RADISH (*Raphanus sativus*)
Rhizoctonia; *Rhizoctonia solani*
Clubroot; *Plasmodiophora brassicae*
Soft rot; *Erwinia carotovora* subsp. *carotovora*

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Response of radish cultivars to Rhizoctonia hypocotyl rot, clubroot, and soft rot, 2004.

Fifteen radish cultivars were evaluated for response to Rhizoctonia hypocotyl rot, clubroot and soft rot in a field trial at the Ohio Agricultural Research and Development Center Muck Crops Research Station in Celeryville, OH. Fertilizer (17-17-17, 500 lb/A) was incorporated into the field on 27 Apr. Plots were disked, leveled, and compacted, and radishes were direct seeded at a rate of 12 seeds/ft on 20 May. Cultivars were arranged in a randomized complete block design with four replications. Plots were 6 ft apart and consisted of three 20 ft rows with 18 in. between rows. Dual II MAGNUM (1.5 pt/A) was applied on 20 May for weed control. Plots were sprinkle irrigated with 0.5 in. water on 20 May. Radishes were harvested from a 10 ft section of the center row of each plot on 14 Jun, and mean clubroot disease severity, percent Rhizoctonia hypocotyl rot, and percent soft rot were determined. Data for percent Rhizoctonia hypocotyl rot was analyzed by adding one to each data point before log transformation; the remaining data were analyzed without transformation, by ANOVA using SAS statistical software. Means were separated using Fisher's protected least significant difference test. Average maximum temperatures for 20-31 May and 1-14 Jun were 78.1 and 77.7 °F; minimum averages were 54.2 and 59.0 °F and total rainfall was 2.7 and 5.2 in., respectively.

Disease pressure was low for Rhizoctonia hypocotyl rot and no differences in disease incidence were observed among cultivars. Clubroot severity was high and although all cultivars were susceptible, three ('CW93-222 F1', CW93-221 F1" and E61-7149 F1') had significantly lower clubroot severity than the most susceptible cultivars, including the standards 'Cherriette', 'Cabernet', 'Red Silk' and 'Crunchy Royale'. The incidence of soft rot was high in 'E61-7149 F1' and moderate in 'CW 93-221 F1'. Six cultivars ('CW93-222 F1', 'SSX17-9124', 'Cherriette', 'N1Z-34-46 F1', 'Red Silk' and 'Crunchy Royale') had negligible (< 2.5%) soft rot incidence.

Cultivar	Seed Supplier	Clubroot severity*	% Rhizoctonia	% Soft rot
CW93-222 F1	SeedWay Inc.	44.6 bcd**	4.0 a	2.0 ef
CW93-221 F1	SeedWay Inc.	44.4 bcd	2.0 a	11.0 bc
E61-7149 F1	SeedWay Inc.	41.0 d	1.0 a	30.5 a
SSX17-9124	Meyer Seed Int., Inc.	60.6 a	1.5 a	0.3 f
SSX17-9123	Meyer Seed Int., Inc.	54.6 a-d	2.3 a	4.5 def
SSX17-9122	Meyer Seed Int., Inc.	43.7 cd	5.5 a	13.5 b
Cherriette	Siegers Seed Co.	66.3 a	3.8 a	2.0 ef
Cabernet	Siegers Seed Co.	67.0 a	1.5 a	6.5 cde
N1Z-34-44 F1	Vilmorin Seed Co.	55.6 abc	2.5 a	7.8 cd
N1Z-34-45 F1	Vilmorin Seed Co.	62.0 a	5.8 a	8.3 cd
N1Z-34-46 F1	Vilmorin Seed Co.	64.0 a	2.0 a	1.3 f
Red Silk	Siegers Seed Co.	63.7 a	0.3 a	0.5 f
E61-119 F1	SeedWay Inc.	56.9 abc	2.8 a	10.8 bc
Crunchy Royale	Siegers Seed Co.	57.6 ab	2.8 a	2.3 ef

*Clubroot severity calculated using the number of radishes in each of five categories and the midpoint value from the categories: 1= 0% disease; 2= 1-20% disease; 3= 21-40% disease; 4= 41-60% disease; and 5= 61-100% disease. Severity = [Σ(category midpoint*number of radishes in category)]/n, where n = total number of radishes harvested.

**Values are the means of four replicate plots; means followed by the same letter within a column are not significantly different at p≤0.05.