

YELLOW LEAF BLOTCH RESISTANCE

Test accepted: March 1991

Test updated: June 2024

Pathogen: *Leptotrochila medicaginis* (Fckl.) Schuepp.

Test authors: M. D. Rumbaugh and F. A. Gray

PLANT CULTURE

Greenhouse

Container Plant bands, cones, pots, flats, benches, or cone-tainers

Media Pasteurized or pathogen-free nonsteamed loam soil-sand mixture (2:1)

Temp/Light 20 to 25°C; supplemental light as needed for plant development

No. of Plants 25 or more plants per replication

No. of Reps 4 replications minimum

Other Plants should be spaced 7 to 8 cm apart; prune plants several times to promote branching prior to inoculation

INOCULUM CULTURE

Source Naturally diseased leaves from infected field grown plants

Storage 40 to 50 leaves are placed between two 10x15 cm sheets of plasticized fiber glass window screening; leaves are positioned so that the upper surface of leaves are facing the same direction; the pieces of screen are then sewn together

Temperature 20 to 24°C

Storage life Store the leaves between the screens outdoors from early summer to late fall until apothecia develop

INOCULATION PROCEDURE

Age of Plant 2 to 3 months

Type of Inoc. Ascospores discharged from apothecia

Concentration Variable, dependent upon numbers of leaves and apothecia

Method A wooden frame, previously constructed on the greenhouse bench, is used to support netting or fencing approximately 10 cm above the plants to be inoculated; screens containing diseased leaves with mature apothecia are wetted and then arranged close together while suspended above the plants; the entire bench is covered with clear, 3-mil polyethylene sheeting to enclose the screens and plants; avoid exposure to direct sunlight; greenhouse temperatures should be 20 to 25°C

Length The diseased leaves between the screens are held over the plants for 48 hours and the plastic sheeting is removed 24 hours later, 72 hours after initiation of the inoculation procedure

INCUBATION

Location Maintain infected plants in greenhouse

Culture Maintain vigorous growth

Age at Rating Two to three weeks after removing the plastic

RATING

Because of possible nonuniform inoculations, plants should be scored for leaf symptom type so that valid comparisons can be made between evaluations. Leaves are examined and the plants rated on a scale from 1 to 5. A hand lens may be useful in determining the degree of development of pycnidia.

1 Resistant No evident infection

2 Resistant Small, dark, circular spots with no chlorosis

3 Resistant Small, dark, circular spots with chlorosis

4 Susceptible One or more chlorotic leaf sectors extending from the leaflet edge to the midrib, with incipient pycnidia

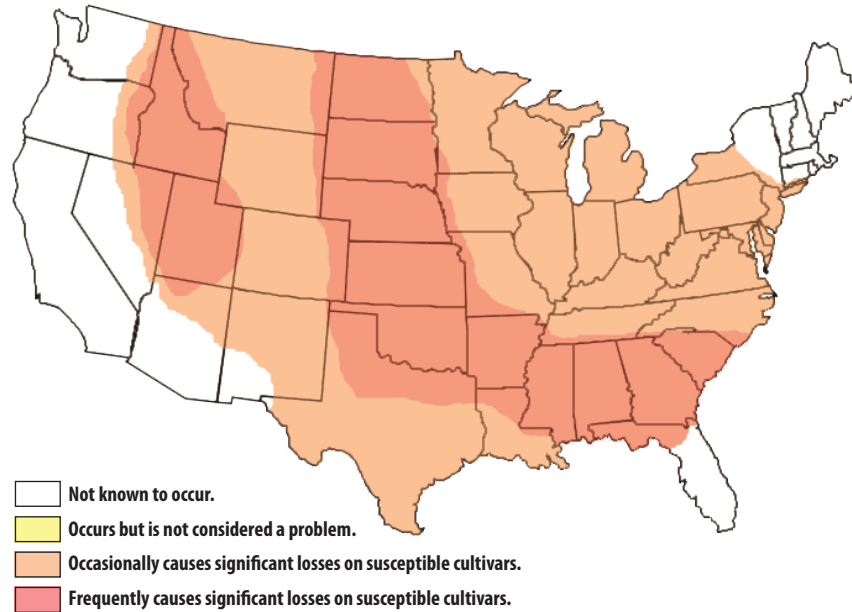
5 Susceptible Most to entire leaflet chlorotic with robust pycnidia and leaf curling

CHECK CULTIVARS

	Approximate Expected Resistance (%)	Acceptable Range of Reaction (%)
Resistant		
Travois	68	60-75
Vernal	45	30-60
Moderately Resistant		
Ranger	20	10-30

Values for resistant standards include totals of 1's, 2's and 3's.

DISTRIBUTION AND SEVERITY OF YELLOW LEAF BLOTCH



Yellow leaf blotch, *Leptotrochila medicaginis* (Fckl.) Schuepp.
(Click on the map above for a larger version.)

CORRELATION TO FIELD REACTION

Experience indicates a positive association between ratings of clones and cultivars in the greenhouse and those obtained from natural infestations in field environments.

RACES

There are no known races of *Leptotrochila medicaginis*.

INOCULATION CONDITIONS AND RANGE OF CONDITIONS

The test is successful only with mature apothecia.

HELPFUL INFORMATION

This rating system has been used successfully in naturally infected field spaced-plant nurseries. Infected leaves to be used as a source of inoculum may be collected from nonirrigated fields approaching full bloom; usually in mid to late-June. A description of yellow leaf blotch and the fungal pathogen can be found in "A Compendium of Alfalfa Diseases" published by the American Phytopathological Society.⁽¹⁾

REFERENCES

1. Castell-Miller, V. V. 2015. Compendium of Alfalfa Diseases and Pests, 3rd Edition. APS Press, St. Paul, MN. 138 pp.
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5. Semeniuk, G., and M.D. Rumbaugh. 1976. Reaction of some perennial and annual *Medicago* species and cultivars to the yellow leaf-blotch disease caused by *Leptotrochila medicaginis*. Plant Disease Reporter 60:596-599.
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