

Jalapeño Pepper Cultivar Evaluation, Northern Indiana, 2005

Elizabeth T. Maynard, Purdue University, Westville, IN 46391

The USDA Agriculture Census for 2002 reported 355 acres of chile peppers, including jalapeños, grown in Indiana. Almost half of the reported acreage is in Lake Co. Based on conversations with Indiana producers, market criteria for jalapeños differ greatly depending on the ultimate consumer. Many major wholesale buyers prefer large peppers with no checking, or cracks. Markets strongly influenced by people of Mexican heritage prefer large, hot, peppers that are cracked when mature. Anthocyanin development is undesirable in both markets. Producers look for varieties that yield large quantities of high quality peppers, and are easily harvested. This paper reports on four jalapeño pepper cultivars evaluated at the Pinney-Purdue Ag Center in Wanatah, Indiana. Characteristics of interest included yield, fruit size and shape, wall thickness, and plant size.

Materials and Methods. The trial was conducted on a Tracy Sandy Loam. Fertilization and pest management practices followed standard recommendations for the area. The trial was arranged in a randomized complete block design with 3 replications. A single plot consisted of 12 plants in two rows, spaced 1.5 ft. apart within the row (one variety had only 8 plants in one replication). Rows were centered on top of 30-in. beds on 5-ft. centers covered with black plastic mulch. Peppers were seeded on April 17 in 72-cell square Landmark® plug trays, and transplanted on June 2, 2005. A 9-45-15 starter fertilizer mixed at a concentration of 12 oz./50 gal. water was applied at transplanting. Irrigation was applied as needed through drip tape under the plastic. On Aug. 15 and 29 all fruit showing some checking and on Sept. 12 all fruit longer than 2.5 in. were harvested and weighed. On Aug. 25, subsamples of 25 peppers per plot were weighed to determine average fruit weight. Total length and width of ten peppers per plot were also determined. On Aug. 29, one pepper per plot was cut crosswise mid-way between stem and blossom ends, and the wall thickness measured mid-way between placental attachments. Also on Aug. 29, the height of 3 plants per plot was measured to the nearest 5 cm. Peppers were evaluated for shape (1=least tapered, 3=most tapered), degree of checking (1=none, 9-much), and presence of anthocyanin (1=none, 9-much). Yield was converted to per acre values prior to analysis. Analyses of variance were performed and means separated using Fisher's protected LSD at $P=.05$.

Results and Discussion. The 2005 growing season was exceptionally hot and dry. Table 1 shows results of the trial. Total yield ranged from 19.6 to 28.4 tons per acre. The average yield of 23.2 tons per acre was just slightly below last year's trial yield of 25.4 tons. El Norteño produced the highest yield and Garanon and Talon the lowest. This is similar to last year's results, when El Norteño (formerly SXP 4517) was the highest yielding and Garanon (formerly SXP 4518) and Talon were among the three lowest yielding varieties. This year, El Norteño produced more than half its yield by the first harvest date on Aug. 15. Talon produced less than 40% of its yield by that date. Average weight per pepper ranged from 1.33 to 1.64 oz. (38 to 48 g). Garanon was larger than ACX 112 and Talon. Length of peppers ranged from 8.0 to 8.8 cm, and diameter from 3.3 to 3.9 cm. El Norteño and Talon were the longest. Wall diameter ranged from 4.1 to 5.4 mm, but did not differ significantly among cultivars. By all measurements, peppers were a little smaller this year than last year, possibly due to the dry weather. Plant height, measured at the end of the season, reflects both the size of the plant and the amount of lodging. Talon was the tallest, 72 cm, as it was last year. It appears noticeably more upright than other cultivars in the field. El Norteño was the shortest, 47 cm; it was the shortest last year also. The cultivars differed in fruit shape, checking and degree of anthocyanin development. Talon and El Norteño were less tapered and had more checking than ACX 112 and Garanon. Anthocyanin development was most noticeable in El Norteño. The information provided here should help growers select cultivars with characteristics desired by the markets they serve.

Table 1. Yield, fruit characteristics and plant height for four jalapeño pepper cultivars, Wanatah, IN, 2005.*

Cultivar	Seed Source†	Total Yield		8/15 Yield		Ave. Wt. per Fruit		Fruit Length		Fruit Diam.		Wall Diameter		Plant Ht.		Shape#		Checking#		Antho-cyanin#	
		tons/acre	% by wt.	oz.	g	cm	cm	mm	cm	cm	mm	cm	cm	mm	cm	cm	cm	cm	cm	cm	cm
ACX 112	AC	23.2	45	1.44	41.8	8.04	3.76	4.12	66	2.0	4.3	3.0									
El Norteño (4517)	NU	28.4	56	1.52	44.0	8.85	3.55	4.34	47	1.0	6.3	5.7									
Garanon (4518)	NU	19.6	42	1.64	47.5	8.07	3.89	5.36	61	2.0	3.7	3.0									
Talon	RI	21.5	39	1.33	38.5	8.78	3.29	3.78	72	1.0	5.0	2.7									
Grand Mean		23.2	45	1.48	43.0	8.44	3.62	4.40	62												
LSD .05##		3.2	12	0.17	4.9	0.55	0.28	-	9	-	-	-									

*Plant population was 11616 plants per acre.

†AC=Abbott & Cobb, NU=Nunhems, RI=Rispens Seeds.

#Shape: 1=slight taper stem end to tip; 2=moderate taper; 3=strong taper. Checking (cracking) of full-sized fruit: 1 to 9 scale; 1=none, 9=very heavy. Anthocyanin development (dark coloration): 1 to 9 scale; 1=none, 9=all fruit.

##Fisher's Protected Least Significant Difference at $P=0.05$. NS=not significant. - AOV not performed.

Acknowledgments: Abbott & Cobb and Nunhems provided financial support and seed. Rispens provided seed. J. Leuck, M. O'Neal and J. Grimble at Pinney-Purdue Ag Center provided technical support. B. Gillem, R. Shay, J. Sheets, and R. Rhoda provided field assistance.