

Vascular Plants of Williamson County
Sorghum halepense – JOHNSON GRASS [Poaceae]

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, 50–250+ cm tall; shoots with basal leaves and cauline leaves and also a conspicuous prophyll on inner side at base of each lateral branch; rhizomes ± 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):** ± 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 teethlike hairs; sheath open, < or > internode, ± 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+ × (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 × 1–1.3 mm, 7–9-veined, pale green and membranous between veins, upper glume enclosed by lower glume, 4.2–5.5 × 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, $3.5\text{--}4.5 \times 0.7\text{--}1.1$ mm, 2-veined; **lemma** of upper floret ovate to lanceolate, $2.7\text{--}3.5 \times 1\text{--}1.2$ mm, membranous, acute to acuminate and slightly short-pointed at tip, ciliate on margins; **palea** membranous, $0.8\text{--}1.4 \times 0.3$ 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, $3.8\text{--}5.8\text{--}(6.5) \times 1.5\text{--}2.1$ 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 \pm flat but sometimes slightly keeled, shallowly 3-toothed with middle tooth 2–4 \times 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, $3\text{--}4.3 \times 1.2\text{--}1.3$ mm, 2-veined, truncate or \pm 2-toothed at tip; **lemma** of upper floret \pm ovate, $3\text{--}3.5 \times 1.3\text{--}2$ 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, $2\text{--}2.3 \times \pm 0.9$ mm, membranous, truncate or deeply 2-toothed to midpoint, long-ciliate on margins. **Bisexual flower: perianth (lodicules)** 2, inversely conic and strongly compressed, $0.5\text{--}0.7 \times 0.5\text{--}1.1$ 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, \pm 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, $0.8\text{--}1 \times 0.5\text{--}0.6$ 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, $2.4\text{--}2.8 \times 0.5\text{--}0.6$ 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, $\pm 3 \times 1.9\text{--}2.2$ mm, dull reddish brown, with persistent bases of 2 styles; dispersal unit with tufted hairs at base.

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