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2017 Seedless Pickling Cucumber Variety Trial

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A pickling cucumber variety trial was planted at the Saginaw Valley Research and Extension Center (43.399097, -83.694497, Frankenmuth, Michigan). Rijk Zwaan (RZ) and Bejo seed companies donated parthenocarpic (seedless) cucumber seeds for the trial.

On 7 June, 2017, 11 varieties were planted in a completely randomized design with four replications. Seeds were pre-counted and distributed into four rows by a cone planter. Rows were 20 ft long, 20 inches on-center, with 10 inch in-row spacing, targeting 30,000 seeds per acre. The soil type was a Tappan-Londo loam with a poor-moderate drainage class, typical of the pickling cucumber-growing region of Michigan's Saginaw Valley.

On 23 May, 300 pounds 18-15-12-4S-0.9Mn-0.8Zn was preplant incorporated, resulting in 54 lb N, 45 lb P₂O₅, 36 lb K₂O, 12 lb S, 2.7 lb Mn, and 2.4 lb Zn per acre. On 8 June, Curbit preemergent herbicide was applied at 2pt/ac. Before tip-over on 3 July, the plots were rototilled between the rows. Three protective downy mildew sprays occurred 3 July (Zampro 14 fl oz/ac + Bravo 2 pt/ac), 12 July (Zampro 14 fl oz/ac + Badge 1.5 pt/ac), and 19 July (Ranman 2.5 fl oz/ac+ Koverall 3 lb/ac).

All cultivars were harvested and measured on 30 July (day 53). Harvest transects were entire 20 ft long sections of one of the middle rows in the 4-row plots. Each transect was destructively harvested by hand, and all fruit were sent through a sorter to separate into size classes: 4s (> 2" in diameter), 3Bs (1.75 - 2"), 3As (1.5 - 1.75"), 2Bs (1.25 - 1.5"), 2As (1.0625 - 1.25"), and 1s (0.5 - 1.0625"). Harvest weights and L:D ratios of each size class were measured. L:D ratios were measured from ten cucumbers per size class. If there were fewer than ten cucumbers in a size class, they were all measured. Fruit per plant, and total bushel per acre yield calculations do not include culls. This year, I also measured the percentage of plants that had zero harvestable fruit, one harvestable fruit, and two or more harvestable fruit. Plants with zero fruit were almost always late germinating, small plants.

Results

All varieties germinated within seven days. It was discovered that one plot of RZ71 had been skipped and overplanted into an Anzor plot. Those plots were rogued and replanted by hand, but were consequently washed out in a heavy, late June rain. Due to having only 3 replications they were compared with a different LSD value than the others.

Rubinstein, Gershwin, Liszt, and RZ71 were good overall performers with high mature plant density, high yields, and a high ratio of plants producing two or more fruit. Rubinstein, Liszt, RZ71, and Artist appeared to be shorter maturing varieties, with more fruit in size class 4 at time of harvest. All Bejo varieties produced European-style warty fruit of high quality, borne on plants with long vines due to the hand-pick sector they were bred for originally. However, the mature plant density of Bejo varieties was among the lowest in the trial. RZ72, Anzor, and B3088 had nearly equal numbers of plants producing no fruit, and plants producing two or more fruit.

Cull rates were between 0% and 12.42%, depending on the variety. Culls for all varieties were primarily from crooked fruit.

Table 1. Data on 11 seedless picking cucumber varieties planted at the Saginaw Valley Research and Extension Center in 2017. Values are averaged across four replicates, or three replicates (RZ71, Ansor). Values in **bold** indicate that the variety performed statistically similar to the variety with the highest value for that column, as determined through a Least Significant Difference test at alpha = 5% and a two-tailed t-statistic (31,0.05%). NS indicates that there were No Significant differences between varieties.

Variety	Bushels Per Acre						Fruit Per Plant	Plants Per Acre	% Cull
	Total	4	3B	3A	2B	2A			
Rubinstein	414.84	143.27	137.83	75.89	43.90	13.95	2.06	31037	10.56
RZ71*	392.95	179.23	117.07	68.97	23.60	4.08	1.84	29621	11.49
Gershwin	366.86	44.92	134.42	132.38	46.96	8.17	1.72	33324	15.61
Liszt	363.11	128.64	109.92	81.68	31.65	11.23	1.76	33324	10.89
Bowie	296.75	33.35	130.34	91.54	34.71	6.81	1.64	27116	11.32
Artist	254.21	102.09	98.01	31.65	17.36	5.10	1.72	20255	3.46
RZ72	251.49	45.60	79.97	67.38	41.86	16.68	1.50	30710	6.38
RZ70	238.22	23.14	62.28	93.59	49.01	10.21	1.55	27443	10.86
Ansor*	191.94	58.53	62.16	40.84	24.96	5.45	1.15	25265	8.01
B3088	169.82	43.56	33.01	43.22	37.43	12.59	1.24	26136	0.00
Amour	151.44	35.39	34.71	51.05	24.16	6.13	1.36	18949	3.45
Average	280.52	74.12	90.94	71.50	34.61	9.33	1.60	27567.37	8.30
LSD 5%	90.84	81.09	42.10	35.33	NS	NS	NS	7614.63	6.97
LSD 5%*	97.84	87.34	45.35	38.05	NS	NS	NS	8201.21	7.51
P-value 5%	<0.001	0.006	<0.001	<0.001	0.461	0.247	0.086	0.006	0.003
CV %	37.08	94.09	50.06	49.62	60.01	76.33	25.75	23.80	74.23

Variety	Company	Skin Type	L:D Ratios				Percentage of plants with		
			3B	3A	2B	2A	0 fruit	1 fruit	>2 fruit
Rubinstein	RZ	Am	2.46	2.73	2.95	3.16	21.31	3.25	75.43
RZ71*	RZ	Eur	2.52	2.69	2.92	2.17	15.90	9.24	74.86
Gershwin	RZ	Am	2.77	2.91	3.11	3.47	23.39	7.25	69.36
Liszt	RZ	Am	2.61	2.65	2.79	2.41	5.90	23.32	70.78
Bowie	RZ	Am	2.72	2.82	3.02	3.47	27.78	13.17	59.04
Artist	BE	Eur	2.61	2.73	2.85	2.37	26.67	8.75	64.58
RZ72	RZ	Eur	2.63	2.92	2.97	3.10	48.27	1.00	50.73
RZ70	RZ	Am	2.78	2.91	3.10	3.54	35.28	7.34	57.38
Ansor*	BE	Eur	2.80	2.85	3.04	3.26	42.77	9.31	47.92
B3088	BE	Eur	2.83	2.81	3.20	3.26	48.49	5.29	46.22
Amour	BE	Eur	2.67	2.78	2.97	2.95	27.20	14.29	58.52
Average	-	-	2.67	2.80	2.99	3.03	29.36	9.29	61.35
LSD 5%	-	-	0.21	0.16	NS	NS	18.17	NS	NS
LSD 5%*	-	-	0.23	0.17	NS	NS	19.57	NS	NS
P-value 5%	-	-	0.027	0.017	0.320	0.509	0.001	0.178	0.084
CV %	-	-	6.36	4.70	7.40	31.23	57.52	112.05	26.19