in bud-shoot; *sheath* round, mostly keeled, smooth, split with overlapping hyaline margins; *auricles* absent; *collar* mostly broad and divided; *ligule* membranous, 3 to 6 mm. long, rounded to acute, notched near front on one or both sides, frequently toothed in center; *blade* to 14 mm. wide, generally smooth near base and rough near tip above and below, keeled below, margins rough and hyaline. *Inflorescence*—densely flowered, cylindrical, spike-like. Common throughout. Fields and waste places.



**9b. Ligule not notched as above . . . . . 10**

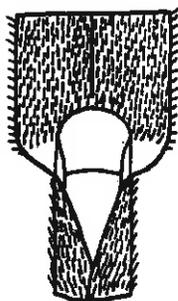
**10a. Sheath hairy . . . . . 11**

**10b. Sheath not hairy . . . . . 13**

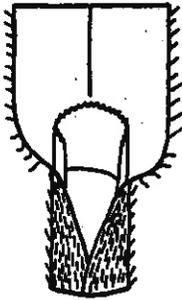
**11a. Blade densely velvety hairy above and below**

**196. Holcus lanatus—Velvet Grass**

*Leaves* rolled in bud-shoot; *sheath* loose, round, dense velvety short hairy, split with overlapping hyaline margins; *auricles* absent; *collar* narrow to medium broad, usually divided, hairy; *ligule* membranous, to 3 mm. long, rounded, may be toothed and ciliate; *blade* to 16 mm. wide, velvety short hairy above and below, keeled near base below, margins short hairy. *Inflorescence*—a long, contracted, pale, purple-tinged panicle. Throughout. Open ground, meadows and moist places.



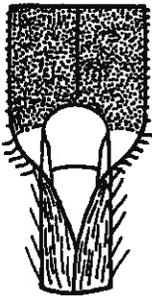
12a. Sheath short hairy



197. *Avena sativa*—Oats

*Leaves* rolled in bud-shoot; *sheath* round, short hairy, split with overlapping hyaline margins; *auricles* absent; *collar* narrow, divided, sparse hairy on margins; *ligule* membranous, 3 to 4 mm. long, rounded, toothed; *blade* to 14 mm. wide, smooth to rough above, keeled and smooth near base but rough near tip below, margins short hairy and hyaline. *Inflorescence*—a loose, open panicle. Cultivated.

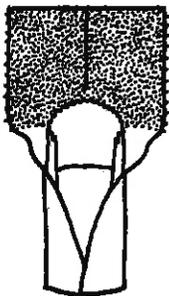
12b. Sheath long hairy



198. *Digitaria sanguinalis*—Common Crabgrass

*Leaves* rolled in bud-shoot; *sheath* round to somewhat flattened, long hairy, split with overlapping hyaline margins; *auricles* absent; *collar* broad, mostly divided, hairy at least on margins; *ligule* membranous, 3 to 4 mm. long, rounded, may be toothed; *blade* to 12 mm. or more wide, rough and sometimes hairy above and below, keeled below, margins rough and occasionally hairy. *Inflorescence*—3 to 12 digitate spike-like branches. Common throughout. Fields, gardens and waste places.

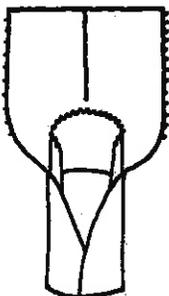
13a. Blade rough above



199. *Avena fatua*—Wild Oats

*Leaves* rolled in bud-shoot; *sheath* round, smooth, split with overlapping hyaline margins; *auricles* absent; *collar* broad, may be divided; *ligule* membranous, 3 to 5.5 mm. long, rounded, mostly toothed; *blade* 10 to 20 mm. wide, rough above, smooth near base and rough near tip below with midrib prominent, margins rough and hyaline and in young plants sometimes hairy near base. *Inflorescence*—a loose, open panicle. Rare in Northeast. Cultivated fields and waste places.

13b. Blade smooth above at least near base



200. *Avena sativa*—Oats

*Leaves* rolled in bud-shoot; *sheath* round, smooth, split with overlapping hyaline margins; *auricles* absent; *collar* broad, divided; *ligule* membranous, 3 to 4 mm. long, rounded, toothed; *blade* 10 to 14 mm. wide, smooth near base and rough near tip above and below, keeled below, margins rough and hyaline. *Inflorescence*—a loose, open panicle. Cultivated.

**GROUP 16**

**1a. Leaves folded in bud-shoot**



**201. Lolium perenne—Perennial Ryegrass**

*Leaves* folded in bud-shoot; *sheath* round to somewhat flattened, smooth, split with overlapping hyaline margins; *auricles* small; *collar* narrow to medium broad, divided; *ligule* membranous, .6 to 2 mm. long, truncate to rounded; *blade* to 6 mm. wide, smooth to rough above, smooth and glossy and keeled below, margins smooth and hyaline. *Inflorescence*—long, narrow, flat spikes with unawned spikelets placed edge to rachis. Cultivated throughout.

**1b. Leaves rolled in bud-shoot . . . . . 2**

**2a. Plants with white creeping rhizomes**

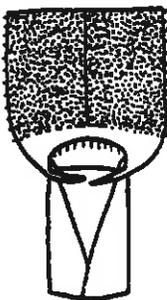
**202. Agropyron repens—Quackgrass**



*Leaves* rolled in bud-shoot; *sheath* round, mostly short hairy, split with overlapping hyaline margins; *auricles* small; *collar* mostly medium broad, may be divided, sometimes minutely hairy; *ligule* membranous, mostly .2 to .4 mm. long but occasionally to 1 mm., truncate to rounded, may be finely toothed or ciliate; *blade* 5 to 12 mm. wide, rough and mostly hairy above, mostly keeled and smooth or short hairy below, margins rough (rarely short hairy) and hyaline. *Inflorescence*—a long, narrow spike with spikelets placed side to rachis. Common throughout. Fields, meadows and waste places.

**2b. Plants without creeping rhizomes . . . . . 3**

**3a. Plant glaucous, a cultivated winter annual**



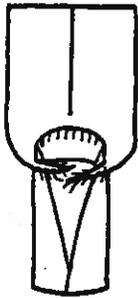
**203. Secale cereale—Rye**

*Leaves* rolled in bud-shoot; *sheath* round, smooth, split with overlapping hyaline margins; *auricles* small; *collar* mostly broad; *ligule* membranous, 1 to 1.6 mm. long (Tetra Petkus, mostly longer), rounded, lacerate, may be ciliate; *blade* 8 to 18 mm. wide, glaucous above and below, rough above, smooth and keeled below at least near base, margins rough and hyaline. *Inflorescence*—a narrow, crowded spike. Cultivated winter annual.

**3b. Plants not glaucous . . . . . 4**

**4a. Auricles hairy . . . . . 5**

**4b. Auricles not hairy . . . . . 6**



**5a. Blade margins smooth**

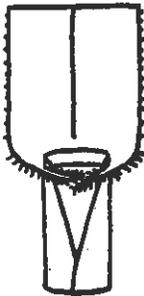
**204. *Triticum aestivum*—Wheat**

*Leaves* rolled in bud-shoot; *sheath* round, smooth, split with overlapping hyaline margins; *auricles* small, mostly long hairy; *collar* broad; *ligule* membranous, 1 to 1.6 mm. long, rounded, lacerate, may be ciliate; *blade* 7 to 11 mm. wide, smooth near base and rough near tip above, smooth below and keeled near base, margins smooth and hyaline. *Inflorescence*—a crowded, thick spike. Cultivated winter annual.

**5b. Blade margins rough**

**205. *Festuca arundinacea*—Tall Fescue**

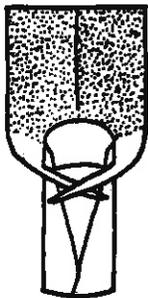
*Leaves* rolled in bud-shoot; *sheath* round, smooth or occasionally rough, split with overlapping hyaline margins; *auricles* small, short hairy; *collar* broad, divided, mostly hairy on margins; *ligule* membranous, to 1.2 mm. long but mostly .4 mm. or less, truncate; *blade* mostly 5 to 10 mm. wide (rarely to 15 mm.), smooth to rough above, glossy below and smooth at least near base with a prominent midrib, margins rough and hyaline. *Inflorescence*—an erect or nodding, somewhat contracted panicle. More common in southern half of region. Meadows and damp waste places.



**6a. Auricles large and long**

**206. *Hordeum vulgare*—Barley**

*Leaves* rolled in bud-shoot; *sheath* round, smooth or hairy, split with overlapping hyaline margins; *auricles* large and long; *collar* broad, divided; *ligule* membranous, 1.5 to 3 mm. long, rounded; *blade* 8 to 13 mm. wide, rough above at least near tip, keeled and smooth below at least near base, margins smooth and hyaline. *Inflorescence*—a dense, erect, thick spike. Cultivated winter annual.

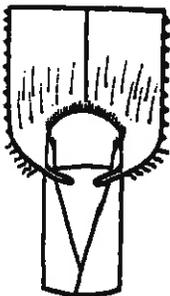


**6b. Auricles small and slender ..... 7**

**7a. Blade midrib white above, growing in large bunches**

**207. *Miscanthus sinensis*—Eulalia**

*Leaves* rolled in bud-shoot; *sheath* round, smooth, split with overlapping hyaline margins; *auricles* short and blunt; *collar* broad, divided, hairy on margins; *ligule* membranous, 2.5 to 3 mm. long, rounded, ciliate; *blade* 8 to 18 mm. wide, smooth near base and rough near tip above and mostly with a few long hairs near base, smooth below with a prominent midrib (rarely sparse hairy), margins very rough and hyaline. *Inflorescence*—a fan-shaped, silky panicle. Cultivated for ornament, growing wild in some localities.



**7b. Blade midrib not white above ..... 8**

**8a. Blade glossy below ..... 9**

9a. Ligule 1 to 2 mm. long

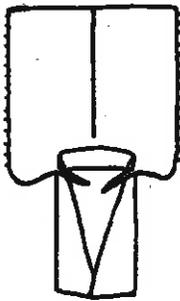


208. *Lolium multiflorum*—Annual Ryegrass

*Leaves* rolled in bud-shoot; *sheath* round, smooth, split with overlapping hyaline margins; *auricles* small; *collar* broad, may be divided; *ligule* membranous, 1 to 2 mm. long, truncate to rounded; *blade* mostly 3 to 7 mm. wide (rarely to 10 mm.), smooth above, smooth and glossy below, margins smooth and hyaline. *Inflorescence*—long, narrow flat spikes with awned spikelets placed edge to rachis. Cultivated throughout.

9b. Ligule generally less than 1 mm. long . . . . . 10

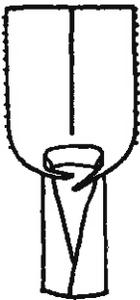
10a. Blade 10 mm. or more wide



209. *Hystrix patula*—Bottlebrush

*Leaves* rolled in bud-shoot; *sheath* round, smooth to hairy, split with overlapping margins hyaline or one hairy; *auricles* small; *collar* narrow to broad; *ligule* membranous, .2 to .6 mm. long, truncate to rounded; *blade* 10 to 25 mm. wide, smooth to rough above and below, keeled and glossy below, margins rough and hyaline. *Inflorescence*—a loosely flowered, bristly, erect or nodding spike. Throughout. Infrequent in moist places.

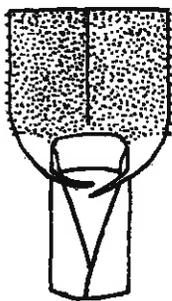
10b. Blade less than 10 mm. wide



210. *Festuca elatior*—Meadow Fescue

*Leaves* rolled in bud-shoot; *sheath* round, smooth, split with overlapping hyaline margins; *auricles* small; *collar* broad, mostly divided; *ligule* membranous, .2 to 1 mm. long, truncate; *blade* 3 to 9 mm. wide, smooth to rough above, smooth and glossy below, margins rough. *Inflorescence*—an erect or nodding, somewhat contracted panicle. Throughout. Meadows and waste places.

11a. Ligule to at least 1 mm. long



211. *Elymus canadensis*—Canada Wild-rye

*Leaves* rolled in bud-shoot; *sheath* round, smooth, split with overlapping margins hyaline or one hairy; *auricles* small; *collar* broad, divided; *ligule* membranous, to 1.5 mm. long, truncate, may be toothed and ciliate; *blade* 8 to 20 mm. wide, at least slightly rough above, keeled and smooth below at least near base, margins rough. *Inflorescence*—a dense, bristly, nodding or drooping spike. Massachusetts south. River banks, open ground and sandy soil.

11b. Ligule less than 1 mm. long . . . . . 12



12a. Blade hairy above

212. *Elymus villosus*—Hairy Wild-rye

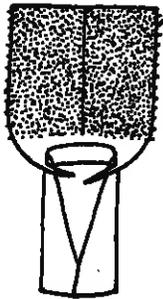
*Leaves* rolled in bud-shoot; *sheath* round, smooth, split with one overlapping margin hyaline and one hairy; *auricles* small; *collar* medium broad, divided; *ligule* membranous, about .4 mm. long, truncate; *blade* 5 to 10 mm. wide, short hairy above and below, keeled near base below, margins rough and hyaline. *Inflorescence*—a dense, bristly, drooping spike. Vermont south. Shady and mostly damp places.

12b. Blade not hairy above

213. *Elymus riparius*—Riverbank Wild-rye

214. *Elymus virginicus*—Virginia Wild-rye

*Leaves* rolled in bud-shoot; *sheath* round, smooth or sometimes rough, rarely short hairy, split with overlapping margins both hyaline or both hairy or one hairy; *auricles* small; *collar* broad, divided; *ligule* membranous, .2 to .6 mm. long, truncate; *blade* 5 to 14 mm. wide, rough above, keeled and smooth to rough below, margins rough and hyaline. *Inflorescence*—a dense, bristly, erect spike. Throughout. Moist ground and along streams.



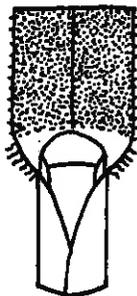
GROUP 17

- 1a. Plant with creeping rhizomes . . . . . 2
- 1b. Plant without creeping rhizomes . . . . . 3

2a. Collar hairy on margins

215. *Muhlenbergia frondosa*—Wirestem Muhly

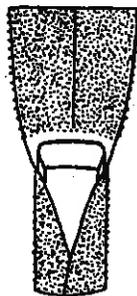
*Leaves* rolled in bud-shoot; *sheath* round to somewhat flattened, smooth, split with overlapping hyaline margins; *auricles* absent; *collar* broad, hairy on margins; *ligule* membranous, about 1 mm. long, rounded; *blade* to 8 mm. wide, rough above, rough below at least near tip, margins rough. *Inflorescence*—numerous, slender panicles. Throughout. Not common. Low ground and waste places.



2b. Collar not hairy on margins

216. *Leersia virginica*—Whitegrass

*Leaves* rolled in bud-shoot; *sheath* somewhat flattened, rough and hairy at base, split with overlapping hyaline margins; *auricles* absent; *collar* narrow to broad; *ligule* membranous, .6 to 1 mm. long, truncate, may be toothed; *blade* to 10 mm. wide, rough above and below, sometimes short hairy below, margins rough. *Inflorescence*—an open panicle with capillary branches distant. Throughout. Moist places.



- 3a. Collar hairy at least on margins . . . . . 4

3b. Collar not hairy ..... 6

4a. Ligule minute, not more than .2 mm. long ..... 5

4b. Ligule .4 to .8 mm. long



217. *Muhlenbergia schreberi*—Nimblewill

*Leaves* rolled in bud-shoot; *sheath* somewhat flattened, smooth, split with overlapping hyaline margins; *auricles* absent; *collar* broad, hairy on margins; *ligule* membranous, .4 to .8 mm. long, truncate to rounded; *blade* to 7 mm. wide, rough above and below, margins rough and hyaline. *Inflorescence*—numerous slender panicles. New Hampshire south. Lawns, pastures and waste places.

5a. Blade short hairy above and below

218. *Microstegium vimineum* var. *imberbe*—Basketgrass

*Leaves* rolled in bud-shoot; *sheath* round, smooth, hairy at top, split with one overlapping margin hairy and one hyaline; *auricles* absent; *collar* narrow, hairy on margins; *ligule* membranous, about .2 mm. long, truncate, very short ciliate; *blade* 3 to 10 mm. wide (mostly to about 5 mm.), short hairy above and below, margins smooth to slightly rough. *Inflorescence*—1 to 6 terminal spike-like branches. Southeastern Pennsylvania south. Shaded banks and roadsides. Infrequent.



5b. Blade not hairy

219. *Sporobolus clandestinus*—Scratch Dropseed

*Leaves* folded in bud-shoot; *sheath* round, smooth, split with overlapping hyaline margins; *auricles* absent; *collar* narrow to medium broad, hairy; *ligule* membranous, minute; *blade* to 5 mm. wide, smooth to slightly rough above, smooth and glossy below, margins smooth to slightly rough. *Inflorescence*—a narrow, contracted panicle. Connecticut south. Sandy fields.



6a. Plant with short stolons

220. *Agrostis tenuis*—Colonial Bent

*Leaves* rolled in bud-shoot; *sheath* round, smooth, split with overlapping hyaline margins; *auricles* absent; *collar* broad, may be divided and hairy on margins; *ligule* membranous, to 1 mm. long, truncate; *blade* 3 to 5 mm. wide, smooth to rough above and below, margins rough and hyaline. *Inflorescence*—an open delicate panicle. Common throughout. Pastures, lawns and waste places.

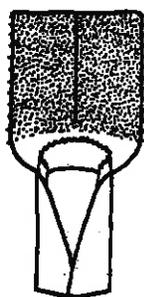


6b. Plant without stolons ..... 7

7a. Widest blades 8 to 10 mm. wide (rarely to only 7 mm.) ..... 8

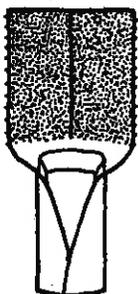
7b. Widest blades to 6 mm., rarely more ..... 9

8a. Stems below ground with a series of bulbs



221. *Arrhenatherum elatius* var. *bulbosum*—Bulbous Oatgrass

*Leaves* rolled in bud-shoot; *sheath* round, smooth or sometimes short hairy, split with overlapping hyaline margins; *auricles* absent; *collar* broad, divided; *ligule* membranous, to 1 mm. long, rounded, toothed; *blade* to 10 mm. wide, rough and sometimes sparsely short hairy above, smooth below, margins rough. *Inflorescence*—a narrow, pale or purplish, shining panicle. Delaware, West Virginia south. Occasionally a weed in fields.



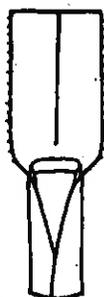
8b. Stems below ground without a series of bulbs

222. *Arrhenatherum elatius*—Tall Oatgrass

*Leaves* rolled in bud-shoot; *sheath* round, smooth, split with overlapping hyaline margins; *auricles* absent; *collar* broad, divided; *ligule* membranous, .4 to .8 mm. long, truncate; *blade* to 10 mm. wide, rough above, smooth below, margins rough. *Inflorescence*—a narrow, pale or purplish, shining panicle. Throughout. Meadows, open ground and waste places.

9a. Plants densely tufted, perennial . . . . . 10

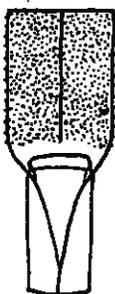
9b. Plants not densely tufted, annual



223. *Hordeum pusillum*—Little Barley

*Leaves* rolled in bud-shoot; *sheath* round, smooth or short hairy, split with overlapping hyaline margins; *auricles* absent; *collar* narrow, may appear divided; *ligule* membranous, .2 to .6 mm. long (occasionally to 1 mm.), truncate; *blade* 3 to 6 mm. wide smooth to somewhat rough or sometimes short hairy above, smooth or occasionally short hairy below, margins rough or short hairy. *Inflorescence*—a dense, short-bristly, flattened-cylindric spike. Delaware south. Open ground.

10a. Sheath thin, often shredded



224. *Hordeum brachyantherum*—Meadow Barley

*Leaves* rolled in bud-shoot; *sheath* round, smooth or short hairy, split with overlapping margins hyaline or hairy; *auricles* absent; *collar* narrow; *ligule* membranous, .4 to .6 mm. long, truncate; *blade* mostly 3 to 6 mm. wide, rough above, smooth to rough below, margins rough. *Inflorescence*—a dense, short-bristly, flattened-cylindric spike. Maine to New York. Meadows, bottom lands, salt marshes. Not common.

10b. Sheath not as above



225. *Hordeum jubatum*—Squirrel-tail Barley

*Leaves* rolled in bud-shoot; *sheath* round, smooth or short hairy, split with overlapping hyaline margins; *auricles* absent; *collar* narrow to medium broad, may be divided; *ligule* membranous, .4 to 1 mm. long, truncate to rounded, may be toothed or ciliate; *blade* 3 to 6 mm. wide, rough or short hairy above, smooth or rough or occasionally short hairy below, margins rough. *Inflorescence*—a dense, very bushy, nodding spike. South to Maryland. Meadows and waste places.

GROUP 18

- 1a. Sheath split part way only . . . . . 2
- 1b. Sheath split to near base . . . . . 3

2a. Ligule to 1.8 mm. long

226. *Bromus japonicus*—Japanese Chess



*Leaves* rolled in bud-shoot; *sheath* round, densely soft white hairy, split part way with hyaline margins; *auricles* absent; *collar* narrow to broad, hairy at least on margins; *ligule* membranous, .8 to 1.8 mm. long, rounded, toothed or lacerate, sometimes ciliate; *blade* mostly 5 to 8 mm. wide, dense short hairy above and below, margins hairy. *Inflorescence*—an open, diffuse, somewhat drooping panicle. Vermont south. Common. Waste places.

2b. Ligule 2 mm. or more long

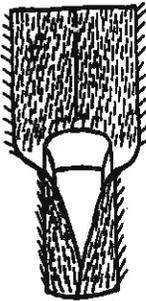
227. *Bromus tectorum*—Downy Chess



*Leaves* rolled in bud-shoot; *sheath* round, densely soft white hairy, split part way; *auricles* absent; *collar* narrow to medium broad, divided, mostly hairy; *ligule* membranous, 1.5 to 3 mm. long, rounded to acute, may be toothed and ciliate; *blade* 5 to 10 mm. wide, hairy above and below and on margins. *Inflorescence*—a rather dense, soft, drooping, often purple panicle. Throughout. Waste places.

3a. Blade densely velvety hairy above and below

228. *Holcus lanatus*—Velvet Grass



*Leaves* rolled in bud-shoot; *sheath* loose, round, dense velvety short hairy, split with overlapping hyaline margins; *auricles* absent; *collar* narrow to medium broad, usually divided, hairy; *ligule* membranous, to 3 mm. long, truncate to rounded, may be toothed and ciliate; *blade* mostly 5 to 10 mm. wide, dense velvety short hairy above and below, margins short hairy. *Inflorescence*—a long, contracted, pale, purple-tinged panicle. Throughout. Open ground, meadows and moist places.

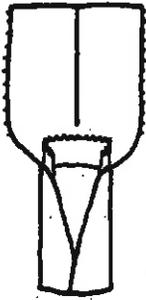
- 3b. Blade not as above . . . . . 4

4a. Plant with short creeping rhizomes

229. *Anthoxanthum odoratum*—Sweet Vernalgrass



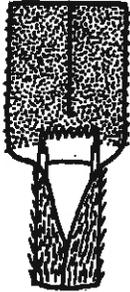
*Leaves* rolled in bud-shoot; *sheath* round, smooth, frequently hairy near top, split with overlapping hyaline margins; *auricles* absent; *collar* narrow to broad, divided, hairy on margins; *ligule* membranous, mostly 1 to 2.5 mm. long, but at times to as much as 9 mm., rounded, may be lacerate or toothed or ciliate; *blade* to 10 mm. wide, mostly hairy above at least near base, smooth or short hairy below, margins very variable. *Inflorescence*—short, narrow, brownish-yellow, spike-like. Throughout. Meadows, pastures and waste places.



5a. Blade smooth above and below

230. *Arrhenatherum elatius*—Tall Oatgrass

*Leaves* rolled in bud-shoot; *sheath* round, smooth or sometimes sparsely short hairy, split with overlapping hyaline margins; *auricles* absent; *collar* broad, divided; *ligule* membranous, 1 to 2.5 mm. long, truncate, toothed; *blade* to 10 mm. wide, smooth above and below, margins slightly rough. *Inflorescence*—a narrow, pale or purplish, shining panicle. Throughout. Meadows, open ground and waste places.



5b. Blade rough or short hairy on one or both surfaces

231. *Sphenopholis obtusata*—Prairie Wedgegrass

*Leaves* rolled in bud-shoot; *sheath* round, short hairy, split with overlapping margins hyaline or sometimes hairy; *auricles* absent; *collar* narrow, may be divided; *ligule* membranous, 1 to 2 mm. long, truncate to rounded, mostly toothed; *blade* 3 to 8 mm. wide, slightly rough to rough or short hairy above and below and on margins. *Inflorescence*—a dense, erect, spike-like panicle. Throughout. Old fields and moist ground.

GROUP 19

1a. Blade 4 mm. or less wide ..... 2

1b. Blade more than 4 mm. wide ..... 4

2a. Plant with creeping rhizomes or stolons ..... 3

2b. Plant without rhizomes or stolons



232. *Agrostis perennans*—Autumn Bent

*Leaves* rolled in bud-shoot; *sheath* round, smooth, split with overlapping hyaline margins; *auricles* absent; *collar* narrow to medium broad; *ligule* membranous, to 2 mm. long, rounded to acute; *blade* to 4 mm. wide, rough above and below and on margins. *Inflorescence*—a pale to tawny, open panicle. Throughout. Open ground and old fields.

3a. Ligule 2 to 3 mm. long

233. *Agrostis palustris*—Creeping Bent

*Leaves* rolled in bud-shoot; *sheath* round, smooth, split with overlapping hyaline margins; *auricles* absent; *collar* narrow to broad; *ligule* membranous, 1 to 3 mm. long, rounded to acute, may be toothed; *blade* 2 to 4 mm. wide, smooth to rough above and below and on margins. *Inflorescence*—a narrow, dense, pale or purple panicle. Marshes along coast. Also cultivated for putting greens.





3b. Ligule not more than 1.2 mm. long

234. *Agrostis tenuis*—Colonial Bent

*Leaves* rolled in bud-shoot; *sheath* round, smooth, split with overlapping hyaline margins; *auricles* absent; *collar* narrow, may be divided; *ligule* membranous, to 1.2 mm. long, truncate; *blade* to 4 mm. wide, rough above, smooth below, margins rough. *Inflorescence*—an open, delicate panicle. Common throughout. Pastures, lawns and waste places.

4a. Plants found only on coastal sand dunes

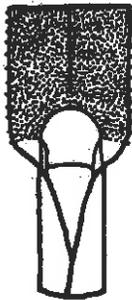


235. *Ammophila breviligulata*—American Beachgrass

*Leaves* rolled in bud-shoot; *sheath* round, smooth to slightly rough, split with overlapping hyaline margins; *auricles* absent; *collar* broad, may be divided; *ligule* membranous, 1 to 3 mm. long, rounded, may be short ciliate; *blade* 5 to 10 mm. wide, generally stiff, rough above, smooth and glossy below, margins smooth and hyaline and generally rolled inward. *Inflorescence*—pale, dense, nearly cylindrical, spike-like. Maine south. Sand dunes along coast.

4b. Plants not found on coastal sand dunes . . . . . 5

5a. Plants with creeping rhizomes

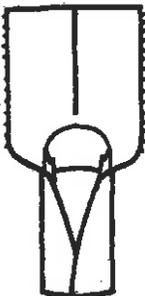


236. *Agrostis alba*—Redtop

*Leaves* rolled in bud-shoot; *sheath* round, smooth, split with overlapping hyaline margins; *auricles* absent; *collar* narrow to broad, divided; *ligule* membranous, to 3 mm. long, rounded, may be toothed; *blade* 4 to 10 mm. wide, mostly rough above and below, margins rough and hyaline. *Inflorescence*—a reddish, spreading panicle. Common throughout. Meadows, pastures, lawns and waste places.

5b. Plants without creeping rhizomes . . . . . 6

6a. Ligule notched near front on one or both sides



237. *Phleum pratense*—Timothy

*Leaves* rolled in bud-shoot; *sheath* round, smooth, split with overlapping hyaline margins; *auricles* absent; *collar* mostly broad and divided; *ligule* membranous, to 2 mm. long, rounded, notched near front on one or both sides; *blade* 5 to 10 mm. wide, smooth above and below at least near base, margins rough and hyaline. *Inflorescence*—densely flowered, cylindrical, spike-like. Common throughout. Fields and waste places.

6b. Ligule not notched as above . . . . . 7

7a. Blade 4 to 6 inches long

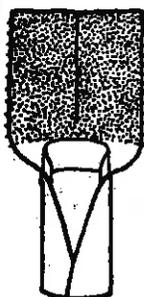


238. *Alopecurus pratensis*—Meadow Foxtail

*Leaves* rolled in bud-shoot; *sheath* round, smooth, split with overlapping hyaline margins; *auricles*, absent; *collar* medium broad, mostly divided; *ligule* membranous, 1 to 3 mm. long, truncate to rounded, may be toothed and ciliate; *blade* 5 to 9 mm. wide, rough above, smooth to slightly rough below, margins rough and hyaline. *Inflorescence*—soft, dense, cylindrical, spike-like. South to Delaware. Fields and waste places.

7b. Blade to 20 inches long ..... 8

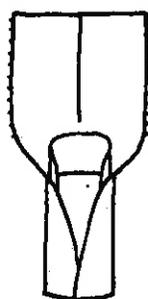
8a. Stems below ground with a series of bulbs



239. *Arrhenatherum elatius* var. *bulbosum*—Bulbous Oatgrass

*Leaves* rolled in bud-shoot; *sheath* round, smooth or sometimes short hairy, split with overlapping hyaline margins; *auricles* absent; *collar* narrow to broad, divided; *ligule* membranous, to 1.4 mm. long, truncate, may be very short ciliate; *blade* to 10 mm. wide rough and sometimes sparsely short hairy above, smooth below at least near base, margins rough. *Inflorescence*—a narrow, pale or purplish, shining panicle. Delaware, West Virginia south. Occasionally a weed in fields.

8b. Stems below ground without a series of bulbs



240. *Arrhenatherum elatius*—Tall Oatgrass

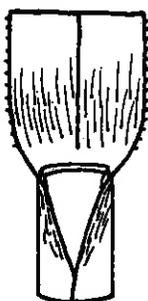
*Leaves* rolled in bud-shoot; *sheath* round, smooth, split with overlapping hyaline margins; *auricles* absent; *collar* narrow to broad, may be divided; *ligule* membranous, to 2.5 mm. long, truncate to rounded, may be toothed and ciliate; *blade* 5 to 10 mm. wide, smooth to rough or sometimes short hairy above, smooth to rough below, margins rough and hyaline. *Inflorescence*—a narrow, pale or purplish, shining panicle. Throughout. Meadows, open ground and waste places.

GROUP 20

1a. Ligule .6 mm. or less long ..... 2

1b. Ligule 1 mm. or more long ..... 3

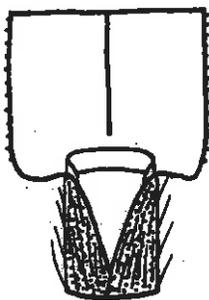
2a. Blade not more than 11 mm. wide



241. *Eragrostis spectabilis*—Purple Lovegrass

*Leaves* rolled in bud-shoot; *sheath* round, hairy at least at throat, split with overlapping hyaline margins; *auricles* absent; *collar* broad, may be divided; *ligule* membranous, to .2 mm. long; *blade* to 11 mm. wide, long hairy near base above, smooth below, margins rough and hyaline. *Inflorescence*—a diffuse, bright purple panicle two-thirds entire height of plant. Throughout. Sandy soil.

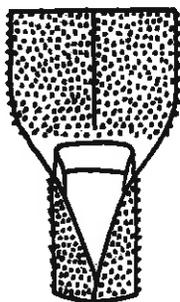
2b. Blade to 20 mm. or more wide



242. *Hystrix patula*—Bottlebrush

*Leaves* rolled in bud-shoot; *sheath* round, rough and long hairy, split with overlapping margins hyaline or one hairy; *auricles* absent; *collar* narrow to broad; *ligule* .2 to .6 mm. long, truncate; *blade* to 25 mm. wide, smooth above, smooth below at least near base, margins rough and hyaline. *Inflorescence*—a loosely flowered, bristly, erect or nodding spike. Throughout. Infrequent in moist places.

3a. Blade very rough above and below and on margins

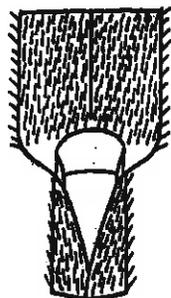


243. *Leersia oryzoides*—Rice Cut-grass

*Leaves* rolled in bud-shoot; *sheath* round, very rough, split with overlapping margins hyaline or one hairy; *auricles* absent; *collar* broad, may be divided, sometimes short hairy; *ligule* membranous, .8 to 1.5 mm. long, truncate; *blade* to 14 mm. wide, very rough above and below and on margins. *Inflorescence*—a spreading flexuous-branched panicle. Throughout. Marshes, riverbanks and wet places.

3b. Blade not very rough . . . . . 4

4a. Sheath and blade dense velvety hairy

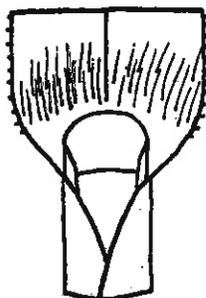


244. *Holcus lanatus*—Velvet Grass

*Leaves* rolled in bud-shoot; *sheath* loose, round, dense velvety hairy, split with overlapping margins; *auricles* absent; *collar* narrow to medium broad, usually divided, hairy; *ligule* membranous, 1.5 to 2 mm. long, rounded; *blade* to 12 mm. dense velvety short hairy above and below, keeled below, margins short hairy. *Inflorescence*—a long, contracted, pale, purple-tinged panicle. Throughout. Open ground, meadows and moist places.

4b. Sheath and blade not dense velvety hairy . . . . . 5

5a. Blade blue-green (glaucous) above and below



245. *Paspalum floridanum* var. *glabratum*—Smooth Florida Paspalum

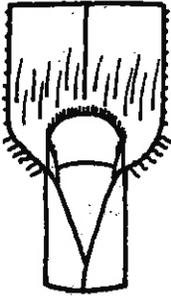
*Leaves* rolled in bud-shoot; *sheath* somewhat flattened, smooth, split with overlapping margins at times hairy; *auricles* absent; *collar* narrow to broad, sometimes hairy on margins; *ligule* membranous, 1 to 2 mm. long, rounded, may be ciliate; *blade* to 25 mm. wide, glaucous above and below, long hairy near base above, smooth below with midrib prominent, margins rough and hyaline. *Inflorescence*—2 to 5 one-sided, spike-like branches with flat, round to oval seed. New Jersey south. Brackish marshes and low sandy ground.

5b. Blade not blue-green . . . . . 6

6a. Growing in large bunches, blades to 40 inches long . . . . 7

7a. Blade green except for midrib white above

246. *Miscanthus sinensis*—Eulalia



*Leaves* rolled in bud-shoot; *sheath* round, smooth or occasionally short hairy, split with overlapping hyaline margins; *auricles* absent; *collar* broad, hairy on margins; *ligule* membranous, 1 to 2 mm. long rounded, ciliate; *blade* 8 to 18 mm. wide, smooth near base and rough near tip above with a few long hairs near base, smooth below, midrib white above and prominent below, margins rough to very rough and hyaline. *Inflorescence*—a fan-shaped, silky panicle. Cultivated for ornament, growing wild in some localities.

7b. Blade with yellow or yellowish-white markings ..... 8

8a. Blade with yellow or yellowish-white stripes

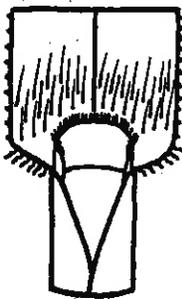
247. *Miscanthus sinensis* var. *variegatus*—Striped Eulalia



*Leaves* rolled in bud-shoot; *sheath* round to somewhat flattened, smooth, split with overlapping hyaline margins; *auricles* absent; *collar* narrow; *ligule* membranous, about 1 mm. long, truncate, ciliate; *blade* to 14 mm. wide, smooth above with yellow or yellowish-white stripes and short hairy near base, smooth below, margins very rough. *Inflorescence*—a fan-shaped, silky panicle. Cultivated for ornament.

8b. Blades with irregular yellowish cross-bands

248. *Miscanthus sinensis* var. *zebrinus*—Zebra Grass



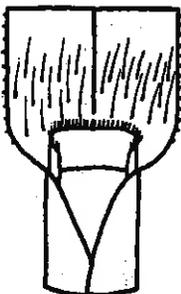
*Leaves* rolled in bud-shoot; *sheath* round to somewhat flattened, smooth or hairy, split with overlapping margins hyaline or hairy; *auricles* absent; *collar* narrow to broad, divided, hairy on margins; *ligule* membranous, 1 to 1.8 mm. long, rounded, mostly ciliate; *blade* to 18 mm. wide, long hairy near base above with midrib white, and with irregular yellowish cross-bands, smooth below with midrib prominent, margins very rough and hyaline. *Inflorescence*—a fan-shaped, silky panicle. Cultivated for ornament, occasionally growing wild.

9a. Plants of wet land ..... 10

9b. Plants not generally found on wet land ..... 11

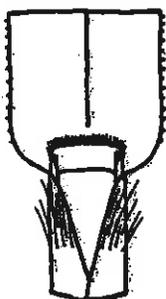
10a. Blade rough above, mostly with a few long hairs near base

249. *Erianthus contortus*—Bent-awn Plumegrass



*Leaves* rolled in bud-shoot; *sheath* round, smooth, sometimes with a few hairs at top, split with overlapping hyaline margins; *auricles* absent; *collar* narrow, divided, may be long hairy on margins; *ligule* membranous, 1 to 2 mm. long, truncate, ciliate; *blade* 10 to 20 mm. wide, sparsely long hairy near base above with midrib whitish or reddish, smooth below with midrib prominent, margins rough and sometimes long hairy. *Inflorescence*—a narrow, dense, silky, brownish panicle. Coastal Plain, Delaware south. Moist sandy land.

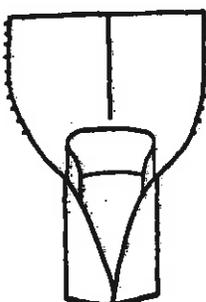
10b. Blade smooth or very slightly rough above



250. *Erianthus coarctatus*—Slender Plumegrass

*Leaves* rolled in bud-shoot; *sheath* somewhat flattened, smooth, long hairy at top and hairy at nodes, split with overlapping margins; *auricles* absent; *collar* broad, hairy; *ligule* membranous, to 1.6 mm. long, truncate, ciliate; *blade* to 15 mm. wide, smooth above and below, midrib whitish to reddish above and prominent below, margins rough and hyaline. *Inflorescence*—a narrow, dense, silky, purplish-brown panicle. Delaware south. Peaty, sandy, moist meadows and margins of swamps.

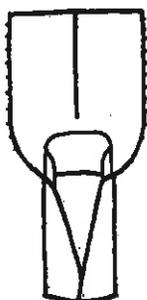
11a. Blade with midrib conspicuously white above



251. *Sorghum sudanense*—Sudan Grass

*Leaves* rolled in bud-shoot; *sheath* round, smooth, may be hairy at base, split with overlapping hyaline margins; *auricles* absent; *collar* broad, divided; *ligule* membranous, 1 to 2 mm. long, truncate to rounded, may be ciliate; *blade* to 25 mm. or more wide, smooth above and below or sometimes sparsely hairy near base above, margins rough and hyaline. *Inflorescence*—a large, loose, erect panicle. Cultivated for forage.

11b. Blade midrib not white above



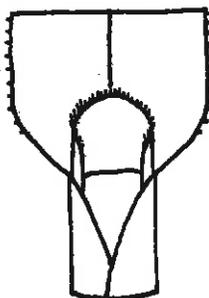
252. *Arrhenatherum elatius*—Tall Oatgrass

*Leaves* rolled in bud-shoot; *sheath* round, smooth, split with overlapping hyaline margins; *auricles* absent; *collar* broad; *ligule* membranous, 1 to 2 mm. long, truncate; *blade* to 12 mm. wide, smooth to rough above, keeled and smooth below at least near base, margins at least slightly rough and hyaline. *Inflorescence*—a narrow, pale or purplish, shining panicle. Throughout. Meadows, open ground and waste places.

GROUP 21

- 1a. Blade with midrib conspicuously white above ..... 2
- 1b. Blade midrib not white above ..... 3

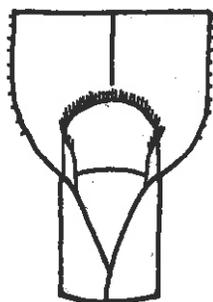
2a. Plant with large creeping rhizomes



253. *Sorghum halepense*—Johnson Grass

*Leaves* rolled in bud-shoot; *sheath* round to somewhat flattened, smooth, split with overlapping hyaline margins; *auricles* absent; *collar* broad, may be divided, sometimes hairy; *ligule* membranous, 2 to 3 mm. long, rounded, ciliate; *blade* to 35 mm. wide, smooth above and below at least near base, midrib white above and prominent below, margins generally rough and hyaline. *Inflorescence*—a large, loose, erect panicle. Massachusetts south. Open ground, fields and waste places.

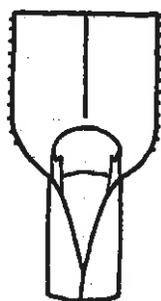
**2b. Plant without rhizomes**



**254. Sorghum sudanense—Sudan Grass**

*Leaves* rolled in bud-shoot; *sheath* round, smooth, sometimes hairy at base, split with overlapping hyaline margins; *auricles* absent; *collar* broad, divided; *ligule* membranous, 1 to 3 mm. long, rounded, ciliate, may be toothed; *blade* 20 to 40 mm. wide, smooth above and below, midrib white above and prominent below, margins mostly rough and hyaline. *Inflorescence*—a large, loose, erect panicle. Cultivated for forage.

**3a. Ligule notched near front on one or both sides**

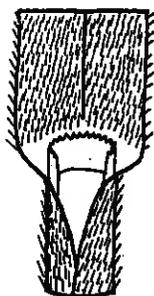


**255. Phleum pratense—Timothy**

*Leaves* rolled in bud-shoot; *sheath* round, smooth, split with overlapping hyaline margins; *auricles* absent; *collar* mostly broad, divided, may be sparsely short hairy on margins; *ligule* membranous, 1 to 3 mm. long, rounded to acute, with a distinct notch near front on one or both sides; *blade* to 14 mm. wide, mostly smooth near base and rough near tip above and below, margins rough. *Inflorescence*—densely flowered, cylindrical, spike-like. Common throughout. Fields and waste places.

**3b. Ligule not notched as above . . . . . 4**

**4a. Blade densely velvety hairy above and below**



**256. Holcus lanatus—Velvet Grass**

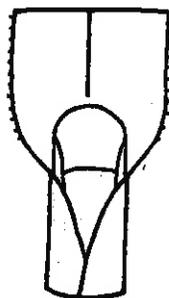
*Leaves* rolled in bud-shoot; *sheath* loose, round, dense velvety short hairy, split with overlapping hyaline margins; *auricles* absent; *collar* mostly narrow, divided, hairy; *ligule* membranous, 1 to 3 mm. long, truncate to rounded, toothed; *blade* to 14 mm. wide, dense velvety short hairy above and below, keeled below, margins short hairy. *Inflorescence*—a long, contracted, pale, purple-tinged panicle. Throughout. Open ground, meadows and moist places.

**4b. Blade not densely velvety hairy . . . . . 5**

**5a. Plant with long creeping rhizomes . . . . . 6**

**5b. Plant without creeping rhizomes . . . . . 7**

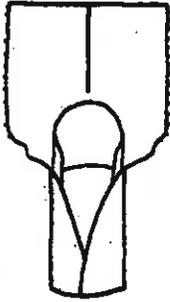
**6a. Blade green with white stripes**



**257. Phalaris arundinacea var. picta—Ribbon Grass**

*Leaves* rolled in bud-shoot; *sheath* round, smooth to slightly rough, split with overlapping hyaline margins; *auricles* absent; *collar* broad, divided; *ligule* membranous, 2 to 3 mm. long, rounded; *blade* white striped, to 18 mm. wide, smooth near base and somewhat rough near tip above and below, midrib prominent below, margins rough. *Inflorescence*—a densely flowered, spreading to narrow panicle. Cultivated for ornament.

6b. Blade without white stripes



258. *Phalaris arundinacea*—Reed Canarygrass

*Leaves* rolled in bud-shoot; *sheath* round, smooth, split with overlapping hyaline margins; *auricles* absent; *collar* narrow to broad, divided; *ligule* 2 to 3 mm. long, rounded, occasionally toothed; *blade* 10 to 20 mm. wide, smooth to slightly rough and rarely hairy near base above, keeled and smooth to rough below, margins rough and rarely short hairy near base. *Inflorescence*—a densely flowered, spreading to narrow panicle. Throughout. Marshes, riverbanks and moist places.

7a. Collar hairy on margins

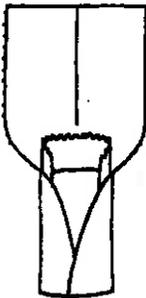


259. *Anthoxanthum odoratum*—Sweet Vernalgrass

*Leaves* rolled in bud-shoot; *sheath* round, smooth, frequently hairy near top, split with overlapping hyaline margins; *auricles* absent; *collar* narrow to broad, divided, hairy on margins; *ligule* membranous, 2 to 3 mm. long, rounded, may be lacerate or toothed or ciliate; *blade* to 12 mm. wide, mostly hairy above at least near base, smooth or short hairy below, margins very variable. *Inflorescence*—short, narrow, brownish-yellow, spike-like. Throughout. Meadows, pastures and waste places.

7b. Collar not hairy on margins ..... 8

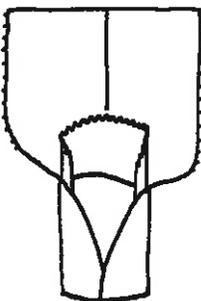
8a. Blades to not more than 12 mm. wide



260. *Arrhenatherum elatius*—Tall Oatgrass

*Leaves* rolled in bud-shoot; *sheath* round, smooth, split with overlapping margins; *auricles* absent; *collar* broad; *ligule* membranous, 1.5 to 3 mm. long, truncate, toothed, may be short ciliate; *blade* to 12 mm. wide, smooth to rough above, keeled and smooth below, margins at least slightly rough and hyaline. *Inflorescence*—a narrow, pale or purplish, shining panicle. Throughout. Meadows, open ground and waste places.

8b. Blades at least 15 mm. wide



261. *Avena sativa*—Oats

*Leaves* rolled in bud-shoot; *sheath* round, smooth, split with overlapping hyaline margins; *auricles* absent; *collar* broad, divided; *ligule* membranous, 2 to 3 mm. long, rounded, toothed; *blade* to 20 mm. wide, smooth near base and rough near tip above and below, keeled below, margins rough and hyaline. *Inflorescence*—a loose, open panicle. Cultivated.

## GLOSSARY

- Acuminate**—Gradually tapering to a very sharp point.
- Acute**—Sharp-pointed, but less tapering than acuminate.
- Auricle**—Claw-like projections at the base of the blade.
- Awn**—A slender bristle at the end or on the back of the glumes of a grass floret.
- Axillary**—In the angle between a leaf and its stem or between a branch and its axis.
- Axis**—The main stem of a panicle.
- Blade**—The upper, non-clasping part of the leaf above the collar and ligule.
- Bristle-like**—Resembling a bristle. Applied to narrow blades that are rolled or folded.
- Bud-shoot**—The growing uppermost leaf as it emerges from the sheath below.
- Capillary**—Very slender or hairlike.
- Ciliate**—Fringed with hairs on the margin.
- Collar**—The area, mostly lighter in color, on the outside of the grass leaf at the junction of the sheath and blade.
- Contracted**—Said of an inflorescence that is narrow or dense, the branches short or close to axis.
- Decumbent**—Curved upward from a horizontal or inclined base.
- Dense**—Said of an inflorescence in which the spikelets are crowded close together.
- Diffuse**—Open and much branched.
- Digitate**—Arising from the top of stem, finger-like.
- Drooping**—Erect to spreading at base but bending downward above.
- Flexuous**—Bent alternately in opposite directions.
- Fused**—United by normal growth.
- Glaucous**—Covered with a waxy coating that gives a blue-green color.
- Hyaline**—Thin and translucent or transparent.
- Inflorescence**—The flowering part of a plant.
- Keeled**—Angle or ridge on back of sheath or blade usually formed by midrib.
- Lacerate**—Torn or cut at the edge as though frayed.
- Ligule**—A thin membrane or fringe of hairs on the inside of the leaf at the junction of the blade and sheath.
- Loose**—Open, the opposite of dense or compact.
- Node**—The joint of a stem, generally slightly enlarged.
- Panicle**—A compound or branched inflorescence with the lower branches longer than the upper.
- Rachis**—The axis of a spike.
- Rhizome**—A creeping, underground stem which roots and develops new plants at the nodes.
- Rough**—Rough to the touch due to minute points or teeth.
- Sheath**—The lower part of the leaf that encloses the stem or shoot.
- Smooth**—Not rough to the touch and without hairs.
- Spike**—An unbranched inflorescence with spikelets attached directly to the axis (not on a pedicel or branch).
- Spikelet**—The unit of the inflorescence of grasses, consisting of two glumes and one or more florets.
- Spreading**—Said of panicles when the branches have an outward direction.
- Stolon**—An above ground creeping stem which roots and develops new plants at the nodes or tip.
- Tawny**—Pale brown or dirty yellow.
- Throat**—The V-shaped area at top of sheath formed by the margins.
- Truncate**—Ending abruptly, more or less straight across.

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