

SCLEROTINIA CROWN AND STEM ROT RESISTANCE

Test accepted: March 1991

Test updated: June 2024

Pathogen: *Sclerotinia trifoliorum* Eriks.

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PLANT CULTURE

Greenhouse Pots or flats

Container 1 part soil:1 part peat:1 part vermiculite, limed (if necessary) to approximately pH 7

Temp/Light..... 20 to 25°C; 12+ hours daylength

No. of Plants Approximately 1 week after emergence, thin seedlings to 25 per replication

No. of Reps 4 replications

Other Fertilize with Hoagland's solution No. 2 1 week after emergence, 50 mL per 25 seedlings

INOCULUM CULTURE

Source Axenic culture

Storage Acidified potato dextrose agar cultures (1 mL 85% lactic acid per liter of PDA)

Temperature..... 4°C

Storage Life..... Up to 3 years

INOCULATION PROCEDURE

Age of Plant 2 weeks

Type of Inoc. Mycelial fragment suspension

Inoc.Prod..... Difco potato dextrose (PD) broth shake cultures: Inoculate sterile PD broth with 7 mm diameter agar plugs from margins of actively growing *S. trifoliorum* cultures; incubate for 7 days at 15°C on rotary shaker; blend 3 spherical colonies (each 28-30 mm in diameter) for 2-3 seconds only in 250 mL water in a Waring Blender; strain the inoculum through a 50 micron sieve; spray approximately 3 minutes per flat

Method Foliar spray with mycelial fragment suspension, 50 mL per 150 plants (1 flat)

INCUBATION

Location Growth chamber; cover flats with clear plastic domes for 7 to 10 days

Temperature..... 15°C optimum

Plant Counts Count plants prior to inoculation

Spacing..... Approximately 8 mm between plants

Age at Rating 3 weeks

RATING

1 Resistant..... Healthy plant; no evidence of infection (or, only 1 or 2 small leaf lesions)

2 Resistant..... Light damage; one upper trifoliolate may be affected

3 Moderately Susceptible..... Terminal, including top leaves, killed back, basal portion of stem, including some lower leaves, may still be green

4 Susceptible..... Plant still alive but severely damaged; most of top is rotted or discolored

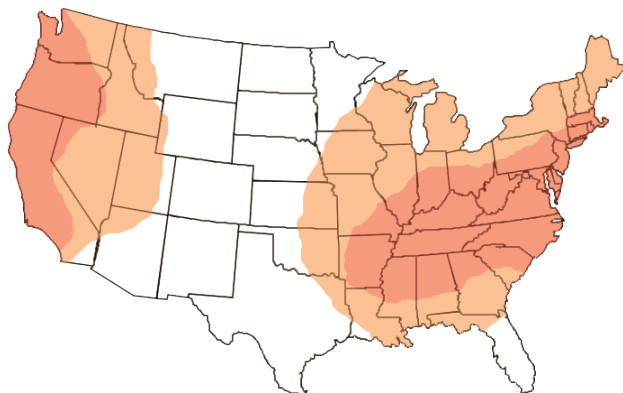
5 Susceptible..... Dead plant

CHECK CULTIVARS

	Approximate Expected Resistance (%)	Acceptable Range of Reaction (%)
Resistant		
Vernal	25	10-40
Susceptible		
Armor	3	0-5

Values for resistant standards include the total of 1's and 2's.

DISTRIBUTION AND SEVERITY OF SCLEROTINIA CROWN AND STEM ROT RESISTANCE



- Not known to occur.
- Occurs but is not considered a problem.
- Occasionally causes significant losses on susceptible cultivars.
- Frequently causes significant losses on susceptible cultivars.

Sclerotinia trifoliorum Eriks.

(Click map to the left for a larger version.)

CORRELATION TO FIELD REACTION

Unknown.

RACES

No races of *Sclerotinia trifoliorum* have been reported. Differences in virulence may exist between isolates of *S. trifoliorum*.

INOCULATION OPTIONS AND RANGE OF CONDITIONS

Immediately prior to inoculation plants are misted with water (approximately 10 mL per 25 plants). Plants are then sprayed with a suspension of mycelial fragments prepared by blending 3 spherical colonies of *S. trifoliorum* in 250 mL water (50 mL inoculum per 150 plants).

HELPFUL INFORMATION

Because seedling reaction is dependent on inoculum load, it is important to spray inoculum evenly over all entries. Also, because of near total decomposition of some plants, seedlings should be counted prior to inoculation. When plants are rated for disease severity, those which cannot be accounted for are assumed to be rotted and given a rating of 5.

ALTERNATIVE METHODS

Field evaluations may be conducted in areas of high infestation.⁽²⁾

REFERENCES

1. Pierson, P.E., T.H. Anderson, and L.H. Rhodes. 1988. Screening for resistance to *Sclerotinia trifoliorum* *in vivo* and *in vitro*. Proc. 31st N Am. Alfalfa Imp. Conf. pp.15 (<https://www.naaic.org/pdf/Alfalfa/649.pdf>).
2. Rhodes, L.H., T.H. Anderson, P.E. Pierson, and D.K. Myers. 1989. Field evaluation of *Sclerotinia* crown and stem rot in six alfalfa cultivars. Proc. 21st Central Alfalfa Imp. Conf. pp.13-14 (<https://www.naaic.org/pdf/Alfalfa/147.pdf>).