LETTUCE (*Lactuca sativa*)
Powdery mildew; *Golovinomyces cichoracearum*

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Evaluation of lettuce cultivars for susceptibility to powdery mildew, 2018.

An experiment was established in a greenhouse at the Long Island Horticultural Research and Extension Center (LIHREC) in Riverhead, NY. The objective was to evaluate 12 cultivars of mostly Salanova type lettuce for their susceptibility to powdery mildew in a greenhouse setting. The impetus was grower reports of powdery mildew mostly on this type of lettuce in greenhouse and winter tunnels in the northeastern U.S. where typically this disease does not develop in field-grown summer crops. Lettuce seed was sown in 128 cell flats on 9 Mar. Lettuce plants were transplanted into 4-in. pots on 27 Mar. Pots were arranged in trays so that water could be provided by filling the trays thereby not wetting leaves, which would be unfavorable for powdery mildew development. Greenhouse temperature was set at 68 ^{o}F and the shade cloth was closed to provide conditions considered favorable for powdery mildew. The experiment consisted of four replications arranged in a randomized complete block design, an experimental unit consisted of four lettuce plants for a total of 16 plants per cultivar and 192 plants total. Powdery mildew inoculum was provided by 'spreader' plants that were previously infected with the pathogen in a separate location. Spreader plants were placed evenly throughout the experiment on 20 Apr, 12 plants per rep, 48 plants total. To encourage pathogen spread onto the test plants, the spreader plants were shaken above the test plants to release powdery mildew spores for deposit on the treatment plants; this was performed approximately three times a week throughout the duration of the experiment. The test plants were evaluated for powdery mildew severity by estimating the percent coverage of powdery mildew on the foliage of each plant on 16 May and 23 May. Subsequently high outdoor temperatures resulted in unfavorable conditions in the greenhouse for powdery mildew and lettuce. Data was analyzed with one-way ANOVA and Tukey's HSD to separate means using JMP statistical software.

Powdery mildew was first observed on the test plants on 4 May. Salanova Red Oakleaf was more susceptible to powdery mildew than all cultivars tested except Salanova Green Oakleaf. Skyphos Red Butterhead was the least susceptible with symptoms found only in one replication and only at the last assessment date. It was not significantly different than Salanova Red Sweet Crisp or Red Cross Red Butterhead at the 23 May assessment. Susceptibility of some cultivars may be a factor in recent occurrences. The less susceptible cultivars could provide a means to manage powdery mildew in lettuce

	Powdery mildew severity (%) [z,y]			
Cultivar	16 May		23 May	
Salanova Red Oakleaf	3.73	a	17.1	a
Salanova Green Oakleaf	1.93	b	12.3	ab
Rex Green Butterhead	1.74	bc	9.0	bc
Salanova Green Butterhead	1.13	bcd	6.4	bc
Alkindus Red Butterhead	0.93	bcd	4.4	cd
Salanova Red Butterhead	0.74	cd	2.3	de
Salanova Green Incised	0.50	d	1.9	de
Salanova Green Sweet Crisp	0.34	d	1.7	de
Salanova Red Incised	0.48	d	1.4	de
Salanova Red Sweet Crisp	0.64	cd	1.2	ef
Red Cross Red Butterhead	0.61	d	1.0	ef
Skyphos Red Butterhead	0.00	e	0.0	f
P-value (treatment)	<0.0001		<0.0001	

[z] Numbers in each column with a letter in common are not significantly different from each other (Tukey's HSD, P=0.05).
[y] Data was square root transformed before analysis. Table contains back-transformed means.