

Anthracnose Resistance

Colletotrichum trifolii Bain & Essary

Nichole O'Neill

PLANT CULTURE

Growth Chamber

Container 10-cm plastic pots or flats
 Medium Potting soil mix
 Temp/Light 23°C; 16+ hour daylength
 No. of Plants 50 per replication
 No. of Reps 4 minimum
 Other Control insects and fertilize as necessary

INOCULUM CULTURE

Source Infected stem tissue
 Storage Soil or silica gel (7)
 Temperature 4°C
 Storage Life Up to several years

INOCULATION PROCEDURE

Age of Plant 7-14 days (take stand counts at 7 days)
 Type of Inoc Spore suspension with 2 drops Tween per L distilled water, taken from 7 day old cultures incubated at 23°C on half strength oatmeal agar
 Concentration 2X10⁶ spores per mL
 Method Spray to runoff, approx. 3 mL per pot or 5 to 10 mL per flat; place in mist chamber to maintain 100% R.H. for 48 hours 23°C

INCUBATION

Location Growth room or greenhouse at 23°C
 Age at Rating 10 to 14 days after inoculation

RATING

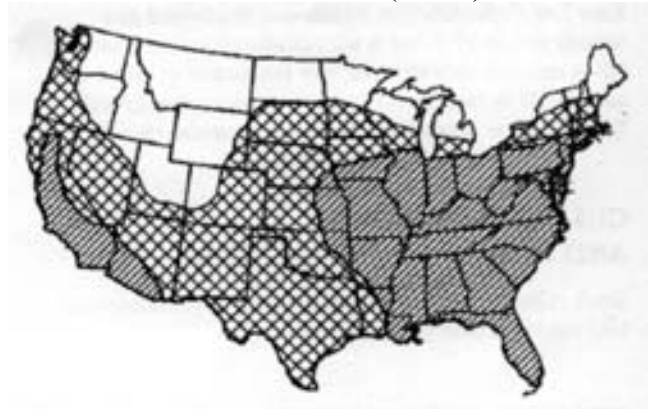
Resistance is assessed as a percent of the stand surviving 10 to 14 days after inoculation.

CHECK CULTIVARS (Race 1)

	Approximate Expected Resistance (%)	Acceptable Range of Reaction (%)
Resistant		
Arc**	65-70	45-80
Saranac AR**	45	40-60
Susceptible		
Saranac**	1	0-5

Values for resistant standards are percent survivors.

DISTRIBUTION AND SEVERITY OF ANTHRACNOSE (Race 1)



Anthracnose, *Colletotrichum trifolii* Bain & Essary (Click on the map for a larger version; see the [key](#) here).

SOURCE OF INOCULUM

Name Nichole O'Neill
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SCIENTISTS WITH EXPERTISE

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CORRELATION TO FIELD REACTION

Cultivars occasionally appear more resistant in the field than indicated by seedling tests, but generally, good correlations are observed between greenhouse and field tests.

RACES

Race 2 of *Colletotrichum trifolii* was discovered in a limited area in 1978 but is not considered serious. Saranac AR is resistant to both races, Arc is resistant to race 1 and susceptible to race 2, and Saranac is susceptible to both. Saranac AR is approximately 45% resistant to race 2.

CULTURE OPTIONS AND RANGE OF CONDITIONS

Stock cultures should be maintained because cultures can lose virulence after several transfers.

HELPFUL INFORMATION

Using mixtures of isolates will minimize error due to differences in virulence among isolates.

ALTERNATIVE METHODS

Succulent stems of mature plants can be tested for susceptibility by needle inoculation (5). Individual seedlings can be evaluated by cotyledon assay (1). A very young seedling test also gives good results very quickly if only percent resistance is required (3).

REFERENCES

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5. Ostazeski, S.A., and Elgin, J.H., Jr. 1982. Use of hypodermic inoculations of alfalfa for identifying host reactions and races of *Colletotrichum trifolii*. *Crop Sci.* 22:545-546
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7. Smith, D. 1984. Maintenance of fungi. Pp.87-88. In *Maintenance of microorganisms, a manual of laboratory methods*. Ed. by Kirsop, B.E. and J.J.S. Snell. Academic Press.