SQUASH (*Cucurbita pepo*)
Downy mildew; *Pseudoperonospora cubensis*

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Evaluation of cultivars for control of downy mildew on squash, Kinston 2018.

The experiment was conducted at the Cunningham Research Station in Kinston, NC (N35°18.331'; W077° 34.884'). Plots were single beds, 14 ft in length on 5-ft centers, covered with white plastic mulch with 5-ft fallow borders on each end and non-treated guard rows on each side. The previous year the field was planted with sweetpotato. Squash was direct seeded on 17 Jul (2-ft in row spacing, 2 seed/hill) in raised beds and was thinned to one plant per hill after emergence (7 plants/plot). Nine non-treated squash varieties commonly used in North Carolina were included in the trial. Irrigation and fertilization (4-0-8, N-P-K) were applied weekly via drip tape. Varieties were randomized into four complete blocks. Disease severity was assessed on 22 Aug, 29 Aug, 5 Sep, and 11 Sep as percent leaf area with necrosis per plot. Fruit were harvested from entire plots on 26 Sep, and marketable yield was determined based on squash shape. Data were analyzed in the software ARM (Gylling Data Management, Brookings, SD) using analysis of variance (AOV) and Fisher's protected least significant difference (LSD) test to separate means (P=0.05).

Downy mildew was first detected on 20 Aug at approximately 2% disease severity in the field and advanced throughout the course of the trial. Based on the 5 Sep disease rating, Taybelle PM, Table Queen, and Vegetable Spaghetti had significantly less downy mildew compared to other varieties. Primavera exhibited the largest yields but was not significantly different from Ace of Spades or Sweet Mama. Due to most varieties having greater than 85% disease severity by the 11 Sep rating, in the table below, varieties are sorted by disease severity on 5 Sep.

	Disease severity (%)*		Total marketable yield
Variety	29 Aug	5 Sep	(lb)
Taybelle PM (acorn)	6.3 e**	22.5 e	24.33 bc
Table Queen (acorn)	11.3 cd	23.8 e	14.38 cd
Vegetable Spaghetti	7.5 de	25.0 e	14.70 cd
Ace of Spades (acorn)	8.8 de	31.3 d	33.75 ab
Spaghetti Squash	27.5 b	32.5 d	19.55 cd
Sweet Mama (winter hybrid)	13.8 c	38.8 c	34.43 ab
Turk's Turban (heirloom)	28.8 b	40.0 c	10.93 d
Primavera (summer hybrid)	27.5 b	82.5 b	43.40 a
Waltham Butternut	42.5 a	88.8 a	15.05 cd

* Disease severity was based on the percent necrotic foliage caused by *P. cubensis*.
** Means followed by the same letter(s) within a column are not statistically different (P=0.05, Fisher's Protected LSD).