Wheat Disease Profiles II

NU Extension Plant Pathology Team

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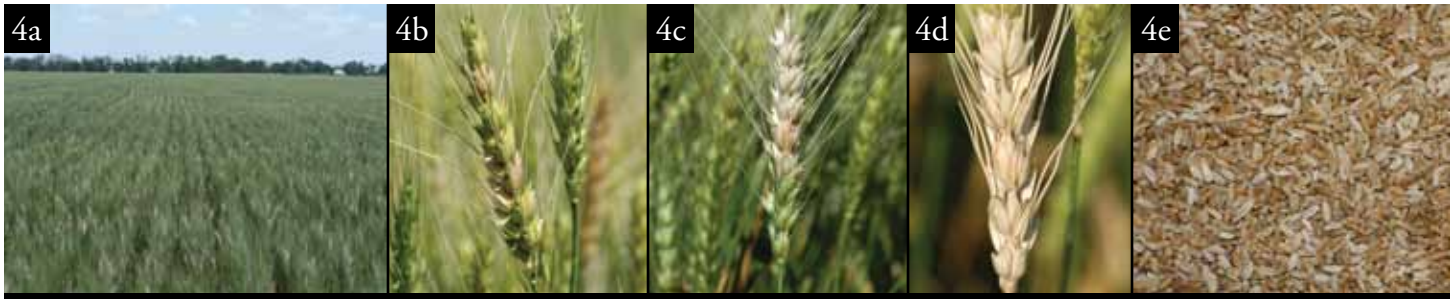
1. Loose Smut

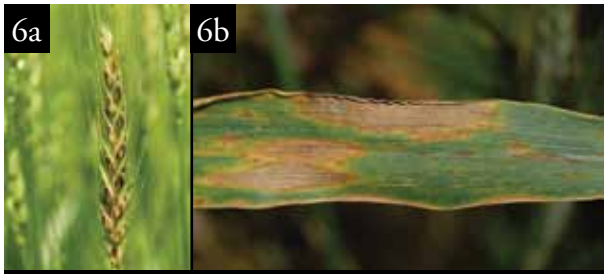
2. Common Bunt (Stinking Smut)

3. Ergot



4. Fusarium Head Blight (Scab)

5. Take-all



6. Stagonospora Nodorum Blotch

7. Bacterial Streak and Black Chaff

8. Cephalosporium Stripe

9. Black Head Molds (Sooty Head Molds)

10. Black Point

Disease	Symptoms
1. Loose Smut *Ustilago tritici* **Management:** Cultivar resistance, fungicide seed treatment	Spikelets on infected heads are replaced by masses of olive-black spores *(Fig. 1)*. The spores may be blown off, leaving an empty rachis (head without spikelets).
2. Common Bunt (stinking smut) *Tilletia tritici* and *Tilletia laevis* **Management:** Resistant cultivars, fungicide seed treatment	Infected heads are slender and retain their green color longer than healthy heads. Glumes and awns spread apart, exposing bunt balls full of black spore masses. The bunt balls *(Fig. 2)* resemble kernels but are more rounded. They remain on the head and give off a strong odor.
3. Ergot *Claviceps purpurea* **Management:** Pathogen-free seed, crop rotation, mowing grasses surrounding wheat fields	Horn-shaped, purple-black ergots or sclerotia *(Fig. 3)* are produced in infected spikelets, replacing individual seeds on the head.
4. **Fusarium Head Blight (scab)** *Fusarium graminearum* **Management:** Rotation out of cereals (including corn), cultivar resistance, fungicide application at early flowering	Bleached heads are scattered in parts of the field or the entire field *(Fig. 4a)*. One or more spikelets *(Fig. 4b)*, part of a head *(Fig. 4c)*, or the entire head *(Fig. 4d)* is prematurely bleached. Pink to salmon spore masses may appear on bleached heads *(Figs. 4c and 4d)*. Bleached spikelets contain shriveled and/or chalky white or pink kernels *(Fig. 4e)*.
5. Take-all *Gaeumannomyces graminis* **Management:** Crop rotation, balanced fertilization, seeding into firm, well drained soil	Young plants appear yellow and stunted, often in patches. In more mature fields, white heads occur in patches *(Fig. 5a)*, often on stunted plants which have prematurely dead foliage. The stem base of affected plants may darken and the roots are blackened and stunted *(Fig. 5b)*.
6. Stagonospora Nodorum Blotch *Stagonospora nodorum* **Management:** Crop rotation, cultivar resistance, foliar fungicide application	A purple-brown discoloration appears on glumes, starting at the top of the glume *(Fig. 6a)*. On leaves, lesions begin as yellow flecks and become brown or grayish brown, elongated, and often lens-shaped *(Fig. 6b)*. Lesions are first seen in early spring on the lowest overwintered leaves. Symptoms can be confused with black chaff.
7. Bacterial Streak and Black Chaff *Xanthomonas campestris* pv. *transluscens* **Management:** Pathogen-free seed, control of volunteer wheat and grassy weeds, irrigation management	On leaves, lesions are initially water-soaked, light brown, and elongated between veins. The lesions appear as necrotic streaks that may coalesce into large areas *(Fig. 7a)*. Symptoms are most conspicuous after heading. Brown-black, water-soaked, and necrotic streaks cause darkening on glumes *(Fig 7b)*. A dark to purple discoloration may appear on the stem below the head and above the flag leaf *(Fig. 7c)*. Can be confused with Stagonospora nodorum blotch.
8. Cephalosporium Stripe *Cephalosporium gramineum* **Management:** Crop rotation, residue management, delayed fall seeding	A mosaic yellowing appears on infected seedling leaves in late winter or early spring. Conspicuous, yellow, longitudinal stripes *(Fig. 8a)* appear on leaves (one to three stripes per leaf) during jointing and heading. The stripes are continuous through the culm, leaf sheath, and blade *(Fig. 8b)*. Not all leaves may have stripes. Affected plants are stunted, prematurely ripe, and white-headed *(Fig. 8c)*.
9. Black Head Molds (Sooty Head Molds) Species of several genera including *Alternaria*, *Cladosporium, Cochliobolus* **Management:** Impractical, not justified; apply fungicide seed treatment if grain is used as seed	A superficial gray-black fungal growth appears on the head surface *(Fig. 9)*.
10. Black Point Species of several genera including *Alternaria*, *Cladosporium, Cochliobolus* **Management:** Impractical, not justified; apply fungicide seed treatment if grain is used as seed	The embryo (basal) region of the grain has brown to black discoration *(Fig. 10)*.

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