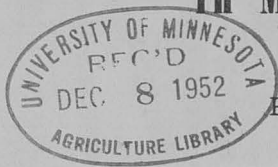


BARLEY DISEASES in Minnesota



R. C. Rose

DO YOU KNOW that barley diseases are caused by fungi and bacteria that feed on diseased parts of plants?



CAN YOU RECOGNIZE the most common diseases by their symptoms?

DO YOU KNOW when to apply controls?

In Minnesota, one of the top three barley producing states in the nation, growers should acquaint themselves with the answers to these questions. The following list, though incomplete, may help you to recognize and control barley diseases in your fields.





Spot Blotch

Net Blotch

Stripe

1. Spot Blotch - On the leaves, this disease causes dark brown or black spots with definite margins. When heads become infected, the spots appear on the stalk and at the germ end of the kernels. The fungus overwinters either in the soil, in the seed, in diseased crop refuse, or in wild grasses such as green foxtail, quack wild rye, and wild barley. In seedlings this fungus sometimes causes stunted growth and excess stooling. Varieties vary in susceptibility.

Control: Complete control is not always possible. However, crop rotation will help if barley does not follow wheat. Seed treatment with an organic mercury compound will help to increase stands of seedlings.

2. Net Blotch - This disease appears as diffuse brown netted blotches on the leaves. The spots often unite to form limited stripes with irregular margins. The disease is most common in the northern cool humid counties and the variety Moore is highly susceptible.

Control: Treat seed with an organic mercury and rotate crops to control seedling blight.

3. Stripe - Leaf symptoms first appear as a yellow striping of the leaves, later the streaks turn brown and the leaves often be-

come shredded. Infected heads are often sterile or produce undeveloped kernels. Control: Seed treating with organic mercury compounds gives good results.

4. Scab - Infected heads may become partly or completely yellow prematurely. Diseased kernels are shrunken, light brown in color, and not easily distinguished from *Helminthosporium* blight. Scabby grain is unsuitable for malting and is poisonous to pigs. Because the fungus can grow on old corn stalks it occurs more frequently in the corn belt than in other areas.

Control: Use healthy seed and treat all seed with a mercury compound to reduce seedling blight from seedling infection. Crop rotation helps to control head blight. Use resistant varieties and plow under all corn stalks in the field to be seeded and nearby.

5. Covered smut - The smut masses remain enclosed in a gray membrane till harvest when the spores are released. During harvest operations many spores adhere to the sound seed and infect the seedling next spring. The fungus remains inside the plant but causes no visible change until heading time.

Scab Covered Loose
 Smut Smut



Control: Seed treatment with an organic mercury compound is effective.

6. Loose smut - The first indication of this disease is evident when the head emerges from the boot and appears as a mass of fluffy black powder, the spores are usually scattered by wind and rain, and in a few days all that remains is the bare central axis of the head. The spores that land on the floral parts of normal blossoms grow into the sound seed. This infected seed shows no sign of disease after harvest, but after seeding the fungus grows inside the plant and shows no sign of disease until heading time.

Control: For effective seed treatment, use the hot-water method. This requires 12 to 18 hours presoaking in cold water and then dipping for 13 minutes in hot water at 127°F. to 129°F. Cool in cold water and dry immediately. This method is hardly practical except for small lots for seed plots.

Note - Not all leaf spots on barley are due to parasitic organisms. Barley grown on potash-deficient soils may show numerous small brown leaf specks. Tissue tests are recommended by the soils department to help confirm or disprove suspicious specimens.

Disease Susceptibility of Barley Varieties*

Variety	Spot Blotch	Net Blotch	Stripe	Scab	Loose Smut	Mildew	Stem Rust
Barbless	MS	MS	MR	S	S	S	S
No. 38							
Kindred	MR	MR	S	MS	S	MS	R
Mars	MS	MR	S	MS	S	MS	R
Moore	MS	S	S	MR	S	R	R
Peatland	MR	MS	S	MR	MR	R	R

* R = resistant S = susceptible MR = moderately resistant

MS = moderately susceptible.

UNIVERSITY FARM, ST. PAUL 8, MINNESOTA

Cooperative Extension Work in Agriculture and Home Economics, University of Minnesota, Agricultural Extension Division and United States Department of Agriculture Co-operating Paul E. Miller, Director. Published in furtherance of UNIVERSITY OF MINNESOTA and June 30, 1914.

7500 6-51



3 1951 D01 928 767 G