

Phytophthora Root Rot--Seedling Resistance

Phytophthora medicaginis (Hansen and Maxwell)
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PLANT CULTURE

Container Seedling cavities within a water reservoir or a deep flat or tub with a single drainage hole which is capable of being plugged
 Media Coarse vermiculite or a porous soil mix (eg. 3:2 sphagnum-based soilless mix: perlite); provide a coarse drainage layer (eg. gravel); pure sand medium is not desirable
 Temp/Light 20-24C; 12-16 hr daylength
 No. of Plants 50-70 per replication
 No. of Reps 3 minimum

INOCULUM CULTURE

Source Seedlings grown on infested soil
 Storage Corn meal or V-8 juice agar
 Temperature 4-12 C
 Storage Life 6 months if hydrated

INOCULATION PROCEDURE

Age of Plant 10-12 days (when first trifoliolate begins expansion)
 Type of Inoc Zoospore suspension or comminuted mycelium
 Production Zoospores are produced as per (2); or 9-day-old V-8 agar cultures of mycelium may be chopped in a blender for 10 sec.
 Concentration Aprox. 50 zoospores (3) or 1 ml chopped mycelium per seedling; mycelium prepared as: 1 culture (9 cm diam) in 1 L water
 Method For zoospores- Presaturate the soil mix and drench inoculum over the seedlings (4); For mycelium- drench inoculum into shallow trench and then saturate the soil with water (1)

INCUBATION

Location Moderate greenhouse or growth chamber
 Plant counts Count at full emergence (7-8 days after seeding)
 Culture Maintain flooded conditions for 2 days; keep moist until rated
 Age at Rating Rate when nearly all Saranac plants are stunted and dying, i.e. for zoospores- 10-12 days after inoculation, for mycelium- 14 days after inoculation

RATING

Resistant Vigorously growing plants with only slight to no necrosis of tap and secondary roots; hypocotyl area sound with slight to no chlorosis of cotyledons
 Susceptible Stunted or dead plants with moderate to severe necrosis of roots, hypocotyls and cotyledons

CHECK CULTIVARS

	Approximate Expected Resistance (%)	Acceptable Range of Reaction (%)
Highly Resistant		
WAPH- 1*	55	50-60
Resistant		
MNP-D1 ^b	46	38-54
Agate*	33	25-40
Susceptible		
Saranac	1	0-5

*WAPH-I and/or Agate must be included for varieties with fall dormancy rating 1-5.

^bMNP-DI must be included for varieties with fall dormancy rating 6-9.

REFERENCES

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