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Scab of Wheat and Barley

J. J. Christensen and R. C. Rose

HEAD BLIGHT, or scab of wheat and barley, is one of the most destructive diseases of these crops in southern Minnesota. It causes all or parts of the heads to become blighted, shrivels the kernels, and reduces the value of the grain. Losses are sometimes extremely high. The disease cannot be controlled completely, but losses can be reduced by the following practices:

1. **Plant scab-free seed whenever possible.**—If you are unable to secure such seed, fan thoroughly to remove the light and scabby kernels.

2. **Treat seed with New Improved Ceresan** at rate of ½ ounce per bushel in order to reduce seedling blight and root rot. (Seed treatment will not control head blight.)

3. **Plant early** in order to reduce seedling blight since warm weather favors the growth of the fungus.

4. **Follow a good crop rotation.**—Do not sow wheat or barley after corn if it can be avoided.

5. **Plow under old corn stalks or stubble** if wheat or barley must follow corn.

6. **Delay harvest until scabby grain is ripe** because immature grain often heats in the shock. Heating is conducive to further development of scab.

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7. **Feed scabby grain with care.**—Pigs strongly dislike scabby grain and fail to make normal gains when fed scabby grain. Cattle and chickens ordinarily can eat moderate quantities without bad effects.

On Heads

Scab usually appears one or two weeks after the grain is headed. All or part of affected heads lose their green color, appear to have ripened prematurely, and are much reduced in size. In humid weather the blighted parts of wheat heads are covered with a pink or salmon-colored mold-like growth, and the glumes (chaff) often are cemented together.

On barley the symptoms are less conspicuous; the infected parts of the head are usually light to dark brown.

The blight may kill the whole head or only some of the kernels. That part of the head above the point of the attack often is killed resulting in severe shriveling of the kernels even though they are not infected with the scab fungus. Because of scabby heads a field of grain may appear ripe although the stems are still green.

Symptoms of Scab

Appear on Heads, Seed, and Seedlings

Scab Discolors and Decreases Size of Barley Kernels, and Heads Severely Infected Remain Upright

On Seed

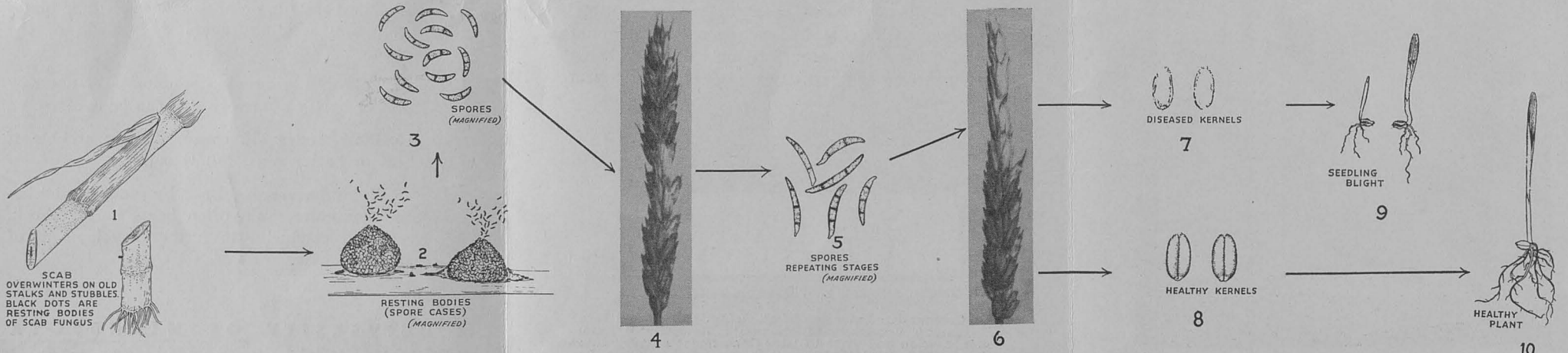
The infected kernels of wheat are more or less shriveled and dull-colored due to the whitish or pinkish growth of the scab organism on the surface of the grain. Those of barley are usually light tan to dark brown. All barley with discolored kernels is not necessarily scabby because other fungi or bacteria may cause discoloration. Scabby kernels of wheat are likely to be brittle and can be crushed easily between the fingers.

On Seedlings

Scabby seed usually germinates poorly and often produces weak plants that are killed before or shortly after they sprout (seedling blight).

The diseased plants often are stunted, the root systems are small, and the base of the young shoots and rootlets are brown to pinkish and partly decayed.

Slightly infected seed, unless treated, is apt to produce plants with root rot because the scab fungus spreads readily from seed to roots. However, the sowing of disease-free seed will not prevent head blight.



WHEAT SCAB-LIFE HISTORY

Scab Losses Great

Scab (fusarial head blight) of wheat and barley is very destructive in certain parts of the United States. In Minnesota it is most important in the southern and southwestern parts of the state where it often limits the production of spring wheat and good malting barley. In epidemic years the yield may be reduced more than 50 per cent, but an even greater loss results from the low value of the grain. The market price paid for scabby grain is considerably less than that for sound grain because diseased grain has less value for feed, seed, malting, and human food.

Corn Spreads Scab Fungus

The scab fungus attacks many different plants. It overwinters in seed, soil, or crop refuse. In Minnesota it is closely associated with old corn fields because the fungus grows readily on the old corn stalks and stubble. The spores of the scab fungus are carried from uncovered corn refuse to wheat and barley during or shortly after the blossoming period. If conditions are favorable (humid and warm) for infection, spores are produced on the infected heads of grain and are car-

Scab Multiplies Rapidly and Overwinters on Old Corn Stalks and Stubble

ried to other heads, causing secondary infection. Later in the season the scab fungus may spread to corn, producing root, stalk, and ear rots.

Weather and Scab

Warm, moist weather promotes infection and hastens the progress of the disease, while dry weather, either hot or cool, retards it. This accounts for the great variation in severity of scab from year to year and from one locality to another in the same year. Lodged grain retains moisture from dews and rains much longer than standing grain and therefore is more likely to be injured by scab. For the same reason, scab is usually more common on low lands with poor air drainage, particularly if there is a rank and heavy stand.

Varietal Reactions

Minturki winter wheat has been scab resistant and will help reduce losses if grown in place of susceptible varieties. No spring wheat can be recommended for scab control. Thatcher is very susceptible, and certain other varieties of spring wheat are somewhat resistant, but varietal resistance cannot be depended upon to control scab. The commonly grown barleys are susceptible. Peatland, which is less commonly grown, has considerable resistance. Attempts now are being made to produce resistant varieties of spring wheat and barley.

UNIVERSITY FARM, ST. PAUL, MINNESOTA

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