

Specialty Tomatoes
A Report on Tomatoes for a Tomato Salad and Specialty Tomatoes
December, 2002

Contents

Tomato Variety Pictures	inside covers
Forward	page 1
Introduction	page 2
Production	page 2
Variety Evaluation and Selection	page 3
Marketing Salad Tomatoes and Other Specialty Tomatoes	page 9
Summary	page 12
Tomato Salad Recipes	page 12

Forward

This report is meant to assist farmers who may want to explore growing specialty or heirloom tomatoes by providing information about new markets, growing techniques and variety selection. Home gardeners interested in growing specialty tomatoes may also find helpful information here.

One of the goals of the project reported here was to compare F1 hybrid and new open-pollinated tomatoes with heirloom tomatoes for flavor, yield and disease resistance. Another goal was to evaluate the market for specialty tomatoes in Indiana. Both of these goals are addressed in this report. These variety trials and marketing studies were done during the 2001 and 2002 growing seasons at Pinney-Purdue Agricultural Center in northwest Indiana and at Rhoads Farm in the Nashville, Indiana, area.

The project was conducted by the Rhoads Family with technical assistance and research support from Dr. Elizabeth Maynard. The Rhoads Family ten-acre farm is located in the steep hillsides of Brown County, Indiana, at 39 degrees latitude in hardiness zone 5b. The Rhoads may be contacted at: 339 Mt. Liberty Rd. Nashville, IN 47448; e-mail: Drhoads6@aol.com. Dr. Maynard is the NW Regional Horticulture Specialist for the Dept. of Horticulture and Landscape Architecture of Purdue University. She may be contacted at: Purdue University North Central, 1401 S. U.S. Highway 421, Westville, IN 46391; phone: 219-785-5673; e-mail: emaynard@purdue.edu.

The project was supported in part by a grant to Rhoads Farm from the Value Added Program of Indiana's Office of the Commissioner of Agriculture. The following vegetable seed companies also supported these trials with donations of seed and/or financial contributions: Johnny's Selected Seeds, Foss Hill Rd., Albion, Maine 04910; Tomato Growers Supply, P.O. Box 2237, 12165 Metro Parkway #14, Fort Myers, FL 33902-2237; Stokes Seeds, Box 548, Buffalo, NY 14240-0548; Rupp Seeds, 5-17919-B, Wauseon, Ohio 43567.

This report and other documents related to this project are available on the Web from the Office of the Commissioner of Agriculture at:
<<http://www.in.gov/oca/grants/valueadd/VAFinalReports.html>>

Introduction

Yellow, green, orange, white, and striped tomatoes in a multitude of shapes and sizes please the eye and tempt the palate. Specialty tomato growers have typically relied on heirloom varieties for these characteristics. Heirloom varieties are those that have survived because they were passed down within a family or community for generations. In the past 20 years they have been made available to the public by seed saving organizations and seed companies, encouraging their production and marketing outside the traditional communities.

Rhoads Farm began growing heirloom tomatoes in 1990 for home consumption because they had superior eating quality. After several years of growing over 50 different varieties we began to explore the market potential. We realized that successful marketing would have to take into account the soft fruit and short shelf life of some of the varieties. Using the tomatoes in a salad soon after delivery partially overcame these problems. The idea of an heirloom tomato salad was presented to several restaurants and the demand for the product took off. Despite the demand, profitability was limited because many of the heirlooms were easily damaged when ripe and did not have the disease resistance or yield potential of commercially bred varieties.

Rhoads Farm investigated the possibility of using hybrid and newer open-pollinated varieties to increase yield and reduce damage caused by handling and packing. We discovered that color was the most important selling feature of the salad mix. Initial feedback on mixes including hybrid varieties was favorable. These experiences set the stage for the variety trials and additional marketing research conducted in the 2001 and 2002 growing seasons.

The variety trials compared F1 hybrid and new open-pollinated tomatoes with heirloom tomatoes for flavor, yield and disease resistance. Varieties were identified that yield well, have good fruit quality, and are acceptable in a tomato salad mix. The market research assessed the market potential for specialty tomatoes in Indiana. Results of the trials and marketing research are presented below, following a short section on production practices.

Production

Cultural practices for specialty tomato production are generally similar to those for standard fresh market tomatoes. There are aspects that differ and are worth noting. *Support of Plants.* Many heirloom and hybrid specialty tomato varieties are indeterminate and may grow over 6 ft. tall making support necessary for commercial production. The stake and weave system using tall stakes or tall cages were the two methods used. There is certainly room for improvement on both of these methods.

Pruning. Pruning (removal of branches on main stem) is not recommended unless 1) the variety produces low branches that are not supported by cage or weave and get in the way of harvesting and other field operations (these branches should be removed); 2) the plant is being trained to one or a few stems, as in greenhouse production; or 3) increased fruit size is desired, in exchange for less yield.

Disease Management. Many of the heirloom varieties do not have resistance to verticillium wilt or fusarium wilt which are caused by fungi that live in the soil. If one of these diseases is present, it may not be possible to successfully grow susceptible varieties unless fields are rotated out of susceptible crops and weeds for 5 to 7 years, and even then disease pressure may be too high. At Rhoads Farm tomatoes are grown in hoop greenhouses. Other farmers and university researchers have discovered that greenhouse growing offers several benefits over the field. In addition to extending the season, greenhouses seem to reduce tomato cracking caused by heavy rainfall, reduce splashing of soil borne diseases onto the plants, and reduce duration of leaf wetness which leads to an overall reduction in tomato disease problems. Greenhouse growing does not address soil-borne wilt diseases.

Conventional versus Organic Production. In our experience, many consumers interested in specialty tomatoes are also interested in organically grown tomatoes. Specialty tomatoes can be produced conventionally, using synthetic fertilizers and pesticides, or organically, using fertilizer materials and pesticides of natural origin that are approved for organic use. Anyone growing tomatoes for specialty markets where they can achieve high prices with discriminating buyers may want to consider using a greenhouse and/or organic techniques.

Variety Evaluation and Selection

Variety selection is always important for vegetable production, but with specialty tomatoes it is even more so. The product itself can be defined by the variety. In the variety trials we try to discover varieties that work well together in a tomato salad in a blended and harmonious way. An important part of this project was to compare cultivars of similar fruit color and when possible, shape, to determine the best mix of cultivars to grow for a restaurant salad market, based on yield and quality considerations. Considerable effort was put into yield evaluation, taste testing, and obtaining feedback from chefs to try to make variety recommendations.

Yield of numerous varieties was measured in 2001 in replicated trials at Rhoads Farm in south central Indiana and at the Pinney-Purdue Agricultural Center (PPAC) in northwest Indiana, and in 2002 in unreplicated trials at PPAC. Yields measured in these trials are reported in Tables 1 and 2. Complete reports of the trials are published in Purdue University Bulletins 808 and 818, the Midwestern Vegetable Variety Trials Reports for 2001¹ and 2002². At Rhoads Farm tomatoes were produced organically, and at PPAC conventional practices including synthetic fertilizer, fungicides, and herbicides were used, except for a small trial in 2002 that was grown using organic practices.

Flavor, appearance and overall acceptability of varieties have been evaluated informally by Rhoads Farm and their customers each growing season, and by Purdue staff during the course of field trials in 2001 and 2002. In 2002 chefs from northwest

¹ Maynard, E.T., D. Rhoads and S. Rhoads. 2001. Specialty Tomato Cultivar Trial for Indiana, 2001. pp. 248-255 in Midwestern Vegetable Variety Trial Report for 2001, Bul. 808. Purdue University, W. Lafayette, IN.

² Maynard, E.T., 2002. Specialty Tomato Variety Observation Trial for Indiana, 2002. In Midwestern Vegetable Variety Trial Report for 2002, Bul. 818. Purdue University, W. Lafayette, IN.

Table 1. Marketable yield and average fruit weight of fourteen tomato cultivars grown at Nashville, Indiana, in an unheated greenhouse (RF-GH) or in the field (RF-F), and at Wanatah, Indiana, in the field (W), 2001.¹

Cultivar	Growth Habit	Co. ²	Marketable Yield per Plant (lb.)			Ave. Wt. Mkt. Fruit (lb.)
			RF-GH	RF-F	W	W
<i>Green</i>						
Granny Smith F1	D	TT	6.4*	1.8	6.1*	0.43*
Green Zebra	I	TGS/JS	1.7	1.4	6.0*	0.25
Dorothy's Green	I	TGS	1.4	2.3	1.8	0.47*
<i>Yellow</i>						
Lemon Boy F1	I	TGS/ST	8.6	–	15.4	0.40*
Banana Legs	D	TGS	6.1	4.6	18.0	0.12
<i>White</i>						
White Queen	I	TGS	5.0	0.6*	8.2*	0.49
Great White	I	TGS	3.0	1.7	4.5	0.90*
<i>Red Beefsteak</i>						
Big Beef F1	I	JS	11.0	6.6*	16.5*	0.50
Goliath ³	I	TT/TGS	8.6	2.5	3.8	0.79*
<i>Red Roma</i>						
Super Marzano F1	I	TGS	9.8	3.7	16.4	0.21
<i>Orange Roma</i>						
Italian Gold F1	D	ST/JS	5.1	4.8*	11.3	0.19
Orange Banana	I	TGS	3.3	1.7	9.0	0.18
<i>Orange</i>						
Carolina Gold F1	D	RU	5.5	3.7	16.1*	0.51*
Tangella	I	TGS	4.0	2.4	8.8	0.10

¹At RF, population was 5808 plants/A, transplanted 4/23 and 5/21, and harvested 7/16 to 9/3 and 7/31 to 8/30 for GH and F, respectively. At W, population was 4356 plants/A, transplanted 5/30 and harvested 8/10 to 9/11.

²Seed companies: TT=Totally Tomatoes, Randolph, WI; JS=Johnny's Selected Seeds, Albion, ME; TGS=Tomato Growers Supply, Fort Myers, FL; RU=Rupp Seeds, Wauseon, OH; ST=Stokes Seeds, Buffalo, NY.

³At RF, Goliath from TT was F1; at W Goliath from TGS was open-pollinated.

*Within each trial the asterisk indicates significant difference between varieties at the 95% confidence level within a fruit color and type. For green tomatoes: * for Granny Smith indicates difference between Granny Smith and the average of open-pollinated green cultivars; a second * means difference between the two open-pollinated green cultivars.

Table 2. Marketable yield, average fruit weight and timing of yield for thirty-three tomato varieties grown conventionally and six varieties grown using organic fertilization and pest management practices in unreplicated plots at Wanatah, Indiana, 2002.¹

Fruit Color	Cultivar	Growth Habit	Co. ²	Mkt. Yield per Plant (lb.)	Ave. Wt. per Mkt. Fruit (lb.)	Percent Harvested			
						7/19 - 7/26	7/31 - 8/7	8/12 - 8/20	8/26 - 9/3
<i>Conventional Production</i>									
Green	Granny Smith F1	D	TT	11.0	0.52	0	0	34	66
	Green Zebra	I	JS	9.8	0.26	0	0	25	75
	Green Zebra	I	TG	11.1	0.22	0	3	30	68
	Dorothy's Green	I	TG	10.6	0.46	0	5	29	66
	Green Pineapple	I	TG	9.2	0.41	0	2	17	81
	Lime Green Salad	D	TG	5.9	0.15	2	37	49	12
Yellow	Lemon Boy F1	I	ST	15.1	0.34	0	18	31	52
	Taxi	D	JS	12.2	0.23	10	48	41	1
	Banana Legs	D	TG	15.7	0.14	9	22	59	9
	Azafran F1	I	JS	14.8	0.12	1	13	52	34
	Yellow Pear	I	JS	10.0††	0.03†	2††	19††	38††	40††
White	White Queen	I	TG	15.1	0.37	0	5	16	78
	Great White	I	TG	7.4	0.84	7	20	21	52
	Old Ivory Egg	I	TG	13.6	0.14	0	12	48	40
	Super Snow White	I	TG	16.3††	0.05†	4††	24††	42††	30††
Red	Big Beef F1	I	JS	16.5	0.46	0	21	44	36
	Goliath F1	I	TT	15.0	0.52	0	14	43	43
	Florida 91 F1	D	AS	18.5	0.52	0	4	37	58
	Super Marzano F1	I	TG	9.9	0.19	1	11	39	50
	Super Sarno F1	D	JS	10.1	0.19	0	24	45	31
	Debarao	I	JS	12.9	0.16†	0	13	45	42
	Principe Borghese	D	JS	13.3††	0.03†	4††	53††	32††	10††
	Sweet Olive F1	D	JS	11.1††	0.02†	4††	55††	30††	10††
	Red Pear	I	JS	11.8††	0.03†	1††	26††	35††	38††
Orange	Carolina Gold F1	D	ST	15.9	0.49	0	7	47	46
	Golden Girl F1	D	TG	16.1	0.37	0	31	46	23
	Vita-Gold F1	D	TG	11.0	0.14	2	30	62	6
	Gold Dust	D	JS	11.2	0.23	3	43	49	5
	Persimmon	I	TG	11.3	0.75	0	5	14	81
	Tangella	I	TG	6.0	0.10	5	33	40	21
	Italian Gold F1	D	JS	15.1	0.19	0	12	53	35
	Orange Banana	I	TG	9.2	0.16	0	6	14	80
Elberta Peach	D	TG	9.5	0.16	0	11	37	52	
<i>Organic Production</i>						7/26 - 8/2	8/8/ - 8/16	8/29 - 9/6	9/13
	Green Zebra	I	JS	9.8	0.23	0	1	59	40
	Taxi	D	JS	10.4	0.22	5	24	68	3
	White Queen	I	TG	11.0	0.43	1	1	50	49
	Big Beef F1	I	JS	17.7	0.54	0	7	79	13
	Super Marzano F1	I	TG	14.3	0.25	2	6	69	23
	Tangella	I	TG	11.0	0.11	3	21	59	18

¹Seedlings transplanted to raised beds covered with black plastic mulch on May 22 in conventional plots and to beds covered with green wavelength selective plastic mulch on June 6 in organic plots; beds 7 ft. apart and plants 2 ft. apart in row; 3111 plants per acre.

²Seed Source: TT=Totally Tomatoes, JS=Johnny's Selected Seeds, TG=Tomato Growers' Supply, ST=Stokes, AS=Asgrow.

†Based on first 2 or 3 harvests only.

††Total (marketable plus cull) yield or percent of total yield.

Indiana also evaluated varieties grown at PPAC and a summary of their evaluations is included in B 818 mentioned above.

The following discussion of varieties summarizes the ten years of field trials at Rhoads Farm, two years of yield trials at PPAC, two years of informal taste tests by farmers at Rhoads Farm and PPAC, northwest Indiana chef evaluations, and feedback from the customers of Rhoads Farm. It is important to recognize that evaluations of flavor and appearance can be highly subjective: we have summarized impressions of a limited number of people and we recognize that opinions of others may differ.

Over thirty varieties of tomatoes have been evaluated (Table 3, Inside front and rear covers). While some of the varieties could work well for tomato hobbyists, we have judged them based on our criteria for tomato sales and tomato salad.

Green Zebra was considered the most promising green variety for this restaurant market. Green Zebra has a green background that ripens to orange, overlaid by dark green stripes. Sales are concentrated in tomato salad and chef specialty dishes or garnishes.

Of the five yellow tomatoes tested Lemon Boy and Taxi had the best overall characteristics of yield, flavor and appearance. Taxi and Lemon Boy were similar round yellow tomatoes, but the determinate Taxi had smaller fruit (Table 2) and came into production earlier with a more concentrated set than the indeterminate Lemon Boy. Both of these cultivars could fit well into a mix of specialty tomatoes, depending on the preferred growth habit and desired harvest period. Banana Legs from the Ornamental Edibles seed source grown in prior years was highly desirable. What was grown in the years of these trials was seed from a different seed supplier with less desirable qualities.

All available varieties of white tomatoes have been tried with none of them found to be excellent in all the desired qualities. White Queen and Super Snow White seem to offer the best possibilities. At Rhoads Farm whites are in the tomato salad mix for color.

Of the three red beefsteak varieties that were evaluated Big Beef and Florida 91 had the best quality. Florida 91 produces larger fruit than Big Beef (Table 2), has a slightly later and more concentrated set, and a determinate growth habit. Florida 91 is a standard commercial beefsteak variety.

The red paste tomatoes were regarded as some of the best flavored of all the tomatoes for strong red tomato taste. Debarao and Super Marzano would be recommended in this category, depending on grower preference for growth habit, and customer preference for shape and size. Debarao appears to be less susceptible to blossom end rot than Super Marzano.

Among the orange beefsteak or globe types, Golden Girl was the most promising. Carolina Gold also looked good and had larger fruit; it also performed well in 2001 and previous years' trials. Gold Dust was also promising, with smaller fruit than Golden Girl and earlier and more concentrated set. Tangella may have a place with some chefs, but loss of marketable fruit due to splitting and skin breaks is a problem.

Results of the 2001 trials were put to the test in 2002 when Rhoads Farm adjusted their variety mix to include more F1 hybrids and new open-pollinated varieties. Yields increased approximately 40%. By making use of the beautiful colored and earlier bearing Gold Dust and Taxi the harvest season began earlier, because these tomatoes are in full production when the longer season varieties are just getting started, making for a good tomato salad mix. Even though 1/3 fewer plants were planted than in 2001, more

Table 3. Characteristics of selected tomato varieties based on observations at Rhoads Farm, Nashville and Pinney Purdue Agricultural Centers, Wanatah, Indiana.

Cultivar	Size, Type and Color ¹	Comments
		*- most promising varieties for specialty markets
Granny Smith F1	L, Bf, Y-G	Hard and tart, not good for eating raw.
Green Zebra	M, Gl, G-St	*- Attractive striped fruit, good flavor, fair yield in wilt-free soils, best of the greens.
Other greens	Various	Flavor good, fruit quality and yields variable.
Lemon Boy F1	M, Gl, Y	*- Yields, flavor and lemony yellow color all good. Some russet-colored fruit spots.
Taxi	M, Gl, Y	*- Attractive yellow fruit with early concentrated set, OK flavor, good sales.
Banana Legs	M, R/P, Y	Distinctive shape, high yielding with variance in seed source.
Azafran F1	S, Gl, Y	Superior pale yellow appearance, flavor bland, greenhouse type.
White Queen	M, Bf, W	Flattened, lobed fruit have low acid flavor, moderate yields, best of the whites.
Great White	L, Bf, Pk-W	Susceptible to cracking and catfacing, difficult to pick, low acid.
Old Ivory Egg	M, pear, W	Yellowish soft white fruit. White Queen is better.
Super Snow White	S, Gl, W	Sweet flavor. Yellowish white when fully ripe.
Big Beef F1	L, Bf, R	*- Good pure tomato flavor, good yield, some variance in size.
Goliath F1	L, Bf, R	Less inside jelly for sandwich slices, but flavor not preferred.
Florida 91 F1	L, Bf, R	High yield, firm fruit with acceptable flavor. A standard fresh market tomato.
Mortgage Lifter	L, Bf, R/Pk	Good yield. Inner core is hard.
Super Marzano F1	L, R/P, R	Good tomato flavor and yield potential, some blossom end-rot.
Super Sarno F1	M, R/P, R	Earlier than other red paste types tested.
Debarao	S, R/P, R	*- Good flavor, red with green shoulders, firm. Shape can be variable.
Carolina Gold F1	L, Bf, Y-O	Yields well, resists cracking, soft, bland taste.
Golden Girl F1	M, Gl, O	*- Good yields, good flavor and color. Solid performer with all the desired qualities.
Vita-Gold F1	M, R/P, O	Blocky, very firm, good color, but flavor is atypical.
Gold Dust	M, Gl, O	*- Nice orange fruit with early and concentrated set. Good acceptance by all customers, firm fruit.
Persimmon	L, Bf, peach	Variable flavor, color and firmness.
Tangella	S, Gl, O	Bright color, sweet citrus flavor, good yield, some cracking.
Italian Gold F1	M, R/P, O	Great color, good yields, firm fruit, bland
Orange Banana	M, R/P, O	Dull salmon color, flavor is one of the best. Fair yield, soft fruit.
Elberta Peach	S, Variable	Extremely variable plants, fruit type and appearance.
Black Tomatoes	red to black	Some of the best in flavor, poor yields with soft fruit.
Brandywines	Various	Flavor over rated, soft, poor yield, susceptible to fruit rots.
German, & Stripes	L, Bf, R/Y	Some of best tasting tomatoes, but too soft for handling.

¹L=large, M=medium, S=small; Bf=beefsteak, Gl=globe, R/P=roma or plum; G=green, Y=yellow, W=white, R=red, O=orange, St=striped, Pk=pink.

tomatoes were harvested than prior years. Customers were happy even though there were fewer tomato varieties in the salad mix; none complained of a lack of flavor.

The variety trials have demonstrated that there are high yielding, disease-resistant varieties available in all colors except for the greens and whites. Of the varieties trialed in this work, the most promising are Green Zebra, Lemon Boy, Taxi, Big Beef, Debarao, Super Marzano, Golden Girl and Gold Dust.

A final comment on variety selection is necessary. One of the challenges in working with open-pollinated heirloom varieties has been that seed sold under one variety name from different seed companies, or the same company in different years, may produce plants that differ so much in appearance and fruit type they seem to be different varieties. Or, the plants may be generally similar, but color or shape of the fruit may differ slightly from one seed source to the next. We have also found seed within a single seed packet that produced plants varying in growth habit and fruit type. In selecting heirloom varieties, it is important to identify seed sources that reliably deliver seed with consistent variety characteristics.

Marketing

One of the goals of this project was to explore the market for specialty tomatoes. The results of the market tests to restaurants, retail outlets and wholesale food distributors are documented here. Our testing suggests that there is a demand in each of these markets for specialty tomatoes that is not fully met.

Marketing Basics

Although marketing requires a different set of skills than growing, our experiences have shown us that successful marketing is not as difficult as it sometimes seems. Consider the basic marketing rules followed by Rhoads Farm and many other successful operations. First is the commitment to grow high quality produce. The second rule is to market the crop before it is planted, growing only what can be sold. Dumping excess produce at low prices on the market is self-defeating in the long run. New farm products are tested on a small scale the first year. The third rule is to treat the customer with respect. Superior produce, advance marketing and caring for the customer: three simple rules that we have found necessary for success. Perhaps the most important of the three is caring for the success of the customer.

Marketing to Chefs and Restaurants

Before these trials Rhoads Farm had presented heirloom tomatoes to five different restaurants. Three of the five successfully added a tomato salad to their menu. Of the other two, one restaurant bought unusual tomatoes to use mostly as colorful garnishes and specialty dishes. The remaining restaurant already served a tomato salad but did not want to pay the higher price for these tomatoes. These establishments range from a sports bar and grill to a fine gourmet restaurant. Of the restaurants serving a tomato salad about 40% of their total summertime tomato purchases are of salad tomatoes.

In 2002 chefs at six upscale restaurants in Northwest Indiana were contacted to assess their interest in specialty tomatoes. Four of the chefs expressed strong interest in having a local supply of specialty tomatoes and all indicated they would use them in their menus. Some already buy specialty tomatoes from local sources; others purchase them from distributors. Two of the chefs that were already purchasing from distributors expressed dissatisfaction with either price or quality. One of the chefs already buying these kinds of tomatoes reported paying much more than our test price.

Direct Marketing to Retail Outlets

For several years Rhoads Farm has sold these tomatoes to a local food co-operative where they are offered in the retail produce section. It was found by examining sales records that these tomatoes increased total tomato sales. That is that purchase of these specialty salad tomatoes was in addition to other tomato sales. In contrast, we observed that sales of yellow slicing tomatoes do cut into the sales of red slicing tomatoes. At times the specialty tomatoes were promoted using special sale prices and cross marketing with the deli department of the store, but the promotions did not produce any significant increases in sales. Customer surveys indicated that most buyers of these tomatoes used them in lettuce-based salads.

Table 4. Average weekly sales of various tomato types at a retail food co-operative in Bloomington, Indiana in summers of 2001-02.

Kind of Tomato	Lbs./ week	% of market
Red Slicer	240	54
Red Roma	70	15
Specialty (as grown in these trials, other than yellow slicer or red roma)	40	10
Yellow Slicer	40	10
Cherry	50	11

Table 4 shows weekly sales of various tomato types at the food co-operative. There are several interesting points to these figures. If yellow slicing tomatoes are considered in the specialty tomato category then specialty tomatoes command 20% of the market. There is little to no competition for that 20% of the market. Researchers in prior Ohio tomato trials also test-marketed heirloom tomatoes through a wholesale food distributor that served restaurants.³ They found a high acceptance of all yellow and most pear-shaped tomatoes. This study and our experience suggest that there is consumer demand for yellow tomatoes. If cherry and roma tomatoes are also considered specialty tomatoes then 46% of the tomato market is in specialty tomatoes.

In the 2001 growing season we test marketed specialty tomatoes in two other regular retail grocery outlets, one located near a mall in Bloomington and the other in rural Nashville, Indiana. In both instances the market testing was of short duration, not

³ Grassbaugh, E., M. Schmittgen, M. Bennett, and T. Harker. 2000. Specialty and Heirloom Tomato Trial - 1999. Hort and Crop Science Series No. 700. The Ohio State University Ohio Agricultural Research and Development Center, Columbus. 4 pp.

allowing time to build up customer demand. In both instances the total sales of all tomatoes was 2-3 times the amount of the food co-op. In both instances 40 lbs. of specialty tomatoes were sold per week with indications that the demand would increase. Produce managers at both stores reported that they would be willing to keep on trying them if the product was there. It appears that the sale of specialty tomatoes is not limited to specialty stores that Rhoads Farm does business with. The market for these tomatoes was also tested in specialty/organic grocery stores in the Indianapolis area with similar results to those found in the Bloomington area.

Marketing to Wholesale Outlets

In 2002 samples of specialty tomatoes were taken to the South Water Street Market wholesale market in Chicago, Illinois. Ten-pound boxes of mixed tomatoes were shown to four brokers who were known to deal in specialty produce and/or tomatoes (see inside back cover for photo). All four were familiar with the term heirloom tomatoes and used that term to describe the mix they were shown. Two reported that they regularly carried heirloom tomatoes. Two of the brokers said they would be willing to take samples to test market to their customers. These two brokers were each provided with 5 ten-pound boxes of mixed tomatoes. One sold 4 of the boxes at \$25 each. With a 20% commission the grower would receive \$20/box. The broker thought they sold quite well, believed that they could be sold on a regular basis if available, and received only one negative comment about the product: the tomatoes were too small. In addition, one customer did not purchase them because there would not be a consistent supply from these market trials. The second broker supplied the tomatoes to chefs as samples and reported feedback. The broker suggested that a flat, single-layer box would be better, especially for the larger tomatoes. (A wholesale food broker in the Bloomington area also reported that in their opinion specialty tomatoes would need specialty packaging in 10 pound boxes.) Some of the customers would prefer larger tomatoes, but the broker preferred the small ones. The broker agreed that there might be a market for packs that separated tomatoes by size. This broker also mentioned the need for a continuous supply: the chefs need to know about it to put it on their menu, and then they need to know that they will be able to get it for a period of time.

The test marketing of specialty tomatoes in all markets seems to suggest that the Midwest consumer would increase their tomato purchases if these tomatoes were available. The markets don't appear to be well served at this time. The potential demand can be roughly estimated based on national per capita consumption statistics and census⁴ data. According to the Economic Research Service⁵, the most recent estimate of per capita consumption of fresh tomatoes is 17.6 lb. per year. If we make the simple assumption that consumption is the same each month of the year, then during the months of July, August and September, when Indiana-grown tomatoes are likely to be available, each person would consume 4.4 lb. of fresh tomatoes. If we assume that specialty tomatoes would increase consumption by about 10%, as observed in the Bloomington

⁴ Indiana population in 2000 was 6,114,745 and Chicago Primary Metropolitan Statistical Area population in 2000 was 8,272,768. U.S. Census Bureau, Census 2000.

⁵ Lucier, G., B-H. Lin, J. Allshouse and L.S. Kantor. 2000. Factors Affecting Tomato Consumption in the United States. Vegetables and Specialties/VGS-272/November 2000. Economic Research Service/USDA.

Food Co-op, we could expect per capita consumption of specialty tomatoes to equal 0.44 lb. from July through September. For Indiana, that would total 1346 tons of specialty tomatoes. For the Chicago area, it would total 1820 tons. If the specialty tomatoes produced yield similar to standard tomatoes, 174 acres (for Indiana) and 235 acres (for Chicago) would be required to produce this quantity of tomatoes. Current fresh market acreage in Indiana is 1700 acres⁶. The Economic Research Service also provides information on the percentage of fresh tomatoes eaten in restaurants: 10.8%.⁷ Using this figure and keeping the rest of the assumptions above the same, a rough estimate of the restaurant demand for specialty tomatoes would be 145 tons for Indiana and 197 tons for Chicago, requiring 19 acres for Indiana and 25 acres for Chicago.

Marketing Conclusions

Specialty tomatoes were received well by the buyers we approached in central Indiana and the greater Chicago area. Although specialty tomatoes from California are available at times, they are not a standard item for most of the businesses we contacted, and buyers would consider purchasing specialty tomatoes from a local supplier. A substantial proportion of chefs contacted expressed interest in the product for salads or other uses. In the retail grocery outlets, customers showed interest in and purchased specialty tomatoes. The retail sales of yellow slicing tomatoes appeared to cut into the sales of red slicing tomatoes, but the other specialty tomatoes appeared to increase total tomato sales, at least in the retail outlets we investigated. Wholesale brokers at terminal markets had customers who would be interested in a consistent supply of the specialty tomatoes. Although some of the brokers use California product to fill the demand there appeared to be interest in a local supply if it was consistent.

The marketing research provided insight into product characteristics and services that would add value for the buyer. Based on our experience, tomatoes should be picked slightly unripe for the retail market to allow for natural ripening during distribution and in the home. For the terminal wholesale market, it appears that packaging could be very important. A flat 10-lb. box of mixed tomatoes would be desirable. It might be worthwhile to develop packs that group tomatoes according to size. Particularly when working with chefs or brokers selling to chefs, the marketer should keep the buyer informed about anticipated variation in supply so those chefs can adjust menus.

When specialty tomatoes are first introduced to a market, the marketer could expect a gradual increase in demand as the consumers learn about the product, become familiar with its use, and in the case of chefs, incorporate it into their menu.

The information Rhoads Farm has gathered about marketing is just a start for anyone thinking of entering into specialty tomato production. Market research, the beginnings of which is discussed here, is only one part of a marketing plan. A marketing plan, in turn, is just one part of a business plan. A solid business plan will include an enterprise budget with estimates of expenses and income so that profitability can be

⁶ USDA Economics and Statistics System. U.S. Tomato Statistics 92010, Table 24. <http://usda.mannlib.cornell.edu/data-sets/specialty/92010/tab024.wk1> . Dec. 16, 2002.

⁷ Lucier, G., B-H. Lin, J. Allshouse and L.S. Kantor. 2000. Factors Affecting Tomato Consumption in the United States. Vegetables and Specialties/VGS-272/November 2000. Economic Research Service/USDA.

estimated. Anyone considering growing specialty tomatoes should make use of careful marketing, variety selection and cost analysis.

Report Summary

Based on the experiences in prior years at Rhoads Farm it was assumed that there was a growing market demand for specialty tomatoes that was not being met. It was also postulated that a careful selection of higher yielding commercially bred varieties could satisfy customer demands. Through field trials, taste testing and market testing it was determined that for many colors and shapes of tomatoes, easier-to-grow newer varieties would satisfy the customer.

After ten years of growing and marketing heirloom tomatoes the conclusion is that the American consumer, including chefs and the discriminating organic consumer, are for the most part attracted more by appearance than the highly subjective ‘good taste.’ There is a market for decent tasting colorful tomatoes. There are high yielding disease resistant varieties available in all colors except for the greens and whites that can meet that market demand. Someone will meet that demand. It is suggested that any farmer considering growing for that market make use of careful marketing, variety selection and cost analysis.

Tomato Salad Recipe

Warren Cole, the owner of The Hobnob Corner restaurant located in downtown Nashville, Indiana, serves a tomato salad inspired by the traditional Italian food called *Panzanella*. Traditional breads in Italy are baked daily. These breads have a crustier and dryer texture than typical breads available in the U.S. *Panzanella* is a dish for using bread that is one day old. The bread is torn into bite-sized pieces and served topped with sliced tomatoes, basil, olive oil and vinegar. In different regions of Italy it is considered imperative to add or never ever add certain other ingredients like onion, sweet peppers, pepper and other spices.

Hobnob Corner Tomato Salad

PREP FOR SPECIAL TOMATO SALAD

Wash 20 lb. Dale Rhoads heirloom tomatoes. No peeling or seeding but do core. Coarsely chop into big cubes. Mix with 3 Tbsp. freshly ground black pepper, 3 Tbsp. Kosher salt, 1 lb. fresh basil leaves, 1 cup red wine vinegar and 3 cups extra-virgin olive oil, 4 Tbsp. garlic.

For service:

Line large salad bowl with two leaves of lettuce, add a handful of croutons, spoon a ladle and a half of tomatoes over croutons. Garnish with red onion rings, pine nuts and capers. Also garnish with three whole basil leaves if available.