

Echinochloa P. Beauv.

Echinochloa crus-galli (L.) P. Beauv., BARNYARD GRASS. Annual, fibrous-rooted, many-stemmed at base, cespitose, decumbent or spreading to ascending, 25–110+ cm tall; shoots with scabrous cauline leaves and conspicuous prophylls, mostly glabrous. **Stems (culms):** compressed-cylindric, to 5 mm diameter, tough, glabrous or lower stems puberulent; internodes spongy-solid and sometime torn but not hollow, core white. **Leaves:** alternate distichous, simple with sheath; prophyll strongly 2-keeled with deep trough between keels, to 160 mm long, often > internode, lower 1/4 closed (split by formation of adventitious roots and new bud) and long-tapered to tip, short-sericeous at base, finely ciliate along lower keels with hairs sparser and decreased upward; sheath open, 50–175 mm long, keeled nearly to top, lacking lobes (auricles) at top; ligule absent; collar of large leaves sometimes with several teeth; blade lanceolate-linear to linear, in range 50–300 × (3–)5–20 mm, ± flat to somewhat folded from midrib, minutely scabrous on margins from base to tip and sometimes purplish red, long-tapered at tip, parallel-veined with midrib defined on lower surface most of blade, glabrous or upper surface sometimes with sparse silky hairs. **Inflorescence:** spikelets, in terminal panicles, panicle 100–150 mm long, of 7–15+ ascending, spikelike primary branches, spikelets in sessile clusters of 3–5 per node restricted to outer faces of primary branches, spikelet 2-flowered with highly reduced lower floret and only upper floret fertile, awned; main axis finely ridged, with a tuft of long hairs at junction with each primary branch, the hairs 2–4.5 mm long, swollen at base, and colorless; primary branches typically with 3 winglike edges, in range mostly 15–45 mm long, weakly wavy, minutely scabrous along edges, with long hairs having swollen bases mostly subtending stalk of spikelet; spikelet stalk 0.2–1.5 mm long, the longer ones ascending to appressed. **Spikelet:** ± hemi-ellipsoid, in range 3–4 × 1.5–2 mm, breaking below glumes; **glumes** 2, unequal and dimorphic, greenish or becoming purplish red approaching tip; lower glume sheathing spikelet base, ovate, (1–)1.3–1.7 mm long, broadly acute or broadly acuminate at tip, 3–5-veined with lateral veins arching toward midrib below tip but not converging on midvein, pubescent; upper glume broadly boatlike, 2.7–4 × 1.5–2 mm, lower glume < upper glume, inrolled on margins, short-pointed at tip, typically 5-veined but sometimes 7-veined at tip with extra veins from a forking of the lateral veins closest to midvein, pubescent between veins, bristly along veins; **lemma** of lower floret elliptic, 3–3.5 × 1.5–1.7 mm, acuminate to short-pointed or awned at tip, whitish and membranous with green along veins, 5-veined most of length but typically 7-veined at tip, minutely hispid on sides, inrolled on margins, the awn 0–40 mm long; **palea** narrowly ovate, 2.3–2.5 × 1.3–1.4 mm, membranous, 2-veined, sometimes stained red-purple from stigmas of upper floret; **lemma** of upper floret boatlike and cupped, ca. 2.5–3 × 1.6 mm, faintly many-veined but 3-veined at withering, acuminate tip, mostly glabrous but short-hairy at tip, with margins clasping palea, at anthesis pale green and ± leathery becoming pale tan or whitish and hard in fruit; **palea** narrowly ovate, 1.6–2.3 mm long, concave with inrolled margins, pale green to whitish, acuminate and hairy at tip, becoming hard in fruit, with numerous, faint veins and 2 broader lateral veins, the lateral veins green at tip, glabrous. **Flower** (upper floret): bisexual; **perianth (lodicules)** 2, ± inversely pyramidal, ± 0.4 mm long, irregular at top, colorless; **stamens** 3, free; filaments threadlike, 2–3 mm long, white; anthers basifixed, dithecal, 0.7–1 mm long, dull yellow,

longitudinally dehiscent; pollen yellowish; **pistil** 1; ovary superior, ellipsoid to obovoid, 0.4 mm long, glossy translucent light green, glabrous, 1-chambered with 1 ovule; styles 2, exerted below tips of upper glume and lemma, 1.9–2.2 mm long, translucent and clear when fresh becoming whitish below midpoint, feathery (plumose) and stigmatic from midpoint, exerted portions rose to purplish red. **Fruit:** achene (caryopsis), ovoid to oblong, 1.3–2.2 × 1–1.8 mm, brownish or tannish, firmly enclosed by lemma and palea. Mid-July–early November.

Naturalized. Annual encountered in disturbed locations, especially along drainage ditches and near agricultural fields. *Echinochloa crus-galli* is a summer-active C₄ grass that can become robust when growing in wet soil. An awn typically is formed on the lemma of the sterile lower floret, but occasionally one can find nearly awnless individuals. Other species have been recorded in southern California and should be expected in range.
B. A. Prigge & A. C. Gibson