

Grassy Weeds

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Grassy weeds are a problem in all field crops. They must be identified at early stages of growth so they can be controlled before crop yields are seriously threatened. Control measures are not the same for all grassy weeds, so accurate seedling identification is important.

Most grassy weeds and grain crops look very much alike in the seedling stages. However, if you look closely (a small hand lens helps) you can pick out the unique vegetative characteristics of each weed and crop seedling. Remnants of the seed coat are helpful to distinguish crop seedlings from grassy weeds; however, seed coat is often absent.

The vegetative characteristics that identify grasses are labeled in Fig 1. A summary of the unique characteristics of each species is given in Table 1.

Terms

Bud leaves

Bud leaves are the new, unexpanded leaves of the seedling shoot. Determine bud leaf characteristics by cutting across the new shoot with a sharp blade. Bud leaves may be rolled and overlapping or folded and flat (V-shaped), as shown in Fig 2. Bud leaves of all plants listed in this fact sheet are rolled except for field sandbur.

Ligule

The ligule is a membranous or hairy projection from inside the top of the sheath at the point where the blade joins it. Ligules are absent in some grasses (Fig 3). Membranous ligules may be tall and sharp pointed at the center, tall and rounded, or narrow and collar shaped (Fig 4). The margin (edge) of membranous ligules may be smooth, toothed, or hairy (Fig 5).

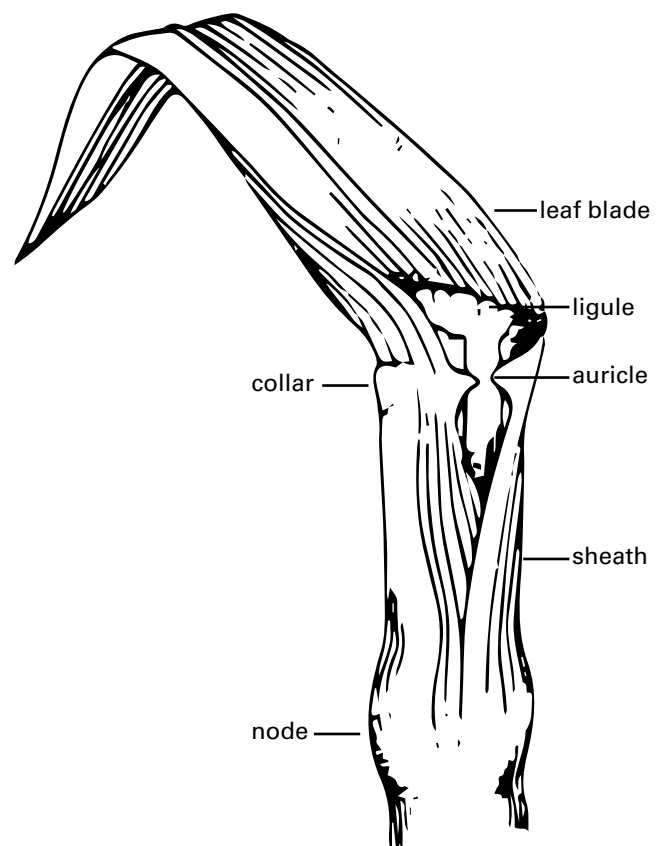


Fig 1. Vegetative characteristics of grass seedlings.

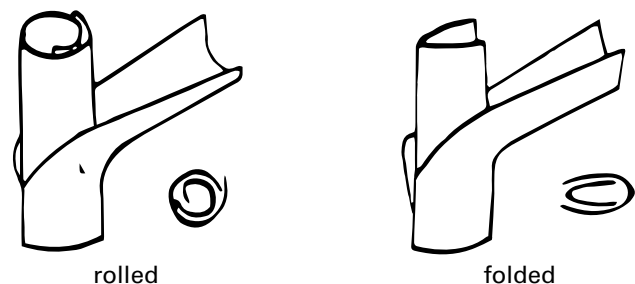
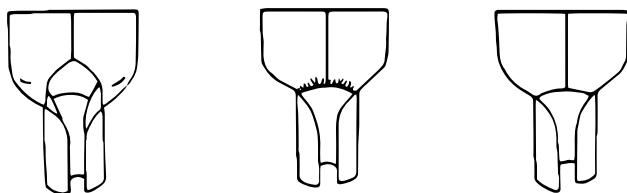


Fig 2. Bud leaves

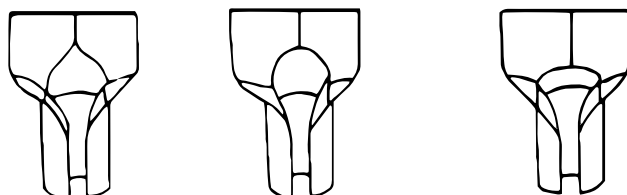


membranous

fringe of hairs

absent

Fig 3. Ligule types

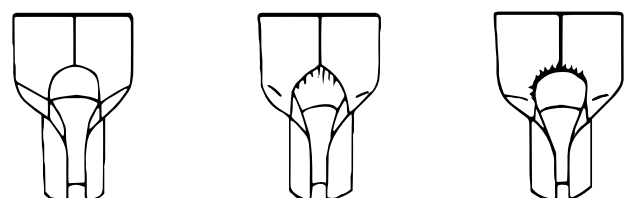


tall and sharp

tall and rounded

narrow

Fig 4. Ligule shapes



smooth

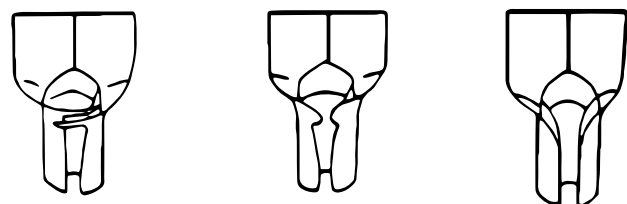
toothed

hairy

Fig 5. Ligule margins

Auricles

Auricles are a pair of projections from the collar area at the base of the leaf blade. They partially encircle the stem. Auricles may be claw-like, round or absent (Fig 6).



claw-like

rounded

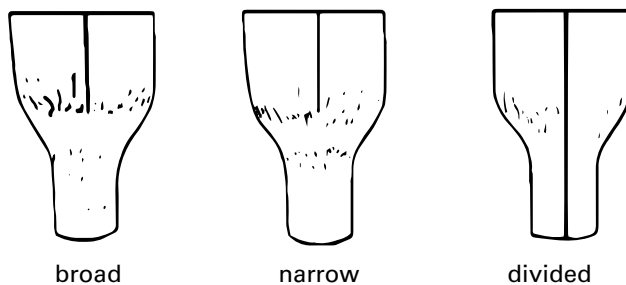
none

Fig 6. Auricles

Collar

The collar is the area where the blade and sheath join, as viewed from the backside of the blade. It may be broad or narrow and is usually continuous from one margin to the other, but it may be divided by the midrib

(Fig 7). The collar is usually smooth in texture, but it may be hairy or have hairy margins. It is usually lighter green than the sheath and blade.



broad

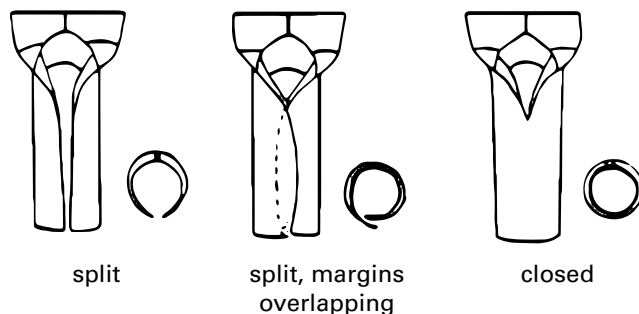
narrow

divided

Fig 7. Collar

Sheath

The sheath is the portion of the leaf that encloses the stem. The sheath may be split, split with overlapping margins, or closed with margins united (Fig 8).



split

split, margins overlapping

closed

Fig 8. Sheath

Blade

The blade is the portion of the leaf that spreads away from the stem. It is usually flat in appearance. Veins give the blade evenly ridged appearance on the upper surface, or a prominent midvein produces a keel on the lower surface (Fig 9). One or both blade surfaces may be smooth or hairy, and blade margins may be smooth or roughened.



ridged above

keeled below

Fig 9. Leaf Blade

Seedlings

Green foxtail, (*Setaria viridis*), Fig 10

Blade: flat or folded, both surfaces smooth, margin weakly roughened

Ligule: narrow fringe of hairs

Collar: continuous, narrow, sometimes hairy

Sheath: splits, smooth with hairy margins

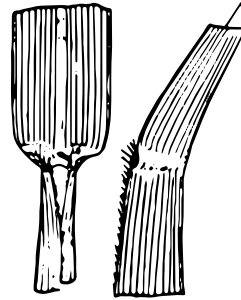


Fig 10

Yellow foxtail, (*Setaria glauca*), Fig 11

Blade: flat, hairy near base on upper surface

Ligule: narrow fringe of hairs

Collar: continuous, narrow, smooth

Sheath: split, smooth, tinged with red near base

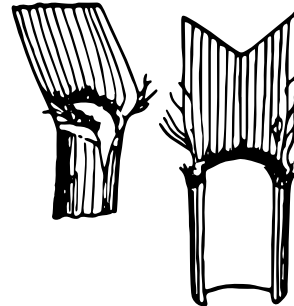


Fig 11

Giant foxtail, (*Setaria feberi*), Fig 12

Blade: flat, fine with hairs on upper surface, scattered hairs on lower surface

Ligule: fringe of hairs, longer at edges

Collar: continuous, narrow, smooth

Sheath: split, sparsely hairy, with bristle – like hairs on margins

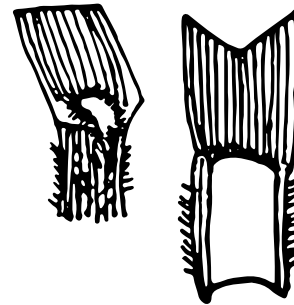


Fig 12

Bristly foxtail, (*Setaria verticillata*), Fig 13

Blade: flat, both surfaces smooth or upper surface with sparse hairs near base

Ligule: fringe of hairs

Collar: divided, broad, smooth

Sheath: split, smooth with hairy margins

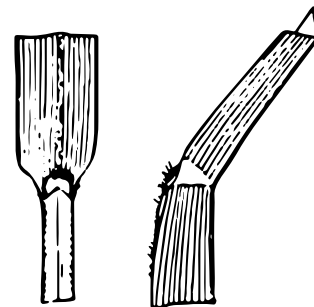


Fig 13

Barnyard grass (*Echinochloa muricata* and *E. crusgalli*), Fig 14

Blade: flat, smooth, sometimes with few hairs on the margins near the base

Ligule: none

Collar: continuous, broad, smooth

Sheath: split, smooth, purple near base

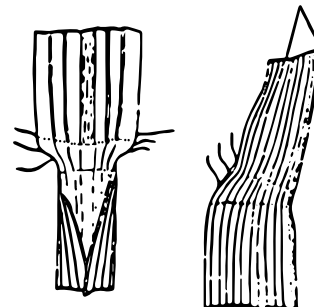


Fig 14

Seedlings

Field Sandbar, (*Cenchrus longispinus*), Fig. 15

Blade: flat, smooth on both surfaces, midvein prominent on upper surface

Ligule: narrow, hairy

Collar: smooth, sometimes with few short hairs on margins

Sheath: split, smooth

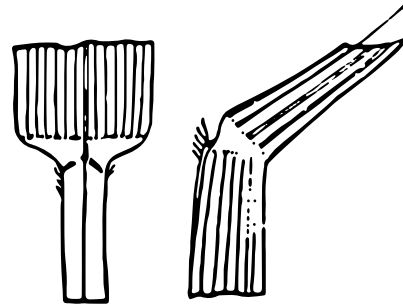


Fig 15

Fall panicum, (*Panicum dichotomiflorum*), Fig. 16

Blade: flat, smooth, midvein prominent and white

Ligule: dense fringe of white hairs

Collar: continuous, broad, smooth

Sheath: smooth, purple toward the base, margins membranous

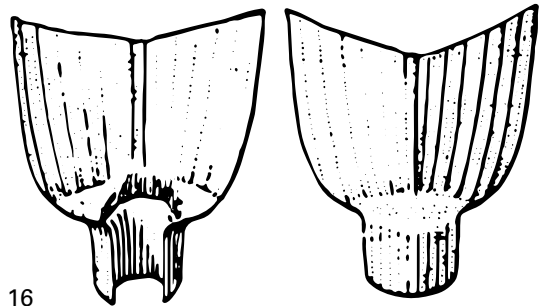


Fig 16

Wild oats, (*Avena fatua*), Fig. 17

Blade: flat, slightly roughened, margins hairy near the base

Ligule: tall, membranous, finely toothed

Collar: continuous, narrow, smooth, with sparse hairs on margin

Sheath: split, smooth

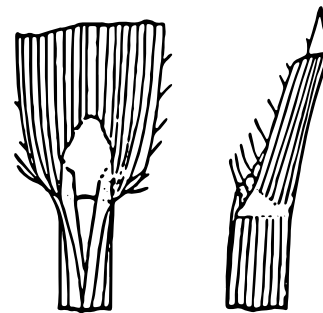


Fig 17

Crabgrass, (*Digitaria sanguinalis*), Fig. 18

Blade: flat, with scattered hairs on upper surface near base

Ligule: tall, membranous, finely toothed

Collar: continuous, broad, smooth

Sheath: split, with long, fine hairs

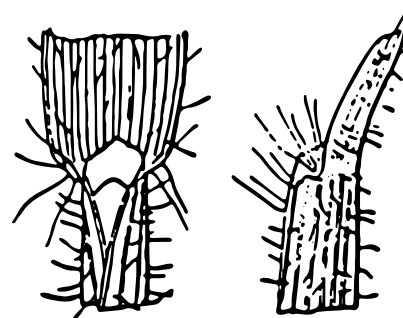


Fig 18

Witchgrass, (*Panicum capillare*), Fig 19

Blade: flat, smooth to hairy on both surfaces near base, margins sparsely hairy, midvein broad and white

Ligule: fringe of hairs, narrow

Collar: continuous, broad, hairy on the margins

Sheath: split, strongly hairy

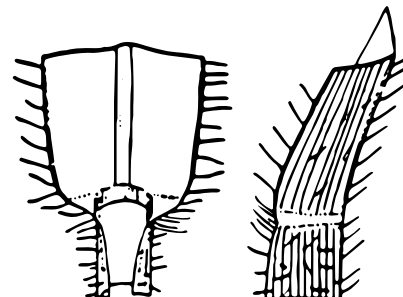


Fig 19

Seedlings

Downy brome, (*Bromus tectorum*), Fig. 20

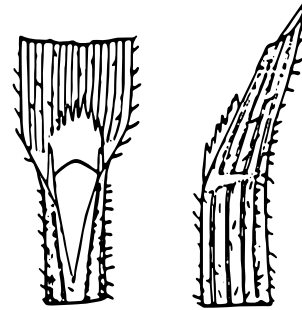
Blade: flat, finely hairy on both surfaces and margins

Ligule: long, membranous, toothed

Collar: divided, narrow, smooth to hairy

Sheath: closed, very fine, short haired

Fig 20



Japanese brome, (*Bromus japonicus*), Fig. 21

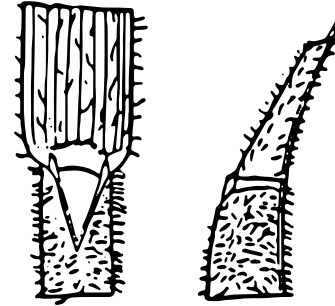
Blade: flat, hairy on both surfaces and margins

Ligule: narrow, membranous, finely toothed

Collar: divided, narrow, smooth to hairy

Sheath: closed, densely hairy

Fig 21



Proso millet, (*Panicum miliaceum*), Fig. 22

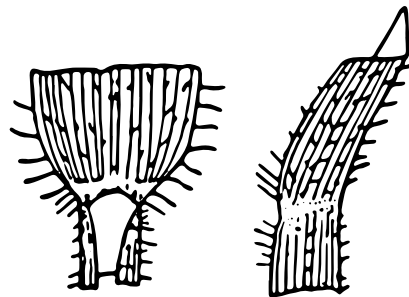
Blade: flat, sparsely hairy on both surfaces, margins slightly roughened

Ligule: narrow with margin of fine hairs

Collar: continuous, narrow, hairy

Sheath: split, with fine spreading hairs

Fig 22



Quackgrass, (*Agropyron repens*), Fig. 23

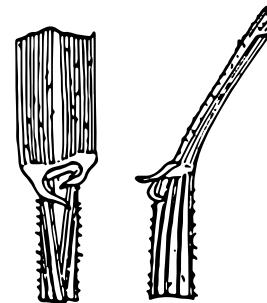
Blade: flat, smooth or sparsely hairy, margins slightly roughened

Ligule: narrow, with fringe of hairs

Collar: divided, broad, smooth or short haired, extended into claw-like auricles

Sheath: split, smooth or hairy

Fig 23



Barley, Fig 24

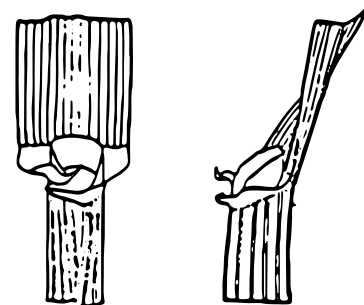
Blade: slightly keeled, slightly roughened on upper surface

Ligule: tall and rounded with a smooth to finely toothed margin

Collar: continuous, broad, smooth, extended into prominent claw-like auricles

Sheath: split, smooth

Fig 24



Seedlings

Oats, (*Avena sativa*), Fig. 25

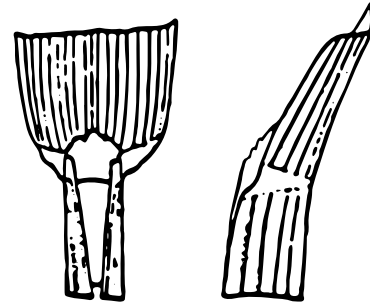
Blade: flat, surfaces smooth to rough, margins roughened

Ligule: tall and slightly pointed, finely toothed

Collar: divided, broad, smooth

Sheath: split, slightly short haired

Fig 25



Rye, (*Secale cereale*), Fig. 26

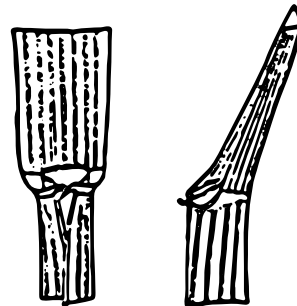
Blade: slightly keeled, hairy near base on upper surface with rough margins

Ligule: narrow, toothed

Collar: continuous, broad, smooth, extended into prominent auricles

Sheath: split, smooth

Fig 26



Wheat, Fig. 27

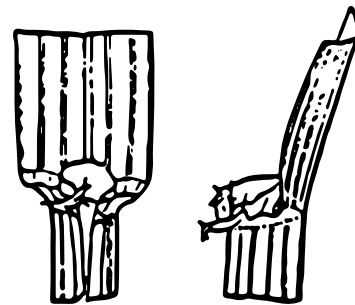
Blade: flat, smooth

Ligule: tall, toothed

Collar: continuous, broad, often with hairy margins, extended into auricles

Sheath: split, smooth, margins membranous and nearly transparent

Fig 27



Wooly cupgrass, (*Eriochloa villosa*)

Blade: hairy, margin rough

Ligule: none

Collar: margins dark green

Sheath: split, margins overlapping, hairy, purple at base

Table 1. Summary of identification characteristics

Seedling	Bud Leaves	Blade	Ligule	Collar	Auricles	Sheath
Green foxtail	Rolled	Flat or folded, both surfaces smooth, margin weekly roughened	Narrow fringe of hairs	Continuous, narrow, sometimes hairy	None	Split, smooth with hairy margins
Yellow foxtail	Rolled	Flat, hairy near base on upper surface	Narrow fringe of hairs	Continuous, narrow, smooth	None	Split, smooth, tinged with red near base
Giant foxtail	Rolled	Flat, with fine hairs on upper surface, scattered hairs on lower surface	Fringe of hairs, longer at edges	Continuous, narrow, smooth	None	Split, sparsely hairy, with bristle-like hairs on margins
Bristly foxtail	Rolled	Flat, both surfaces smooth, or few hairs near base on upper surface	Fringe of hairs	Divided, broad, smooth	None	Split, smooth with hairy margins
Barnyard grass	Rolled	Flat, smooth, sometimes few hairs on the margins near base	None	Continuous, broad, smooth	None	Split, smooth, purple near base
Field sandbur	Flat	Flat, smooth on both surfaces, midvein prominent upper surface	Narrow, hairy	Divided, smooth, sometimes with few short hairs on margins	None	Split, smooth
Fall panicum	Rolled	Flat, smooth, midvein prominent and white	Dense fringe of white hairs	Continuous, broad, smooth	None	Smooth, purple toward base, margins membranous
Wild Oats	Rolled	Flat, slightly roughened, margins hairy near base	Tall, membranous, finely toothed	Continuous, narrow, with few sparse hairs on margins	None	Split, smooth
Crabgrass	Rolled	Flat, with scattered hairs upper surface near base	Tall, membranous, finely toothed	Continuous, broad, smooth	None	Split, with long, fine hairs

Table 1. Summary of identification characteristics, continued.

Seedling	Bud Leaves	Blade	Ligule	Collar	Auricles	Sheath
Witchgrass	Rolled	Flat, smooth to hairy on both surfaces near base, margins sparsely hairy, midvein broad and white	Fringe of hairs, narrow	Continuous, broad, hairy on margins	None	Split, strongly hairy
Downy brome	Rolled	Flat, finely hairy on both surfaces and margins	Long, membranous, toothed	Divided, narrow, smooth to hairy	None	Closed, very finely short hairy
Japanese brome	Rolled	Flat, hairy on both surfaces and margins	Narrow, membranous, finely toothed	Divided, narrow, smooth to hairy	None	Closed, densely hairy
Proso millet	Rolled	Flat, sparsely hairy on both surfaces, margins slightly rough	narrow, with margin of fine hair	Continuous, narrow, hairy	None	Split, with fine spreading hairs
Quackgrass	Rolled	Flat, smooth or sparsely hairy, margins slightly roughened	narrow, with fringe of fine hairs	Divided, broad, smooth or short hairy	Moderately large, claw-like	Split, smooth or hairy
Barley	Rolled	Slightly keeled, slightly roughened on upper surface	Tall and rounded, with a smooth to finely toothed margin	Continuous, broad, smooth	Large, claw-like	Split, smooth
Oats	Rolled	Flat, surfaces smooth to rough, margins roughened	Tall and slightly pointed, finely toothed	Divided, broad, smooth	None	Split, slightly short hairy
Rye	Rolled	Slightly keeled, hairy near base on upper surface, rough margins	Narrow, toothed	Continuous, broad, smooth	Narrow, sharp	Split, smooth
Wheat	Rolled	Flat, smooth	Tall, toothed	Continuous, broad, often with hairy margins	Short with fine hairs	Split, smooth, margins membranous near the summit
Woolly cupgrass	Rolled	Hairy, margin rough	Tall, toothed	Dark green margins	None	Split, margins overlapping, hairy, purple at base

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