CARROT (*Daucus carota*)
Alternaria leaf blight; *Alternaria dauci*
Cercospora leaf blight; *Cercospora carotae*

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Evaluation of varietal resistance to foliar diseases of carrot, 2022.

A carrot field trial was conducted at the Hancock Research Station in Hancock, WI, to evaluate varietal resistance to common foliar diseases of carrot in the Midwestern United States. Ten varieties were selected for evaluation (Table 1) seeds were sown at approximately 250,000 seed/A with a push seeder on 6 June. The experimental design consisted of 5 replicates arranged in a randomized complete block design. Each treatment plot consisted of 4.5-ft-wide beds with three 18-ft-long seeding rows, 19 in. between rows on bed with 17 in. from row edge to bed edge. Twelve-ft fallow breaks were maintained between plots in the same row. Insecticide, herbicide, and fertilizer applications were made according to standard production practices for the region. Naturally occurring inocula of pathogens were present from nearby agricultural production fields and a neighboring carrot variety trial with no fungicides applied. No fungicide was applied to the plots to encourage disease development. Disease assessments took place on 11 Aug, 25 Aug, 4 Sep, and 7 Oct, using the Horsfall-Barratt scale (1-11) to assess foliar symptoms in each experimental plot. Foliar disease severity was combined for all pathogens present at each rating. The area under the disease progress curve (AUDPC) was determined by trapezoidal integration and then converted into relative AUDPC (RAUDPC), i.e. percentage of the maximum possible AUDPC for the whole period of the experiment. Plots were not taken to yield. Precipitation in Hancock during the production season was 17.16 in. Supplemental irrigation was applied 29 times during the production season for an additional 11.7 in. All data were analyzed using ANOVA (α=0.05) and Fisher's LSD at α=0.05 (SAS Version 9.2).

Disease pressure was average for the production season, but initiated in August later than typical for the growing region. This was likely due to a warmer, windier environment present in June and July. Naval was the most resistant fresh market variety to foliar diseases. Moonraker, Canberra, and Belgrado were the most resistant processing varieties to foliar diseases.

Variety	Supplier	Type	RAUDPC[z]	
Naval	Seedway	Fresh Market/Slicer	0.135	a[y]
Moonraker	Harris Moran	Processing/Dicer	0.204	b
Canberra	Bejo Seeds	Processing/Dicer	0.207	b
Belgrado	Bejo Seeds	Processing/Dicer	0.208	b
Istanbul	Bejo Seeds	Fresh Market/Slicer	0.216	bc
SV4128DL	Seminis	Fresh Market/Slicer	0.219	bc
Nantes	Park Seed	Fresh Market/Slicer	0.248	bcd
Navedo	Bejo Seeds	Fresh Market/Slicer	0.265	cde
Cupar	Bejo Seeds	Processing/Dicer	0.288	de
SVDH3780	Seminis	Fresh Market/Slicer	0.299	e

[z]The area under the disease progress curve (AUDPC) was determined by trapezoidal integration and then converted into relative AUDPC (RAUDPC).
[y]Column means with a letter in common or with no letter are not significantly different (Fisher's LSD, *P*=0.05).