

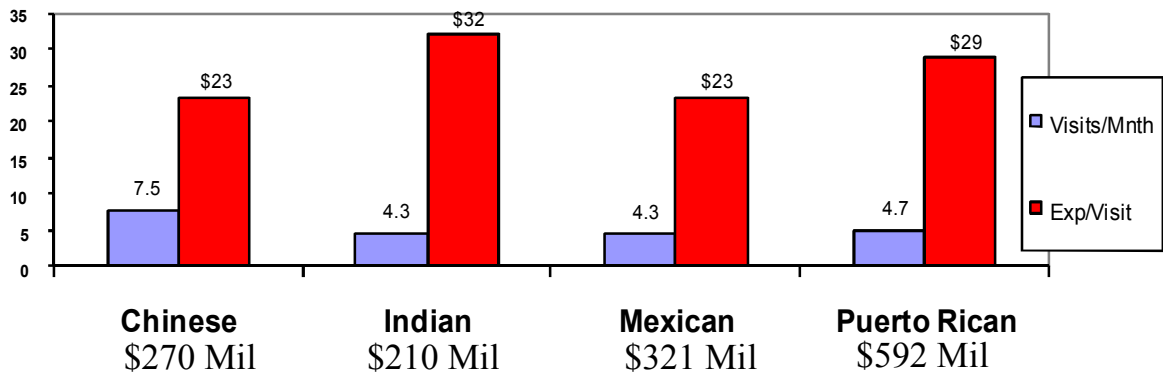
NEW MARKETS FOR HOT PEPPERS

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Introduction – Several members of the Rutgers New Jersey Agricultural Experiment Station Cooperative Extension Vegetable Working Group obtained a USDA National Research Initiative grant to continue evaluations of horticultural characteristics and market opportunities for new vegetable crops for New Jersey and East Coast growers. These specialty vegetables have culinary, nutritional and/or health benefits that meet unique market demands of foreign-born ethnic communities that have grown tremendously in the past two decades. Understanding production and harvest characteristics of these specialty vegetables will help growers develop these niche markets and sustain local production of farm fresh produce. This project focuses on Asian and Hispanic vegetables with research, demonstration and marketing programs developed to bridge production, distribution and sales of ethnic-heritage crops.

Purchase Frequency, Expenditure & Total Market Size



Economic Power of Ethnic Consumer Markets

Emerging markets are directly related to changing population demographics. Ethnic population data from year 2000 census clearly distinguishes the Mid-Atlantic region as being composed of a high and increasing first generation ethnic population. The total number of European, Asian, African and Latino people in the five major Mid-Atlantic States establishes New York in the lead at 3,868,133 and New Jersey second with 1,476,327 immigrant citizens. Comparing the regional ethnic composition of NJ, NY, Massachusetts, and Pennsylvania shows that Hispanic and Asian population segments are growing considerably faster than the European and African segments. As a result, crop production trials have been oriented to connect with these large consumer bases. Surveys of ethnic consumers conducted

as the initial part of this project indicated that Hispanic consumers purchase large quantities of various types of hot and sweet specialty peppers. Field demonstration and research trials were conducted in 2006-2007 to evaluate yield and quality characteristics of several cultivars of jalapeno, Ancho, Serrano and Aji dulce (sweet) peppers.

Methods – Demonstration field plots with single cultivars of each type of pepper were grown at several sites in NJ and MA in 2006. With the exception of two experimental Aji dulce pepper cultivars provided by the breeder at U. Mass, nine jalapeno cultivars, and three cultivars each of Ancho and Serrano and one additional Aji dulce pepper were obtained from commercial seed sources for two demonstration plots in NJ and replicated field trials in NJ, MA and Florida in 2007-2008 production seasons.

The 2007 field trial at the Rutgers Agricultural Research and Extension Center – Bridgeton also included one observational plot of a habenero cultivar from plants obtained from a local farm market. All other plants were grown in a local commercial greenhouse and transplanted into double-rows on 3 ft. wide plastic mulched, drip irrigated field plots 12 ft. in length in early June. Due to high temperatures burning tender plants during the week following transplanting a number of plants were replaced 10 days after initial transplanting to have 15 plants per plot. The peppers were grown utilizing standard, recommended fertilization and pest control practices for each site. Plots, except for habenero, were replicated four times. Experimental cultivars for the 2007 growing season included:

Hot Peppers

Jalapeno – Aquiles, Ballpark, Chapala, Chichimeca, Early, Sayula, Tajin, Tula, Grande

Ancho – Corcel, Rebel, Vencedor

Serrano – Nazas, Tuxtlas, Papaloapan

Habenero – single plot for observation only.

Sweet Peppers

Aji Dulce – Arbol, Chato, Spice Pepper

Crops were harvested four (jalapenos) or three (all others) times through the season and evaluated for total weight, fruit defects, maturity and fruit cracking, fruit length and width, wall thickness and other horticultural features. In addition to field production characteristics, samples of 5 pepper fruit from each plot at the third harvest were compared for capsaicinoid content to determine heat intensity. Laboratory extraction methods were performed at the Rutgers NJAES New Crops Lab under the direction of Dr. James Simon with associates Kwansu Kim, Juli Choppin, Qing-Li Wu and Rodolfo Julian.

Results from 2007 RAREC trial -

The following table illustrates the early and total yield potential of each cultivar in a NJ plasticulture production system. Total yields in 25 pound boxes per acre vary from 976 to 1713 for Jalapeno, 1125 to 1266 for Ancho, 479 to 810 for Aji dulce and 1041 to 1229 for Serrano. Jalapeno pepper cultivars vary in the severity of skin checking if left to mature on the plant, which may have greater market appeal depending on the targeted consumer group.

Pepper Type	Trt#	Cultivar	Source	First & Second Harvest* 8-2 + 8/17 #25 lbs boxes/acre	Total Yield of 4 harvests** #25 lbs boxes/acre	Comments (% fruit checking)
Jalapeno		CHAPALA				39%
	2	X3R	Seminis	634	1713	
	4	GRANDE	Seminis	480	1637	37%
	8	AQUILES	Seminis	543	1487	55%
	7	BALLPARK	Seminis	528	1464	14%
	1	CHICHIMECA	Seminis	574	1364	59%
	3	TAJIN	Seminis	630	1361	54%
	5	TULA	Seminis	428	1116	42%
	6	SAYULA X3R	Seminis	308	976	40%
Ancho	9	CORCEL	Seminis	342	1266	
	11	VENCEDOR	Seminis	377	1208	
	10	REBELDE	Seminis	291	1125	
Aji Dulce	12	ARBOL	UMass	178	810	No heat Moderately hot
		SPICE	Seed			
	14	PEPPER	Savers	110	623	
	13	CHATO	UMass	72	479	No heat
Serrano						harder to snap from stem than Papaloapan
	16	TUXTLAS	Seminis	365	1229	
	17	NAZAS	Seminis	286	1124	
	15	PAPALOAPAN	Seminis	320	1041	
Habenero	18		local grower	72	956	
				*only Jalapeno & Ancho were harvested on 8-2, all plots on 8-17	**additional harvest dates 9-7 & 10-9	

Discussion

Hot and sweet specialty pepper cultivars vary in their yield potential and quality characteristics. However, depending on the potential consumers, quality characteristics may be more important factors than total yield in determining which cultivar to grow.

USDA-NRI grant team members

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