

108. SECALE Linnaeus, Sp. Pl. 1: 84. 1753.

黑麦属 *hei mai shu*

Plants annual [rarely perennial]. Culms usually erect. Spike distichous, very dense; rachis usually very brittle, pubescent. Spikelets 1 per node, sessile, with 2 florets, occasionally with rudimentary 3rd floret. Glumes linear-subulate, keeled, hispid along keel, margin membranous, apex acuminate or awned. Lemma lanceolate, asymmetric, 5-veined with 2 marginal veins forming keels, hispid along keels, apex acuminate or tapering into long, straight, scabrous awn. Palea equaling lemma, smooth or scabrous along keels or ciliate distally, apex 2-dentate. Lodicules ciliate distally. Caryopsis oblong, somewhat laterally compressed, deeply furrowed, apex pubescent. $x = 7$.

About five species: mainly in temperate Europe and Asia; three species (two introduced) in China.

- 1a. Glume apex long awned, awn 2–3 × as long as glume body 3. *S. sylvestre*
1b. Glume apex acuminate or shortly awned, awn very much shorter than lemma body.
2a. Spike rachis tough 1. *S. cereale*
2b. Spike rachis fragile, or sometimes tough proximally 2. *S. segetale*

1. *Secale cereale* Linnaeus, Sp. Pl. 1: 84. 1753.

黑麦 *hei mai*

Triticum cereale (Linnaeus) Salisbury (1796), not Schrank (1789); *T. secale* Link.

Culms erect, 80–180 cm tall, scabrous or villous below spike. Leaf blade glaucous, 10–20 × (0.2–)0.5–1 cm, glabrous or abaxial surface sparsely pilose. Spike erect, 5–15 × 1–1.5 cm excluding awns; rachis tough. Spikelets ca. 15 mm excluding awns, with 2(or 3) florets. Glumes linear or linear-lanceolate, 10–12 mm, scabrous along keels, margin membranous, apex usually acuminate. Lemma strongly compressed, 12–15 mm, pectinately spinose-ciliate along keels; awn 30–50 mm. Palea equaling lemma. Fl. and fr. Jul–Aug. $2n = 14$.

Cultivated. Anhui, Fujian, Guizhou, Hebei, Heilongjiang, Henan, Hubei, Nei Mongol, Ningxia, Shaanxi, Taiwan, Xinjiang, Yunnan [widely cultivated elsewhere].

2. *Secale segetale* (Zhukovsky) Roshevitz, Trudy Bot. Inst. Akad. Nauk SSSR, Ser. 1, Fl. Sist. Vyssh. Rast. 6: 143. 1947.

脆轴黑麦 *cui zhou hei mai*

Secale cereale Linnaeus subsp. *segetale* Zhukovsky, Trudy Prikl. Bot. 19(2): 56. 1928; *S. afghanicum* (Vavilov) Roshevitz; *S. cereale* subsp. *afghanicum* (Vavilov) K. Hammer; *S. cereale* var. *afghanicum* Vavilov; *S. segetale* subsp. *afghanicum* (Vavilov) Bondar ex Korovina; *S. segetale* var. *afghanicum* (Vavilov) Tzvelev.

Culms tufted, erect or geniculate at base, glaucous, to 100 cm tall, glabrous, or pilose below spike. Leaf blade flat or involute, 10–40 × 0.3–0.8 cm, scabrous or adaxial surface pubescent. Spike 4–13 × ca. 1 cm excluding awns; rachis fragile, or sometimes tough proximally, margin ciliate. Spikelets lanceolate, 12–15(–17) mm, with 2(or 3) florets. Glumes 9–12 mm, glabrous or sparsely puberulent, shortly scabrous-ciliate along keels, apex acuminate or with awn to 5 mm. Lemma long lanceolate, 8–12 mm, glabrous, smooth, rarely scabrous; awn 20–70 mm. Palea equaling lemma. Fl. and fr. (May–)Jul–Aug. $2n = 14^*$.

A weed in fields of *Triticum*. Xinjiang [Kazakhstan, Kyrgyzstan,

Pakistan, Turkmenistan, Uzbekistan; SW Asia].

3. *Secale sylvestre* Host, Icon. Descr. Gram. Austriac. 4: 7. 1809.

小黑麦 *xiao hei mai*

Secale fragile M. Bieberstein.

Culms densely tufted, rarely solitary, erect but usually geniculate at base, ca. 40 cm tall, glabrous but pilose below spike. Leaf blade flat or involute, 5–10 × 0.2–0.3 cm, both surfaces glabrous or adaxial surface pubescent. Spike erect, 3–8 × 0.8–1 cm excluding awns; rachis fragile, margin ciliate; inter-

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nodes 3–4 mm. Spikelets with 2 or 3 florets. Glumes linear-subulate, 7–9 mm; awn ca. 20 mm. Lemma spinose-ciliate along keels. Caryopsis black-brown, ca. 5 mm, apex white hairy. Fl. and fr. Jun–Aug. $2n = 14$.

Cultivated in N China [native to Kazakhstan, Kyrgyzstan, Russia, Turkmenistan, Uzbekistan; SW Asia, Europe].

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