

Relative susceptibility of 17 varieties of *Calibrachia* sp. to *Thielaviopsis basicola*; *Pythium aphanidermatum* and *Phytophthora parasitica*: spring 2007 evaluation.

Philip F. Harmon and Charles R. Semer

Protocol:

May 25, 2007 100 rooted seedlings of seventeen varieties of *Calibrachia* were received. The seedlings were approximately 6-8 inches tall and slightly wilted. The seedlings were transplanted into four inch pots filled with metro mix 300 on May 29, 2007 and watered.

Plants of each variety were separated into groups of five plants, and five groups of each variety were randomly assigned to each treatment below. The plants were fertilized, watered and maintained in the greenhouse until they were inoculated.

Treatments were as follows:

T1- not inoculated

T2- *Thielaviopsis basicola*

T3- *Pythium aphanidermatum*

T4- *Phytophthora parasitica*

Inoculum of *T. basicola*; *P. aphanidermatum* and *P. parasitica* was prepared in the laboratory. *T. basicola* was produced on acidified Potato Dextrose Agar (APDA). The *P. aphanidermatum* and *P. parasitica* inoculum was produced on dilute V-8 juice medium. Inoculum was harvested and quantified using a hemacytometer. The final spore/zoospore concentration was adjusted to 1×10^4 spores/ml.

Two wooden frames lined with 6 ml polyethylene film were used per treatment. All the plants were watered from the bottom. The pots inoculated with the *T. basicola* were drenched with 3 ml of a suspension containing 8×10^5 spores/ml. Pots inoculated with the *Pythium* and the *Phytophthora* isolates were inoculated by placing zoospore suspensions into the water in the lined frames (125 ml of 6×10^5 and 125 ml of 1×10^6 respectively).

The plants were examined weekly for disease incidence, and a final evaluation was conducted 30 days after inoculation. Relative plant health and overall vigor was rated on a scale of 0 to 11 with 0 indicating dead plants and 11 indicating extremely vigorous plants.

Results:

The plants evaluated as the untreated check for variety codes 05C413-11 and 05C411 died. This was due to their location within the frame and the resulting lack of water during the last week which resulted in their dieback.

Five selections showed some susceptibility to dieback caused by *T. basicola*. These selections were 04 C 212-01; 05 C 413-11; 05 C 411-07; 04 C 223-01; and 2002 514. Seven varieties showed some susceptibility to *P. aphanidermatum*. These selections were 05 C 413-11; 04 C 214-01; C 067-1; 05 C 413-08; 05 C 411-07; 04 C 223-01; and CB 061. Four selections showed susceptibility to *P. parasitica*. These selections were 05 C 403-02; SB 51 mutant; 05 C 402-01; and 05 C 411-07. Selection 05 C 411-07 was susceptible to all three pathogens. Several selections were susceptible to two of the three tested pathogens. These selections were 05 C 413-11 and 04 C 223-01.

Table 1. Evaluation of the vigor of each variety 30 days after inoculation

Variety code	Untreated	<i>T. basicola</i>	<i>Pythium</i>	<i>Phytophthora.</i>	Variety Name
05C403-02	7	7	7.5	7	Trailing Light Yellow
SB51mutant	7.5	8	7	9	Lavender sport
04C212-01	7	4	7.5	8	Cherry Blossom
CB028-12	7	8	8	9	Trailing Plum
05C413-11	1	4	6	7	Tangerine Punch
05C411	1.5	6	8	9	Scarlet
04C214-01	6	5	6	9	Coral
SB28	7.5	8.5	9	9	Red
C067-1	5.5	5	6.5	9	Peach
05C386-2	6	5	7.5	8	White (IMP)
05C413-08	7	6	4	9	Apricot Punch
05C402-01	7	5	8	7	Yellow Chiffon
05C413-04	4	10	7	9	Saffron
05C411-07	6.5	4	5.5	6	Dreamsicle
04C223-01	7.5	5.5	6	9	Tickled Pink
CB061	8	6	6	6	Trailing Light Blue
2002514	6	5	8	9	Blue

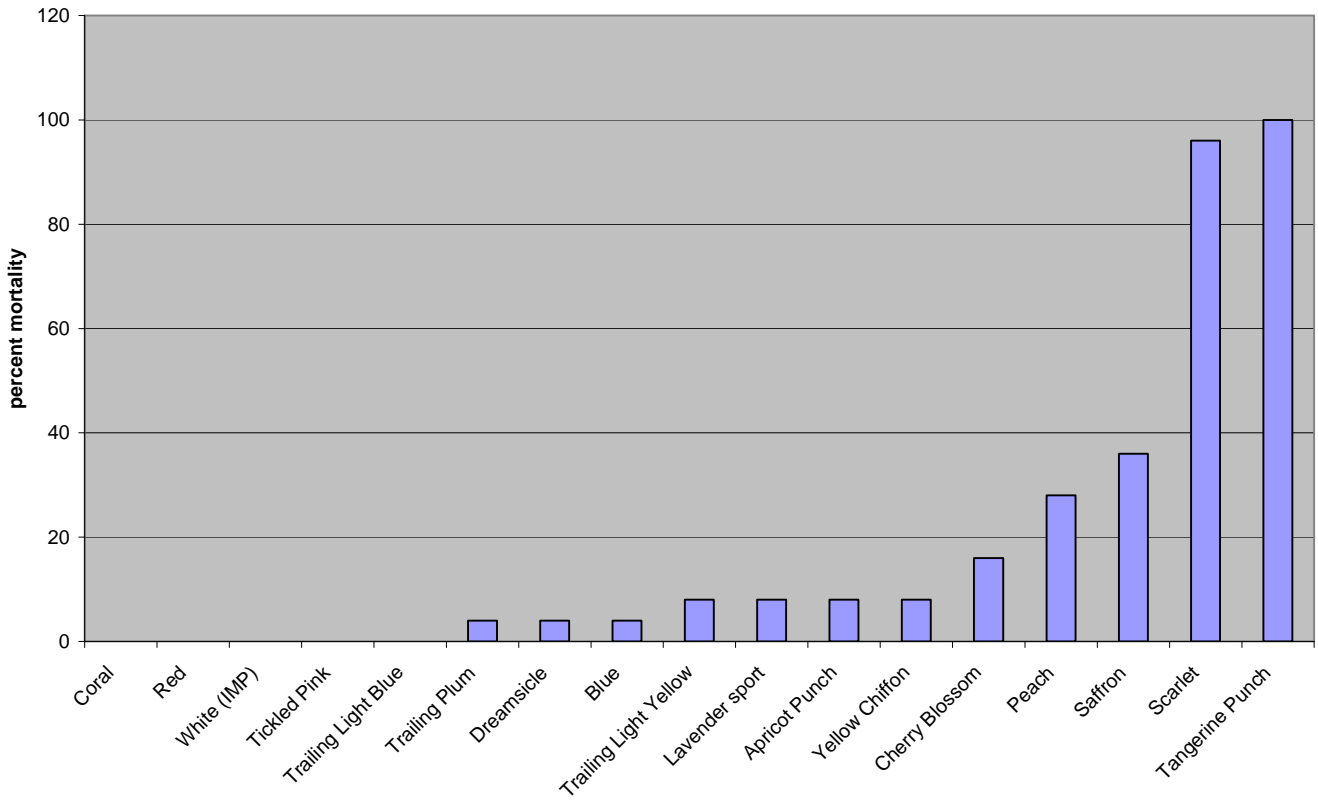
Vigor was rated on a 0 to 11 scale with 0 = dead and 11 = extremely vigorous

Table 2. Percent of diseased plants by Treatment

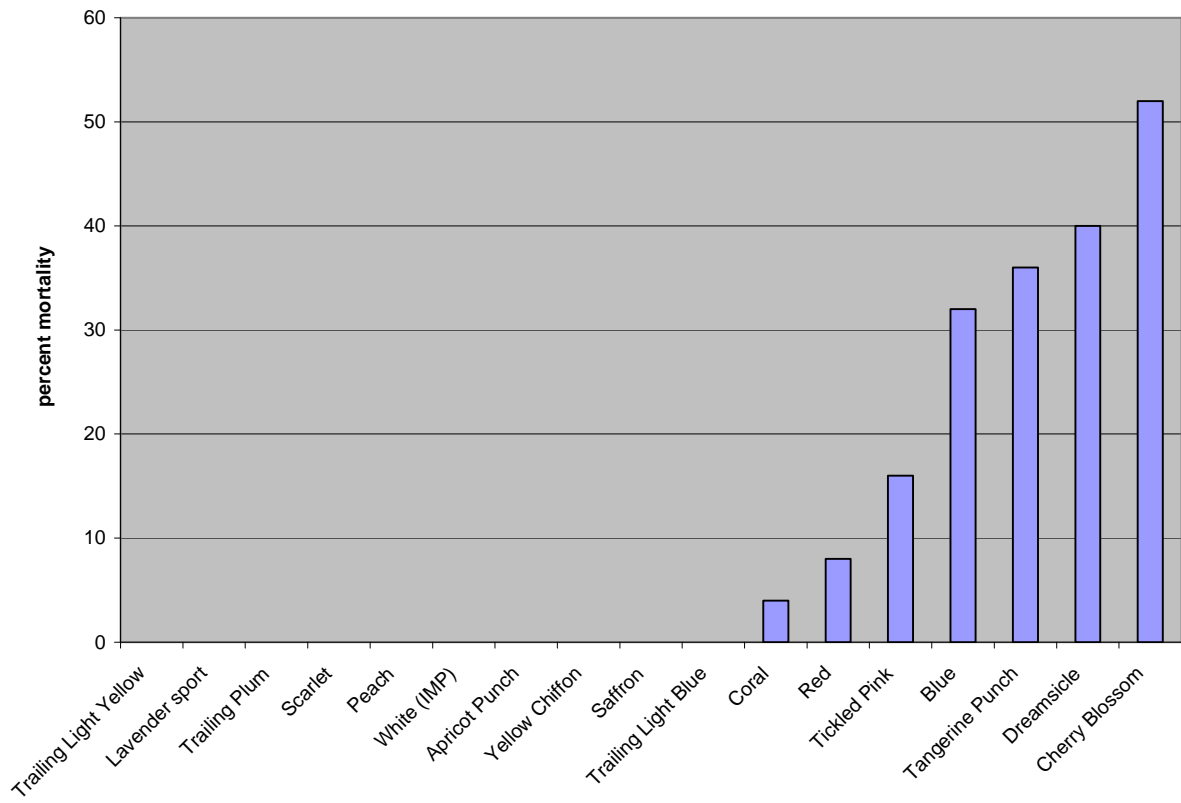
Variety code	Untreated	<i>T. basicola</i>	<i>Pythium</i>	<i>Phytophthora.</i>	Variety Name
05C403-02	8	0	0	24	Trailing Light Yellow
SB51mutant	8	0	8	24	Lavender sport
04C212-01	16	52	4	0	Cherry Blossom
CB028-12	4	0	4	12	Trailing Plum
05C413-11	100*	36	20	4	Tangerine Punch
05C411	96 *	0	4	0	Scarlet
04C214-01	0	4	16	0	Coral
SB28	0	8	4	0	Red
C067-1	28	0	16	4	Peach
05C386-2	0	0	12	4	White (IMP)
05C413-08	8	0	48	12	Apricot Punch
05C402-01	8	0	0	32	Yellow Chiffon
05C413-04	36	0	4	8	Saffron
05C411-07	4	40	16	16	Dreamsicle
04C223-01	0	16	24	4	Tickled Pink
CB061	0	0	16	12	Trailing Light Blue
2002514	4	32	4	0	Blue

* Check plants died of drought stress due to improper placement in the frames.

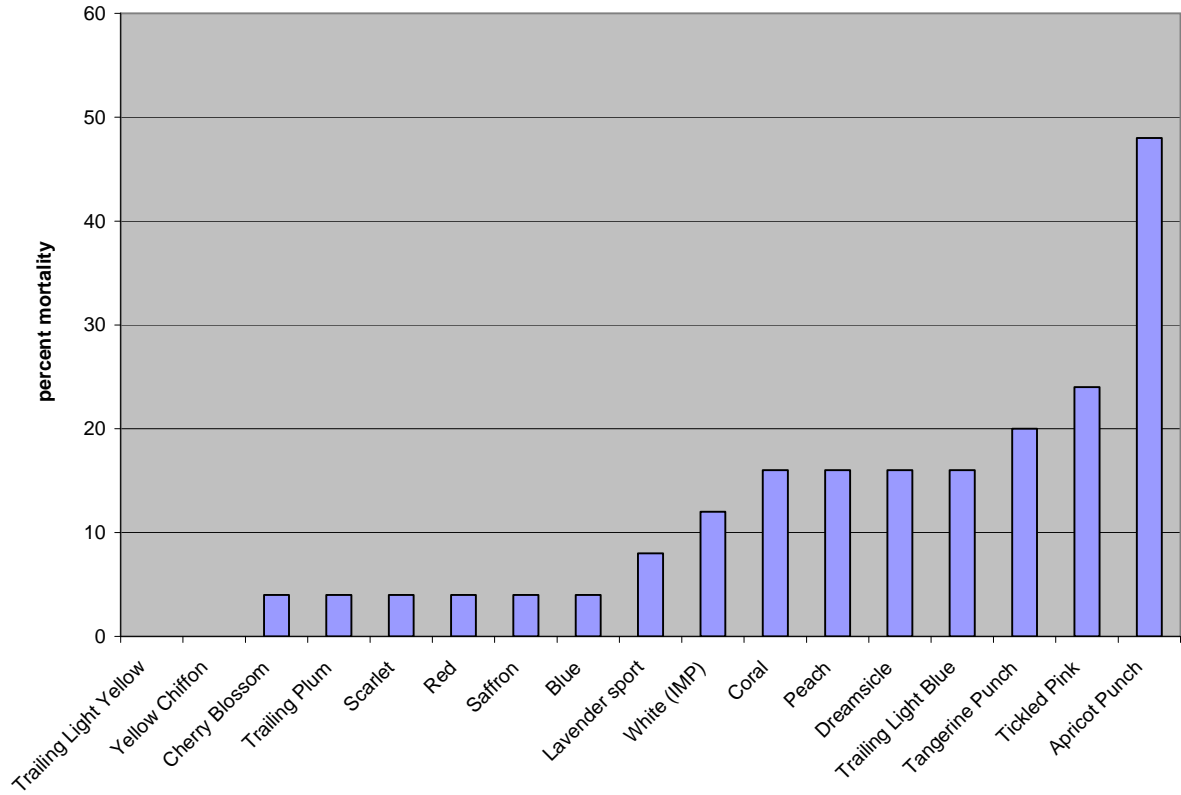
not inoculated



Inoculated with *T. basicola*



Inoculated with Pythium



Inoculated with Phytophthora

