CULT1VAR DIFFERENCES IN SUSCEPTIBILITY TO ASCOCHYTA STEM BLIGHT, ENATION MOSAIC, AND RED CLOVER VEIN MOSAIC

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Commercial pea cultivars and Oregon State University lines were field tested for resistance to a complex of Ascochyta and Mycosphaere11a blights (purple stem), pea enation mosaic (PEM), and red clover vein mosaic (RCVM) at Corvallis and Brooks, Oregon. Two replications were included at each location. For each disease, a 0-5 scoring system, with 5 most severe, was used, except that a few 6 scores were gned to unusually severe infections of purple stem. RCVM scores were assigned only at Corvallis. Accurate scoring for RCVM is not possible when PEM symptoms are strong, so the scores assigned for RCVM are approximations.

Table 1 gives mean scores for 35 commercial cultivars. With few exceptions, these were clearly either susceptible or resistant to PEM, but with a range of reactions to purple stem and RCVM. Mean scores are also shown for 37 lines, mostly resistant to PEM, derived from crosses of OSL) lines x 'Lowata' for purple stem resistance. These lines were survivors of one previous field screening.

There was an apparent general correlation between virus infection and purple stem severity. Table 2 shows correlation coefficients for various disease combinations for the 35 cultivars shown in Table 1 and tor the Lowata derived lines. Correlation coefficients were often non-significant for the latter which received lower scores in general, especially for PEM. For the commercial cultivars, only the RCVM vs. Corvallis purple stem correlation was not significant. Some relationship between virus infection and purple stem severity, perhaps involving predisposition, is suggested by these data.

Table 2. Correlations (r) between virus infection scores and purple stem scores, Corvallis and Brooks, Oregon, 1983.

Purple stem	Pea enation mosaic						RCMV	
	Brooks		Corvallis		Average		Corvallis	
	Comm.[1]	Low.[2]	Comm.	Low.	Comm.	Low.	Comm.	Low.
Brooks	.40	.73					.58	.28 NS
Corvallis			.58	.11 NS	.60	.15 NS	.23 NS	.51
Average			.53	.89	.54	.58	.69	.27 NS

[1] Derived from 35 commercial lines or cultivars shown in Table 1.

[2] Derived from 37 breeding lines from 'Lowata' crosses.

NS = non-significant correlation coefficient @ 5% level.

Table 1. Reaction of commercial pea cultivars and lines to purple stem[1], pea enation mosaic, and red clover vein mosaic.

Cultivar	Source	Purple stem			PEM			RCVM
		Brooks	Corvallis	Mean	Brooks	Corvallis	Mean	Corvallis
Abador	1	2.0	2.5	2.2	4.0	5.0	4.5	3.5
Aurora	2	3.0	2.5	2.8	0.0	0.0	0.0	4.5
Avon	3	3.0	2.0	2.5	3.5	5.0	4.2	3.0
Badger	4	3.0	3.3	3.1	3.5	4.5	4.0	2.8
Can. 695	2	1.0	2.0	1.5	0.5	2.0	1.2	3.0
Candlelight	4	4.5	3.5	4.0	2.5	5.0	3.8	2.5
Ceras	1	2.8	3.5	3.2	2.5	3.5	3.0	3.0
Champ	1	2.0	1.5	1.8	2.2	3.0	2.6	2.2
Coronet	3	2.5	3.5	3.0	3.0	4.0	3.5	4.0
Corvallis	5	3.0	2.0	2.5	0.0	0.0	0.0	2.5
Dinos	1	2.5	3.0	2.8	3.5	4.5	4.0	5.0
Dual	1	3.0	3.5	3.2	2.5	4.5	3.5	3.5
Early Snap	6	2.5	2.0	2.2	2.5	1.6	2.1	2.5
Early Sweet 9	4	5.5	4.0	4.8	3.5	5.0	4.2	2.5
Frisky	1	3.5	3.5	3.5	5.0	5.0	5.0	3.0
HP6-3	4	3.5	2.0	2.8	3.0	4.0	3.5	3.5
H543-3-1-11	4	3.0	1.5	2.2	0.0	1.0	0.5	4.0
H783-28-3	4	6.0	4.5	5.2	4.5	5.0	4.8	3.0
H783-29	4	4.5	4.0	4.2	4.0	4.5	4.2	3.0
H890-3-2	4	3.5	2.5	3.0	0.0	0.0	0.0	4.0
Honeypod	2	2.0	2.3	2.2	0.0	0.0	0.0	3.5
Maestro	2	4.0	2.3	3.2	0.0	0.0	0.0	2.8
Mars	1	3.0	3.5	3.2	4.0	5.0	4.5	3.0
Mohawk	1	2.5	2.0	2.2	0.0	0.0	0.0	3.0
Novella II	2	2.5	2.0	2.2	0.0	0.0	0.0	2.5
Olympia	1	4.0	2.0	3.0	0.0	0.0	0.0	1.5
Perf. Fr. 60	2	2.5	3.5	3.0	0.0	0.0	0.0	4.5
Parlay	2	3.5	3.0	3.2	4.0	4.5	4.2	4.5
Pomak	1	3.5	3.5	3.5	3.5	4.5	4.0	4.0
Quincy	3	3.0	2.5	2.8	4.0	5.0	4.5	2.5
Rally	1	3.5	3.0	3.2	3.5	4.5	4.0	3.5
Sparkle	2	4.5	4.0	4.2	4.5	5.0	4.8	4.0
Spring	1	5.5	3.5	4.5	5.0	5.0	5.0	4.0
Early Sweet 7	4	5.5	2.5	4.0	2.5	5.0	3.8	3.5
H680-1-3	4	3.5	3.0	3.2	3.5	4.5	4.0	3.0
column $\bar{x}$		3.4	2.8	3.1	2.4	3.1	2.8	3.3
column $\bar{x}$ for Lowata derived lines		2.2	2.0	2.1	0.1	0.5	0.3	2.2

[1] *Ascochyta* and *Mycosphaerella* blight complex.