

*Sorghum halepense* (L.) Pers., JOHNSON GRASS. Perennial herb, rhizomatous, fibrous-rooted, several-many-stemmed at base, shoots ascending and often with lateral shoots arising at lower nodes, 50–150+ cm tall; shoots with basal leaves and cauline leaves and also a conspicuous prophyll on inner side at base of each lateral branch; rhizomes  $\pm$  horizontal and shallow, to 9 mm diameter, whitish, covered with alternate distichous, sheathing scalelike leaves, internodes 10–15 mm long, exposed portions sometimes coated with white surface wax, the scales to 18 mm long,  $>$  internode, with overlapping margins at base, white aging reddish with raised veins, colorless hairs ca. 2 mm long at base and tip of scale and on node; adventitious roots at nodes. **Stems (culms):**  $\pm$  cylindrical or subcylindrical and channeled on side adjacent to lateral shoot, 4–6(–8) mm diameter, tough, glabrous except short-strigose at each node, often with white surface wax just below node; internodes and nodes solid, core white. **Leaves:** alternate distichous, simple with sheath; prophyll = membranous open sheath, lanceolate in outline, 30–120 mm long, strongly 2-keeled and depressed between keels, the keels long-ciliate with appressed straight hairs and having shorter toothlike hairs; sheath open,  $<$  or  $>$  internode,  $\pm$  rounded on back (slightly keeled), striped with numerous parallel veins, without lobes (auricles) at top, glabrous or pubescent; ligule leathery to stiff (chartaceous), truncate and densely ciliate, 1.8–2.5(–3.5) mm long, whitish but at base light green becoming light tan and thicker, commonly splitting downward, strigose on hidden surface; collar white, with a strongly wavy margin, upper surface pilose, the hairs 0.5–2 mm long with shorter hairs at base of ligule; blade linear or elliptic-linear to lanceolate-linear or oblanceolate-linear, in range 150–550+  $\times$  (5–)10–39 mm, inrolled in bud, flat but shallowly folded upward at base, becoming inrolled when water-stressed, green but narrowly colorless on margins, often gently wavy on margins and minutely toothed and short-scabrous from midpoint to tip, long-tapered to tip, conspicuously parallel-veined with well-developed midrib raised on lower surface, smooth and glabrous except at base adjacent to ligule where upper surface sometimes strigose or stiff-hairy, midrib white on upper surface and green on lower surface. **Inflorescence:** spikelets, in terminal panicles, panicle ovoid, typically 150–450 mm long, with 1–several lateral branches per node, each lateral branch branched or unbranched and with lateral sets of 2 spikelets (1 stalked + 1 sessile) and a terminal set of 3 spikelets (2 stalked + 1 sessile), spikelet with 2 florets, bracteate; nodes of lateral branches alternate distichous, branches at a node often pseudowhorled along erect rachis, ascending to spreading, the longest to 160 mm long, usually branching alternately to form a racemelike array of several ultimate branchlets, sometimes branching 1–2 times before producing ultimate branchlets; ultimate branchlet (rame) racemelike with 2–7 sets of spikelets, breaking in fruit below sessile spikelet and between sets of spikelets; branch and branchlet axes flexible and wiry, angled, often with axillary pulvinus, minutely scabrous with teeth along at least 1 edge, short-villous at base of lateral branches; stalk of spikelets 1.5–2.8 mm long, flattened and appressed to sessile spikelet, with spreading hairs 0.5–0.7 mm long. **Sterile spikelet (stalked):** lower floret sterile, upper floret sterile or staminate; **glumes** 2, unequal, lanceolate, lower glume 4.9–6.3  $\times$  1–1.3 mm, 7–9-veined, pale green and membranous between veins, upper glume enclosed by lower glume, 4.2–5.5  $\times$  0.8–1.2 mm, 5–7-veined, often with membranous tissue aging purple, ciliate on inwardly folded, membranous margin, typically minutely scabrous along green veins, short-pilose on outer (lower) surface; lower floret = scale, the scale palealike, membranous, 3.5–4.5  $\times$  0.7–1.1

mm, 2-veined; **lemma** of upper floret ovate to lanceolate, 2.7–3.5 × 1–1.2 mm, membranous, acute to acuminate and slightly short-pointed at tip, ciliate on margins; **palea** membranous, 0.8–1.4 × 0.3 mm, membranous, 2-veined, truncate to 2-toothed at tip or with veins extended slightly beyond margin at tip, with a few hairs at tip. **Fertile spikelet (sessile)**: lower floret sterile, upper floret bisexual, somewhat compressed on upper (dorsal) side; **glumes** 2, subequal, lanceolate, 3.8–5.8(–6.5) × 1.5–2.1 mm, pubescent to short-pilose with ascending hairs, lower glume slightly wider than upper glume with infolded margins clasping upper glume; lower glume rounded, glossy light tannish yellow and hard below midpoint, pale green with 5 or more converging, green veins above midpoint, the tip generally ± flat but sometimes slightly keeled, shallowly 3-toothed with middle tooth 2–4× lateral teeth and mostly membranous, the lateral edges above midpoint sharply creased and minutely scabrous; upper glume convex at base, inrolled on margins, 1-keeled approaching acuminate tip but lacking an awn or lateral teeth; lower floret = scale, the scale palealike, membranous, oblong, 3–4.3 × 1.2–1.3 mm, 2-veined, truncate or ± 2-toothed at tip; **lemma** of upper floret ± ovate, 3–3.5 × 1.3–2 mm, transparent and membranous, short-awned or only acuminate at minutely 3-toothed tip, ciliate on margins with hairs ca. 0.5 mm long, the awn 0.5–10.5 mm long and strongly bent at midpoint or 1/3 from tip, twisted and reddish brown below bend; **palea** of upper floret oblong, 2–2.3 × ± 0.9 mm, membranous, truncate or deeply 2-toothed to midpoint, long-ciliate on margins. **Bisexual flower: perianth (lodicules)** 2, inversely conic and strongly compressed, 0.5–0.7 × 0.5–1.1 mm, fleshy, colorless, having 2 or 3 cusps on truncate top, with tufts of hairs from cusps and continuing down 1 lateral edge, the hairs to 1 mm long; **stamens** (2–)3, free; filaments threadlike, ca. 3.5 mm long, white or colorless; anthers fully exerted or partially exerted, dorsifixed, dithecal, ± oblong-elliptic to arrow-shaped with bases of sacs spreading, (2–)2.8–3.3 mm long, yellowish green to yellow or yellow-orange, longitudinally dehiscent at least from midpoint but aperture widened at tip and remaining open after dehiscing; pollen translucent-amber or translucent light yellow; **pistil** 1; ovary superior, ovoid, 0.8–1 × 0.5–0.6 mm, with short point on top, light green, glabrous, 1-chambered with 1 ovule; styles 2, exerted and spreading from midpoint of glumes, to 4 mm long, lower portion cylindrical, colorless, glabrous, stigmatic portion bottlebrushlike with spreading to ascending, dense, feathery (short-plumose) with hairs 0.2–0.4 mm long and colorless to light yellow aging reddish brown. **Staminate flower: perianth (lodicules)** 2, < lodicules like bisexual flower; **stamens** 3, free; filaments threadlike, 3–3.5 mm long, colorless; anthers included, dorsifixed, dithecal, oblong-elliptic to narrowly arrow-shaped, 2.4–2.8 × 0.5–0.6 mm, yellowish green to yellow or yellow-orange, longitudinally dehiscent at least from midpoint but aperture at tip remaining open after dehiscing; pollen translucent yellow-amber or translucent light yellow; **pistil** absent. **Fruit**: achene (caryopsis), enclosed within persistent, glossy glumes (often blackish), with 1 or 2 appressed, whitish hairy stalks of stalked sterile or staminate spikelet; achene slightly compressed-obovoid, ± 3 × 1.9–2.2 mm, dull reddish brown, with persistent bases of 2 styles; dispersal unit with tufted hairs at base. Late June–late December.

Naturalized. Perennial herb occurring throughout the range in disturbed habitat, especially along ditches where water collects. *Sorghum halepense* is a C<sub>4</sub> grass that blooms throughout hot summer months but also into fall whenever water is available. Its “fruits”

are distinctive, consisting of an achene permanently enclosed by glossy, often blackish glumes and having the hairy, persistent stalk or stalks of adjacent spikelets appressed to the glume.

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