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PICKLING CUCUMBER CULTIVAR EVALUATION TRIALS

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The pickling cucumber cultivar evaluation trials were conducted at the OARDC Green Springs Crops Research Unit near Green Springs. Fourteen cultivars or lines were evaluated in the replicated trial and 14 lines were evaluated in the non-replicated observational trial.

Cultural Information

The soil is classed as a sandy loam. A broadcast application of 6-24-24 at 800 lb/A was made and incorporated prior to planting. The plants were seeded on June 8 using a Stan-Hay seeder which seeds 4 to 5 seed per ft. of row. Plants were thinned to 3 single plants per foot of row on June 21. Rows were 30 ft. long on 28-in. centers. Cultivars were replicated 4 times in the replicated trial. Vegiben 2E at 2 lb/A was applied broadcast immediately after planting. One active hive of honey bees was placed in the plot area when the plants started to bloom. All other cultural practices during the growing season were according to standard recommendations. Weed control was excellent and no serious problems with insects or diseases developed during the season.

The plots were harvested by hand and the cucumbers were graded and sized using a commercial sizer. Fruits were classed into the following sizes and values placed on each size according to the following values:

Size	$1 Ton*	
	PCIC	Ohio
1. Less than 1 1/6 in.	120	240
2. 1 1/6 to 1 1/2 in.	60	120
3. 1 1/2 to 2 in.	40	60
4. 2 to 2 1/4 in.	20	10

* PCIC values established by the Pickling Cucumber Improvement Committee of Pickle Packers International. Ohio values based upon estimated average prices in 1973-77 period.

Time and labor limitations prevented harvesting each cultivar or line when it had reached optimum maturity for maximum returns (a few over-sized fruits in each plot). Therefore, the first harvest was made when a few over-sized fruits were present in the total plot area. This undoubtedly influenced the first-harvest yields and values, but it was felt that data from subsequent harvests would compensate for the lack of correct timing of the first harvest. Harvest started on July 24 and continued through August 8.

Growing conditions were generally good throughout the season. Rainfall from planting on June 8 to the end of June was 4.78 in.; July rainfall was 2.19 in. (plus 0.5 in. irrigation on July 20); rainfall to August 8 was 3.10 in.

Duplicate samples of fruit from size 3 of the first harvest were placed in a commercial brine tank with the cooperation of the H. J. Heinz Co., Fremont, Ohio. The samples were removed on October 16 and evaluated for percent recovery and firmness, as measured with a Magness-Taylor Pressure Tester fitted with a 5/16 in. tip. Recovery was based upon an estimate of the area of the fruit devoid of gas pockets or other separations and would give high quality slices when sliced.

The author wishes to express appreciation to the seed companies and others who provided the seed for the trials. These included Joseph Harris Co., Inc., Rochester, New York; Northrup, King and Co., Minneapolis, Minn.; Asgrow Seed Co., Kalamazoo, Mich.; Ferry-Morse Seed Co., Mountain View, Calif.; Niagara Div. FMC Corp., El Macero, Calif.; Petoseed Co., Inc. Saticoy, Calif.; Heinz U.S.A., Bowling Green, Ohio; A. L. Castle, Inc., Morgan Hill, Calif.; Department of Horticulture, Michigan State University, East Lansing, MI.; Otis S. Twilley Seed Co., Salisbury, Md. and Keystone Seed Co., Holister, Calif.

TABLE 1.--First Harvest Yield from Replicated Trial of Pickling Cucumber Cultivars - 1978.

Cultivar	Source	Lot No.	Size	Tons/A = 1	2	3	4	Total	Culls
Premier	Asgrow	97547		.10	.35	3.64	4.28	8.37	.63
XP-1193	Asgrow	M77107		.18	.64	2.19	.56	3.57	.39
Exp. 2667	Keystone	--		.10	.29	3.28	4.43	8.10	1.11
FX-4103	Ferry-Morse	7614602		.05	.26	6.21	4.18	10.70	1.04
Castlepickl-183	A.L. Castle	2363-7		.11	.45	4.67	3.19	8.42	1.14
Exp-810	Northrup King	38031-7790		.13	.25	3.79	5.12	9.29	.96
NCX-5011	Niagara	3313		.13	.53	3.39	3.34	7.39	.93
Multipik	Petoseed	3761000		.11	.57	4.16	3.47	8.31	1.31
H-3559	Heinz	--		.09	.31	4.11	5.38	9.89	1.06
4JC2	Harris	PW 10046		.08	.18	3.96	6.93	11.15	.82
SMR-58	Ferry-Morse	10720-13769		.13	.47	1.79	1.21	3.60	.48
Pioneer	Northrup King	37559-74600R		.10	.29	3.98	4.98	9.35	1.13
Peto Triplemech	Petoseed	3651004		.08	.29	3.75	3.75	7.87	1.76
MSU 78	M.S.U.	--		.08	.18	2.84	8.19	11.29	1.73
			LSD .05	.19	NS	.96	1.06	1.53	.35

TABLE 2. Yield From Replicated Trials of Pickling Cucumber Cultivars - 1978

Cultivar	Yield at 5 Harvest Dates - Tons/A 7/24	7/27	8/1	8/4	8/8	Total
Premier	8.37	1.41	4.46	1.32	2.32	17.88
XP-1193	3.57	1.80	5.81	2.08	2.41	15.67
Exp 2667	8.10	1.67	5.03	1.42	2.75	18.97
FX-4103	10.70	1.23	4.64	1.79	2.16	20.52
Castlepickl-183	8.42	1.38	4.15	2.25	2.06	18.26
Exp. 810	9.29	1.51	4.29	1.63	2.67	19.39
NCX-5011	7.39	1.32	5.68	1.47	3.16	19.02
Multipik	8.31	1.46	4.35	1.75	2.27	18.14
H-3559	9.89	1.00	4.69	1.02	1.92	18.52
4JC2	11.15	1.41	4.90	1.59	2.16	21.21
SMR-58	3.60	1.59	4.42	2.02	1.85	13.48
Pioneer	9.35	1.62	4.72	1.99	2.26	19.94
Peto Triplemech	7.87	1.15	4.56	1.40	2.27	17.25
MSU-78	11.29	1.28	4.64	1.42	1.95	20.58
LSD .05 =			1.53			2.04

TABLE 3.--Values of Harvested Cucumbers from Replicated Trial Based on PCIC Values - 1978

Cultivar	Value of 5 Harvest Dates - $/A					
	7/24	7/27	8/1	8/4	8/8	Total
Premier	265	115	225	93	137	835
XP-1193	159	128	312	144	150	893
Exp 2667	250	120	258	97	141	866
FX-4103	355	115	250	111	140	971
Castlepickl-183	291	114	228	133	124	890
Exp 810	285	131	226	95	142	879
NCX-5011	251	94	297	90	189	921
Multipik	284	114	244	114	142	898
H-3559	302	80	232	60	107	781
4JC2	318	121	247	109	133	928
SMR-58	140	91	219	108	98	656
Pioneer	289	130	234	112	115	880
Peto Triplemech	252	101	260	117	152	882
MSU-78	298	105	251	117	137	908
LSD .05 =			49			110

TABLE 4.--Values of Harvested Cucumbers from Replicated Trials Based on Estimated Ohio Values - 1978

Cultivar	Value of 5 Harvest Dates - $/A					
	7/24	7/28	8/1	8/4	8/8	Total
Premier	328	222	398	175	254	1377
XP-1193	257	247	562	272	282	1620
Exp 2667	301	228	455	182	246	1412
FX-4103	460	227	452	200	268	1607
Castlepickl-183	392	222	416	244	230	1504
Exp 810	340	260	402	171	251	1424
NCX-5011	333	177	527	164	352	1553
Multipick	381	218	445	214	269	1527
H-3559	360	155	404	108	193	1220
4JC2	349	237	429	206	247	1468
SMR-58	207	162	377	188	174	1108
Pioneer	349	254	409	198	202	1412
Peto Triplemech	317	198	480	228	291	1514
MSU-78	294	200	454	229	265	1442
LSD .05 =			75			168

TABLE 5.--First Harvest Yield from Observation Trial of Pickling Cucumbers - 1978

Line	Source	Lot No.	Tons/A Size = 1	2	3	4	Total	Culls
4JDM	Harris	PW 10086	.12	.72	6.57	5.70	13.11	.62
C5DM	Harris	PW 7117	.12	.00	4.77	11.87	16.76	1.18
C589	Harris	PW 7077	.09	.37	4.95	6.45	11.86	.31
MC89	Harris	PW 7097	.19	.90	6.39	3.18	10.66	.31
12AC2	Harris	PW 10106	.19	.28	3.08	5.58	9.13	.78
Lucky Strike	Petoseed	3591001	.00	.06	2.27	4.67	7.00	1.59
Castlex 2004	A.L. Castle	7C-23-3	.09	.25	3.71	7.35	11.40	.87
Castlex 2003	A.L. Castle	7C-26-7	.12	.25	3.55	4.42	8.34	.47
Castlex 2006	A.L. Castle	7C-33-17	.09	.25	4.74	5.98	10.97	.97
Liberty	Twilley	B7	.09	.59	2.80	4.33	7.81	.41
Exp. 824	Northrup King	38031-78200	.22	.47	5.33	5.14	11.16	.50
Exp. 809	Northrup King	38031-77800	.06	.16	3.08	5.61	8.91	.31
Exp. 811	Northrup King	38031-78000	.09	.12	4.52	5.95	10.68	1.31
Panorama	Ferry-Morse	97000-13756	.03	.34	2.84	6.17	9.38	1.59

TABLE 6.--Yield from Observational Trial of Pickling Cucumbers - 1978

Line	Yield of 5 Harvest Dates Tons/A 7/25	7/28	8/1	8/4	8/8	Total
4JDM	13.11	1.71	4.92	1.37	3.08	24.19
C5DM	16.76	1.78	5.08	1.84	1.74	27.20
C589	11.86	1.87	4.39	1.62	3.68	23.42
MC89	10.66	2.09	4.70	2.40	1.78	21.63
12AC2	9.13	1.28	4.02	.97	3.80	19.20
Lucky Strike	7.00	1.84	2.71	2.49	1.90	15.94
Castlex 2004	11.40	1.71	3.55	1.99	2.65	21.30
Castlex 2003	8.34	.78	3.21	1.09	1.87	15.29
Castlex 2006	10.97	1.62	3.99	1.78	1.43	19.79
Liberty	7.81	1.09	5.61	1.15	4.49	20.15
Exp. 824	11.16	1.06	4.74	2.09	2.65	21.70
Exp. 809	8.91	2.74	3.99	2.80	2.03	20.47
Exp. 811	10.68	1.62	4.70	1.37	1.90	20.27
Panorama	9.38	1.96	3.49	3.43	1.93	20.19

TABLE 7.--Value of Harvested Cucumbers from Observational Trial Based on PCIC Values - 1978

Line	Value of 5 Harvest Dates $/A					
	7/25	7/28	8/1	8/4	8/8	Total
4JDM	435	157	272	90	146	1100
C5DM	443	154	312	145	110	1164
C589	361	157	244	88	209	1059
MC89	396	158	267	156	120	1097
12AC2	274	118	227	77	206	902
Lucky Strike	188	140	155	138	115	736
Castlex 2004	322	160	229	126	179	1016
Castlex 2003	260	77	178	72	107	694
Castlex 2006	335	133	231	123	101	923
Liberty	246	99	295	82	204	926
Exp. 824	370	88	304	167	184	1113
Exp. 809	252	139	244	186	160	981
Exp. 811	318	105	251	115	122	911
Panorama	261	120	178	165	131	855

TABLE 8.--Additional Observations on Plant Type and Fruit Characteristics*.

	Plant			Fruit			
Cultivar	Vigor	PF	General Appear.	L/D	Color	General Appear.	Spine Color
Premier	4.5	3.0	4.0	2.96	2.0	4.5	WS
XP-1193	5.0	4.5	4.5	2.98	2.0	4.5	WS
Exp. 2667	4.5	4.5	4.0	3.04	1.0	3.5	BS
FX-4103	5.0	4.5	4.5	2.84	3.5	3.5	WS
Castlepickl-183	4.5	1.0	4.0	2.69	3.5	2.0	WS
Exp. 810	4.0	4.0	4.0	2.86	4.0	3.0	WS
NCX-5011	5.0	1.5	4.0	3.07	4.0	3.0	WS
Multipik	4.5	4.5	4.0	3.12	4.0	3.0	WS
H-3559	4.0	4.0	3.5	2.77	3.0	2.5	WS
4JC2	3.5	4.5	4.5	2.92	2.5	3.5	WS
SMR-58	5.0	1.0	4.0	2.95	1.5	4.0	BS
Pioneer	4.0	4.0	4.5	2.84	1.5	3.5	BS
Peto Triplemech	4.5	4.5	4.0	3.04	4.5	3.0	WS
MSU 78	4.5	4.5	4.0	2.99	3.5	3.5	WS
4JDM	4.0	2.0	2.5				
C5DM	4.5	4.5	4.0				
C589	5.0	4.0	4.0				
MC89	5.0	3.0	3.5				
12AC2	4.5	3.0	4.0				
Lucky Stike	4.0	3.5	3.0				
Castlex 2004	5.0	4.5	4.5				
Castlex 2003	4.0	2.5	3.5				
Castlex 2006	5.0	1.0	2.5				
Liberty	5.0	1.0	3.5				
Exp. 824	5.0	3.5	4.0				
Exp. 809	4.5	4.5	4.5				
Exp. 811	4.5	4.5	4.5				
Panorama	5.0	3.5	3.5				

* Subjective Ratings: Vigor:1 = Very low vigor; 5 = Highly vigorous;
PF: 1 = Monoecious; 5 = Very predominately female in sex expression.
General Appearance: 1 = Very poor, weak plants with low yield potential; 5 = Vigorous plants with 3 or more fruits set per plant and high yield potential.
L/D: Length/Diameter ratio.
Color: 1= Very light green color; 5 = Very dark green
General Appearance: 1 = Very poor; 5 = Excellent appearance; uniform color, moderately warty, blocky
Spine Color: WS = White Spine; BS = Black Spine

TABLE 9.--Evaluation of Brine-Stock Samples from Size 3 of Replicated Trials - 1978

Cultivar	Recovery* (%)	Firmness (PSI)
Premier	97.50	20.25
XP-1193	86.80	19.90
Exp-2667	85.00	19.77
FX-4103	95.00	16.20
Castlepickle-183	99.30	19.30
Exp-810	97.50	20.80
NCX-5011	96.20	20.57
Multipik	91.80	18.67
H-3559	68.70	18.10
4JC2	77.40	19.00
SMR-58	100.00	18.35
Pioneer	76.80	17.72
Peto Triplemech	92.50	19.67
MSU 78	79.90	18.25

* Recovery is based upon an estimate of the area of the fruit which would be devoid of gas pockets due either to carpel separation, balloon, lens or honeycomb bloating and would make usable slices when sliced.

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