

BACTERIAL WILT RESISTANCE – GREENHOUSE/CONTROLLED ENVIRONMENT

Test accepted: March 1995

Pathogen: *Clavibacter michiganense* subsp. *insidiosum* (McCull) Davis *et al* (syns. *Corynebacterium insidiosum* (McCull.) H.L. Jones)

Test authors: J.E. Brummer and S.L. Nygaard

PLANT CULTURE

Container Bench or tub with adequate depth for root development (6 to 8")

Media Soil Mix (1:2:1; Top soil: sand: sphagnum/perlite) adequate lime and fertilizer (0:24:24)

Temp/Light 24° to 30°C.; 16+ hour daylength

No. of Plants 50 to 60 per replication

No. of Reps 4 replications

Other Inoculate with *Rhizobium meliloti*

INOCULUM CULTURE

Source Infected root tissue

Storage Washed frozen root tissue

Temperature -10°C

Storage Life Several years if tissue remains frozen

INOCULATION PROCEDURE

Age of Plant 8 weeks old

Concentration 100 g ground infected root per 1L H₂O

Method Clip roots (6 to 8 cm from crown) and bare root soak

Type of Inoc. Bacterial water suspension

Time of Inoc. 20 min at 24°C or 12 hours at 16°C.

INCUBATION

Location Greenhouse; transplanted into benches or tub

Temp/Light 20° to 24°C; 16 hour daylength

Culture Clip top growth twice at 5 to 6 week intervals (at bud or bloom) maintain good growth and control insect pests; fertilize (0-24-24) after each clipping.

Spacing 2.5 cm between plants and 6 cm between rows

Age at Rating 12 to 14 weeks after transplanting

RATING

Plants are removed from benches and tap root is sectioned for rating.

Resistant Symptomless root or less than one-fourth of the stele expressing a yellow-brown discoloration (discrete small spots).

Susceptible Discoloration in the root greater than one fourth of the entire root (stele and cortex); dead plant.

CHECK CULTIVARS

	Approximate Expected Resistance (%)	Acceptable Range of Reaction (%)
Resistant		
Vernal	40	30-50
Susceptible		
Narragansett**	2	0-5
Sonora**	2	0-5

CORRELATION TO FIELD REACTION

There is a good correlation between results of this test and visual root scores and plant vigor in naturally infested fields.

SCIENTIST WITH EXPERTISE AND SOURCE OF INOCULUM

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REFERENCES

See Bacterial Wilt field protocol; In: Standard Tests to Characterize Alfalfa Cultivars.