UNIVERSITY of GUELPH
RIDGETOWN CAMPUS

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Processing Tomato Cultivar Trials Research Report 2006

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Introduction

The following pages represent a summary of the results from the 2006 processing tomato cultivar evaluation trials. One of the main goals of this project has been to evaluate performance of cultivars over a range of soil types and microclimates. The results have been summarized to show average performance over all sites, as well as performance at each site separately.

The reader will find results from both the field performance (ie. yield trials), fruit characteristics (including size, uniformity, firmness and others), processing performance (ie. peeling trials) and juice quality characteristics in order to provide a more complete picture of a cultivar's suitability for the industry.

Who Had a Part in This Project?

This research was made possible through monetary and in-kind support provided by the following agencies:

- Ontario Tomato Research Institute
- CanGro Foods, Inc., Dresden
- H.J. Heinz Company of Canada, Leamington
- Agriculture & Agri-Food Canada, Pest Management Research Centre, London
- HeinzSeed
- Tomato Solutions Inc.
- O.A.R.D.C. - O.S.U.
- Gem Seeds
- Ontario Ministry of Agriculture, Food and Rural Affairs
- University of Guelph

Field space and plot maintenance were generously provided by CanGro Foods, Inc. and H. J. Heinz Company of Canada.

The diligent work and unflagging enthusiasm of Richard Wright, Technician; Jennifer Newport, and Beth Eagen, Technical Assistants; and many others is gratefully acknowledged.

Plot Establishment

Locations:	3
Replications per location:	3
Entries in trial:	36

Plant populations

- The Dresden site was planted at a rate of 14,000 plants per acre
- The Leamington site was planted at a rate of 13,000 plants per acre
- The Ridgetown site was planted at a rate of 12, 000 plants per acre

Planting dates:

- Dresden 24 May 2006
- Leamington 10 May
- Ridgetown 24 May

Processing Tomato Cultivar Trial Entries 2006		
CanGro Foods	**Heinz Seed**	**OARDC - OSU**
CC 337 N 1477 N 2806 N 2820	H 1605 H 3402 H 7204 H 7404 H 8004 H 8204 H 9314 H 9364 H 9423 H 9661 H 9704 H 9706 H 9997	O 7983 O 8245
Seminis	**Tomato Solutions**	
Hypeel 696	PX 4603 PX 4606 PX 4608 PX 4610 PX 4611 PX 4620 PX 4623 PX 4628 TSH 04 TSH 07 TSH 08 TSH 16 TSH 18 TSH 20 TSH 22 TSH 24	

Yield Evaluation Trials

How Was Harvest Date Determined?

Plots at each site were visited twice each week.

A plot was harvested when 80% or more fruit were red ripe.

To see how much actual difference in maturity there is between varieties refer to Appendix 1.

Many of the tables in this report have varieties ranked in order of maturity from earliest to latest - check the titles to be sure.

How Was the Yield Actually Measured?	
For each plot, 5 representative plants, with no adjacent plants missing, were cut off at the soil level. Fruit were then shaken from the vines into a wheel barrow and then sorted into 5 categories:	
red ripe	fruit that had less than 5% visible yellowish exterior colour
breakers	more than 10% coloured and less than 10% green
processing green	less than 100% green showing some visible blush of colour (yellow, pink)
grass green	green or white green
limited use/ rots	any fruit with a rotten spot 2 cm in diameter or greater, other blemishes, includes MOT
Weights were taken for each of these categories and converted to yield on a tons/acre basis.	

Cultivar or Variety - What's the difference?

*The term 'cultivar' is a shortened form of 2 words; '**culti**vated **var**iety'.*

This term was chosen by plant scientists to distinguish a variety which occurs in cultivation, (as a result of human activity), from a botanical variety, which can sometimes be found in nature.

Although cultivar is the correct term you will see both used interchangeably in this report - mostly to avoid repetition of the same word over and over.

WHAT DOES THIS TABLE TELL ME?

Table 1 Answers the question, "Which cultivar has the ability to produce the most tomatoes, regardless of the grade?"

You can find the best ones very quickly by looking at the top of the table.

"But, why do you bother to report 'yield potential'? Tomatoes are paid for on the basis of grades."

We report yield potential because the management system and microclimate of each grower will be slightly different. In an actual production situation, growers would be in a better position to minimize rots/greens through the use of Ethrel, and thus achieve yields closer to the potential than we were able to in our plots.

Will someone please tell me what all the little letters behind the numbers mean?

One of the challenges with field research on plants is that we have to cope with variations in soil, microclimate, and a whole host of other factors that affect plant growth.

Although the numbers 45.4 and 44.6 are numerically different, the question scientists try to answer is,"Are they actually different given the amount of variation that we find from plot to plot?" "Is the difference between those numbers due to the treatment (in this case genetics) or did we just get lucky and happen to pick the right plants to measure yield on?" "Is the difference real, or is it just because of the plants we happened to pick?"

Scientists use those letters, as part of something called a 'means separation procedure', to show which varieties are really different - or which varieties they are different from and similar to.

Only those cultivars that perform better than the checks are marked. If a check cultivar has the letter 'B' after it, then the cultivar means followed by the letter B are better than check B. If there are no trial entries with the letter C after them, then there are no entries significantly better than check variety C.

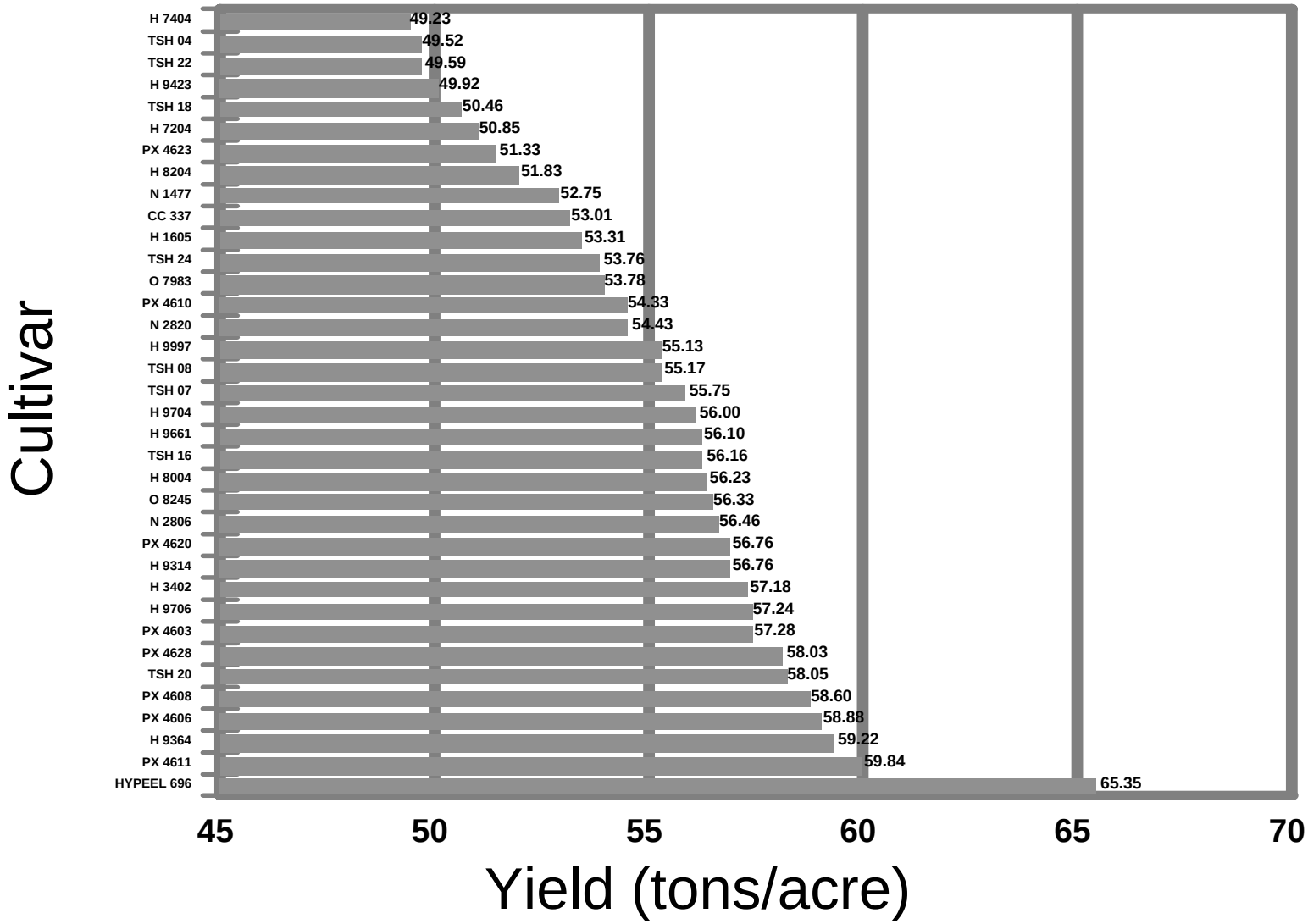
In a cultivar trial like this one, note the trends or rankings since these are probably as important as understanding the statistics.

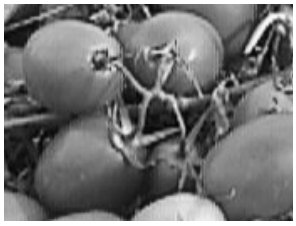
Table 1. Processing Tomato Cultivar Trial, 2006. Yield Potential (tons/acre) over 3 locations.

Name	Yield Potential (tons/acre)			
HYPEEL 696 (C)	**65.35**	**A**	**B**	**D**
PX 4611	59.84	A	B	D
H 9364	59.22		B	D
PX 4606	58.88		B	D
PX 4608	58.60		B	D
TSH 20	58.05		B	D
PX 4628	58.03		B	D
PX 4603	57.28		B	D
H 9706	57.24		B	D
H 3402	57.18		B	D
H 9314	56.76		B	D
PX 4620	56.76		B	D
N 2806	56.46		B	D
O 8245	56.33		B	D
H 8004	56.23		B	D
TSH 16	56.16			D
H 9661	56.10			D
H 9704	56.00			D
TSH 07	55.75			
TSH 08	55.17			
H 9997	55.13			
N 2820	54.43			
PX 4610	54.33			
O 7983	53.78			
TSH 24	53.76			
H 1605	53.31			
CC 337 (A)	**53.01**			
N 1477	52.75			
H 8204	51.83			
PX 4623	51.33			
H 7204	50.85			
TSH 18	50.46			
H 9423 (B)	**49.92**			
TSH 22	49.59			
TSH 04 (D)	**49.52**			
H 7404	49.23			
PROBABILITY	0.0141			
LSD	6.2441			
CV	14.54%			
Mean	55.129			

Means followed by the same letter are significantly better than the check cultivar with that same letter. Yields in this table are based on harvested fruit from 9 plots;5 plants from each plot.

Yield Potential over 3 Locations, 2006





WHAT DO THESE TABLES TELL ME?

Table 2

This table answers the question, "What were the best all 'round varieties for yield?". The table shows the results averaged over 3 different trial locations.

The "**Total**" column shows the same numbers as in table 1 (ie. yield potential), but the cultivars are ranked according to maturity. This is probably a more fair way of comparing total yield since, at least historically, early maturing cultivars have tended to have lower yields than later cultivars.

The "**Red"** column shows the yield of red ripe fruit at harvest in tons per acre. The other columns, **"Breakers**", "**Processing Green**", "**Grass Green**", and **"Limited Use & Rots**", show the yield, in tons per acre, of each grade category at harvest.

Depending on the grade option that grow under/receive under, you may have interest in one of the last 3 columns.

For example, the second last column, "**Red, Breakers, Processing Green**" is the total of those 3 separate columns. This shows the yield results you might expect if that happens to be the grading option you deal with.

Table 3
Table 4
Table 5

Each of these tables follows the same format as Table 2. The important difference is that these tables show the results for each trial location separately.

If possible, it is valuable to look at the results from a trial location with a soil type and/or microclimate similar to the one you are working with.

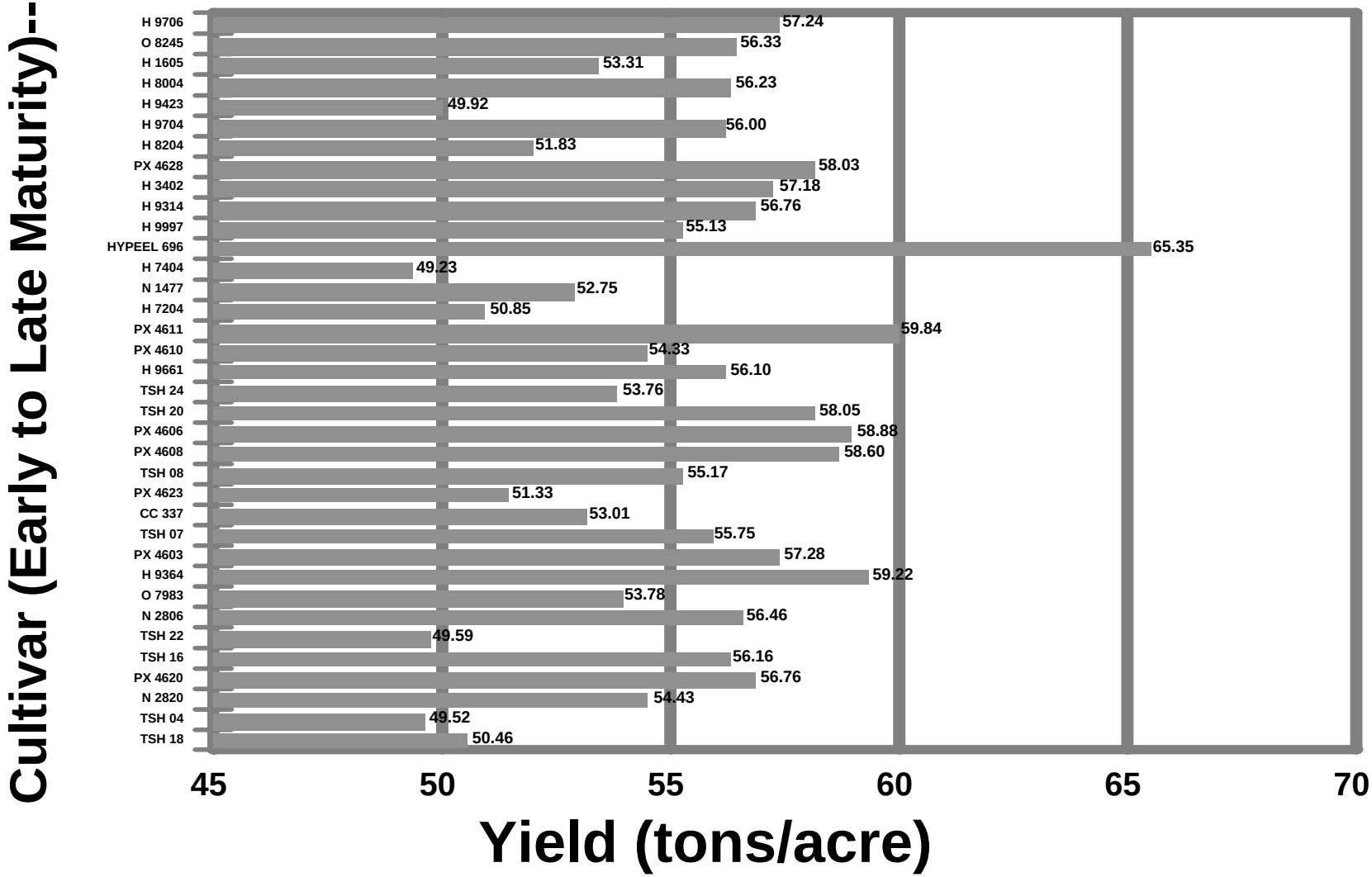
Table 2. Processing tomato yield trial, 2006. Yield (tons/acre) averaged over 3 locations.

Name	Total	Red	Breakers	Processing Green	Grass Green	LimitedUse Rots	Red & Breakers	Red, Breakers, Processing Green	Red, Breakers, Processing & Grass Green
TSH 18	50.46	44.11	3.50	0.63	1.22	1.00	47.61	48.24	49.46
TSH 04 (D)	**49.52**	**45.21**	**2.41**	**0.56**	**0.70**	**0.65**	**47.62**	**48.17**	**48.87**
N 2820	54.43	48.34	2.91	0.92	1.14	1.11	51.26	52.17	53.32
PX 4620	56.76 B D	50.02	3.10	1.48	1.54	0.62	53.12 B D	54.60 B D	56.14 B D
TSH 16	56.16 D	49.47	3.06	0.72	1.03	1.89	52.52	53.25	54.27
TSH 22	49.59	43.65	2.79	0.82	1.63	0.70	46.43	47.25	48.88
N 2806	56.46 B D	50.34 D	2.89	1.08	1.53	0.62	53.23 B D	54.31 B D	55.84 B D
O 7983	53.78	46.41	3.11	0.56	1.04	2.67	49.51	50.08	51.11
H 9364	59.22 B D	50.97 B D	4.06	1.19	1.53	1.48	55.02 B D	56.22 B D	57.74 B D
PX 4603	57.28 B D	49.24	3.86	1.20	1.39	1.58	53.10 D	54.30 B D	55.69 B D
TSH 07	55.75	49.11	2.58	0.79	1.97	1.30	51.69	52.48	54.45
CC 337 (A)	**53.01**	**46.09**	**4.28**	**0.90**	**1.44**	**0.30**	**50.38**	**51.28**	**52.72**
PX 4623	51.33	45.50	3.12	0.64	1.02	1.04	48.63	49.27	50.29
TSH 08	55.17	46.54	4.98	1.09	1.69	0.87	51.52	52.61	54.30
PX 4608	58.60 B D	50.35 D	3.86	1.16	1.40	1.83	54.21 B D	55.37 B D	56.77 B D
PX 4606	58.88 B D	50.26 D	4.37	0.85	1.76	1.64	54.63 B D	55.48 B D	57.24 B D
TSH 20	58.05 B D	49.27	3.93	1.14	2.07	1.63	53.20 B D	54.35 B D	56.42 B D
TSH 24	53.76	46.71	3.20	0.84	1.93	1.07	49.90	50.75	52.68
H 9661	56.10 D	46.78	3.31	1.24	2.24	2.54	50.09	51.32	53.57
PX 4610	54.33	48.40	2.66	0.59	1.38	1.30	51.06	51.65	53.04
PX 4611	59.84 AB D	50.73 B D	3.94	0.82	1.93	2.42	54.67 B D	55.49 B D	57.42 B D
H 7204	50.85	44.52	3.25	0.80	0.91	1.37	47.77	48.57	49.48
N 1477	52.75	44.78	4.13	0.86	1.61	1.37	48.90	49.77	51.38
H 7404	49.23	44.77	2.17	0.56	0.69	1.05	46.94	47.50	48.18
HYPEEL 696 (C)	**65.35 AB D**	**57.12 AB D**	**3.61**	**0.77**	**1.26**	**2.59**	**60.74 AB D**	**61.51 AB D**	**62.76 AB D**
H 9997	55.13	45.22	4.34	0.85	1.08	3.65	49.55	50.40	51.48
H 9314	56.76 B D	50.75 B D	2.87	0.95	1.21	0.98	53.62 B D	54.57 B D	55.77 B D
H 3402	57.18 B D	51.58 AB D	2.21	0.68	1.21	1.50	53.79 B D	54.47 B D	55.68 B D
PX 4628	58.03 B D	46.67	5.50	2.08	3.04	0.74	52.17	54.26 B D	57.30 B D
H 8204	51.83	44.16	3.34	0.87	1.02	2.43	47.50	48.37	49.39
H 9704	56.00 D	47.95	4.13	0.92	1.32	1.68	52.08	53.00	54.32
H 9423 (B)	**49.92**	**45.45**	**2.19**	**0.58**	**0.69**	**1.01**	**47.64**	**48.21**	**48.91**
H 8004	56.23 B D	48.81	3.05	0.92	1.61	1.85	51.86	52.77	54.38
H 1605	53.31	46.31	3.42	0.56	1.11	1.90	49.73	50.29	51.40
O 8245	56.33 B D	49.37	3.08	0.88	1.15	1.86	52.45	53.33	54.47
H 9706	57.24 B D	50.81 B D	2.25	0.85	2.34	0.99	53.05	53.91 B D	56.24 B D
Probability	0.0141	0.0054	0.0012	0.1037	0.3213	0.0000	0.0278	0.0264	0.0398
LSD	6.2441	4.9229	1.2915	0.6055	1.1077	0.8218	5.4780	5.6764	6.2273
CV	14.54%	13.19%	49.16%	86.52%	98.78%	71.33%	13.71%	13.96%	14.90%
Mean	55.129	47.938	3.373	0.899	1.440	1.479	51.311	52.210	53.650

Entries are ranked according to average maturity from 3 test sites. Means followed by the same letter are significantly better than the check cultivar denoted by that same letter.

Yields in this table are based on harvested fruit from 9 plots; 5 plants from each plot .

Yield Potential ranked by maturity, 2006



Red, Breaker & Processing Green Yield
2006

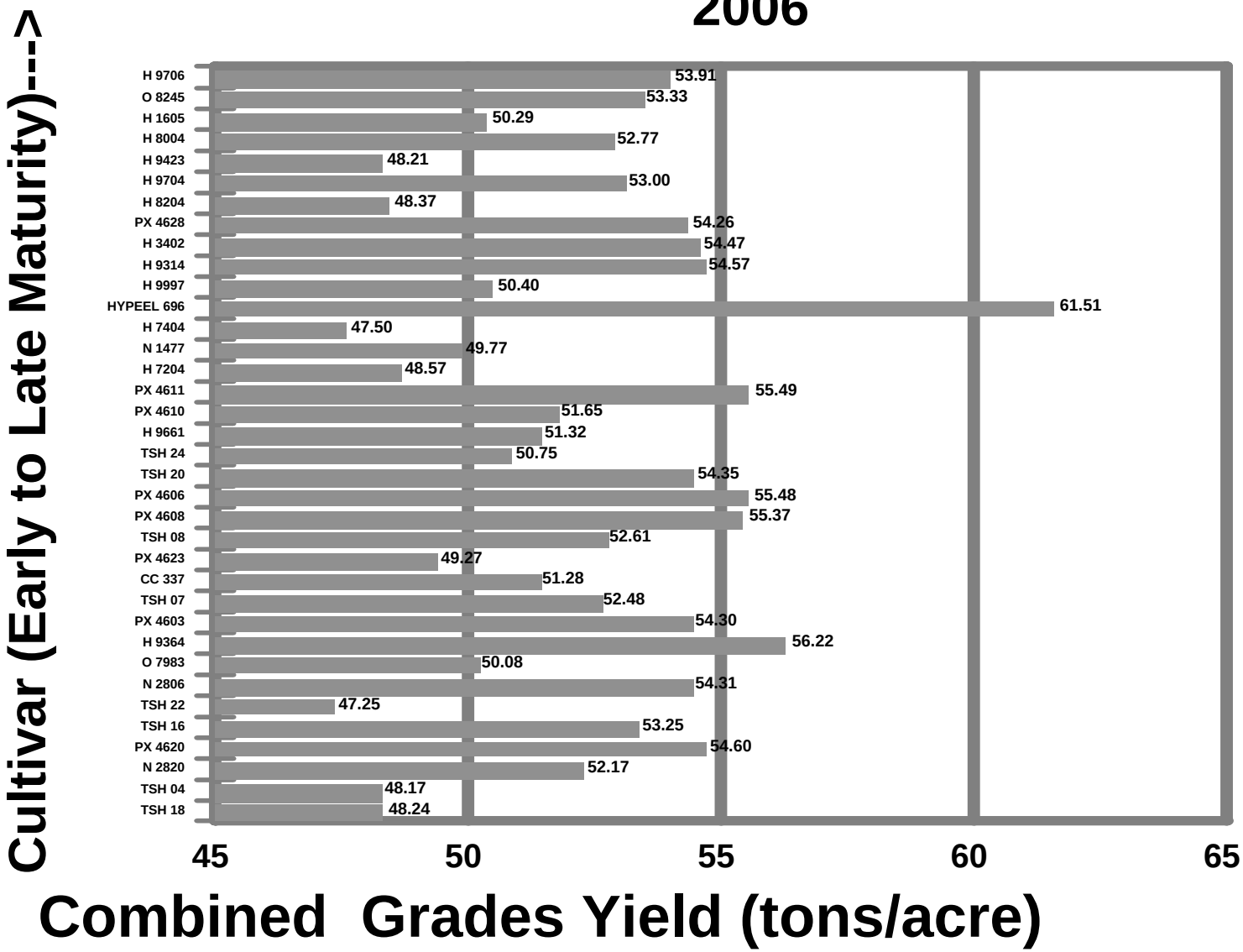


Table 3. Processing tomato yield trial, 2006. Yield (tons/acre) from the Dresden site (berrian sand - low organic matter).

Name	Total	Red	Breakers	Processing Green	Grass Green	LimitedUse Rots	Red & Breakers	Red, Breakers , Processing	Red, Breakers, Processing & Grass Green
TSH 18	41.83	37.02	2.57	0.36	0.26	1.62	39.59	39.96	40.22
TSH 04 (D)	**42.78**	**38.65**	**2.17**	**0.56**	**0.28**	**1.12**	**40.81**	**41.37**	**41.66**
N 2820	46.20	43.52	1.47	0.31	0.49	0.41	44.99	45.30	45.79
PX 4620	50.90 A D	47.28 A D	2.00	0.69	0.71	0.22	49.28 A D	49.97 A D	50.68 A D
TSH 16	44.24	40.14	2.46	0.46	0.43	0.76	42.59	43.05	43.48
TSH 22	40.79	37.51	1.99	0.53	0.51	0.25	39.50	40.03	40.54
N 2806	49.93	45.44 A	2.95	0.44	0.60	0.50	48.39	48.82	49.43
O 7983	52.00 A D	46.56 A D	2.15	0.68	0.93	1.69	48.71 A D	49.38 D	50.31 D
H 9364	49.19	45.43 A	2.57	0.62	0.42	0.16	47.99	48.61	49.03
PX 4603	51.02 A D	46.18 A D	2.98	0.66	0.94	0.27	49.16 A D	49.81 A D	50.75 A D
TSH 07	44.32	41.23	1.66	0.34	0.72	0.38	42.89	43.23	43.95
CC 337 (A)	**42.60**	**38.12**	**2.75**	**0.70**	**0.92**	**0.12**	**40.86**	**41.56**	**42.48**
PX 4623	44.50	41.06	2.17	0.20	0.64	0.44	43.23	43.43	44.07
TSH 08	43.26	38.69	2.39	0.95	0.69	0.55	41.08	42.02	42.71
PX 4608	48.79	44.43	2.51	0.85	0.57	0.44	46.94	47.79	48.35
PX 4606	44.59	41.39	1.97	0.31	0.75	0.18	43.36	43.67	44.42
TSH 20	45.22	40.45	2.32	0.94	1.49	0.02	42.77	43.71	45.20
TSH 24	48.15	43.14	2.26	0.75	1.61	0.40	45.39	46.15	47.75
H 9661	47.84	42.96	1.95	0.31	1.15	1.48	44.91	45.22	46.37
PX 4610	45.91	43.50	1.05	0.66	0.57	0.13	44.55	45.21	45.78
PX 4611	44.35	41.54	1.87	0.36	0.06	0.53	43.41	43.76	43.82
H 7204	44.60	41.48	1.52	0.32	0.50	0.78	43.00	43.32	43.83
N 1477	43.44	37.94	2.86	1.08	1.36	0.19	40.80	41.89	43.25
H 7404	40.15	38.14	1.29	0.24	0.36	0.13	39.43	39.67	40.02
HYPEEL 696 (C)	**60.67 AB D**	**55.41 AB D**	**2.75**	**0.74**	**1.11**	**0.66**	**58.17 AB D**	**58.91 AB D**	**60.01 AB D**
H 9997	44.52	39.65	2.21	0.81	0.92	0.94	41.85	42.67	43.58
H 9314	42.20	40.11	0.74	0.33	0.76	0.26	40.84	41.18	41.94
H 3402	46.54	44.81	0.60	0.09	0.76	0.27	45.42	45.51	46.27
PX 4628	49.45	42.63	3.89	0.91	1.64	0.40	46.51	47.42	49.05
H 8204	47.21	41.93	3.00	0.76	1.11	0.41	44.93	45.69	46.80
H 9704	49.42	45.09	2.37	0.41	0.76	0.79	47.46	47.87	48.63
H 9423 (B)	**45.93**	**43.62**	**1.34**	**0.11**	**0.70**	**0.16**	**44.96**	**45.07**	**45.77**
H 8004	45.88	40.97	2.62	0.28	1.20	0.81	43.59	43.87	45.06
H 1605	49.32	44.91	3.08	0.34	0.77	0.22	47.99	48.34	49.10
O 8245	54.73 AB D	50.00 A D	2.72	0.91	0.76	0.34	52.72 A D	53.63 AB D	54.38 AB D
H 9706	45.16	41.38	0.90	0.42	2.19	0.28	42.27	42.69	44.87
Probability	0.0913	0.0548	0.1713	0.2929	0.0389	0.0000	0.1070	0.1101	0.1068
LSD	8.0134	7.0840	1.4902	0.5714	0.8012	0.4413	7.8035	7.9432	8.0945
CV	12.63%	12.23%	50.47%	77.70%	71.55%	63.83%	12.82%	12.89%	12.90%
Mean	46.601	42.563	2.170	0.540	0.823	0.508	44.731	45.271	46.093

Entries are ranked according to average maturity from 3 test sites. Means followed by the same letter are significantly better than the check cultivar denoted by that same letter.

Yields in this table are based on harvested fruit from 3 plots; 5 plants from each plot .

Table 4. Processing tomato yield trial, 2006. Yield (tons/acre) from the Leamington site (berrian sandy loam).

Name	Total	Red	Breakers	Processing Green	Grass Green	Limited Use Rots	Red & Breakers	Red, Breakers, Processing	Red, Breakers, Processing & Grass Green
TSH 18	54.93	48.62	3.17	0.80	1.60	0.74	51.80	52.60	54.20
TSH 04 (D)	**53.93**	**49.93**	**1.76**	**0.59**	**1.15**	**0.50**	**51.69**	**52.28**	**53.43**
N 2820	56.86	50.99	3.41	0.74	0.99	0.73	54.40	55.14	56.13
PX 4620	54.69	51.39	2.17	0.29	0.49	0.36	53.55	53.84	54.33
TSH 16	62.06 B	56.42 B	3.13	0.55	1.09	0.87	59.55 B	60.10 B	61.19 B
TSH 22	49.29	46.19	1.72	0.48	0.51	0.39	47.91	48.39	48.90
N 2806	63.43 B D	56.54 B	3.07	1.69	1.53	0.60	59.61 B	61.30 B	62.83 B D
O 7983	59.83 B	52.11	3.00	0.60	0.84	3.29	55.11	55.70	56.54
H 9364	67.62 B D	59.11 B D	4.85	1.24	1.77	0.65	63.96 B D	65.21 B D	66.97 B D
PX 4603	63.21 B	56.30 B	3.56	1.18	1.02	1.15	59.86 B	61.05 B	62.06 B
TSH 07	63.69 B D	58.02 B	2.86	1.03	1.07	0.70	60.88 B D	61.91 B D	62.99 B D
CC 337 (A)	**66.29 B D**	**59.43 B D**	**4.30**	**0.60**	**1.69**	**0.27**	**63.72 B D**	**64.33 B D**	**66.02 B D**
PX 4623	56.79	52.60	2.43	0.41	0.76	0.58	55.03	55.44	56.20
TSH 08	57.86	49.13	5.53	1.14	1.67	0.39	54.66	55.80	57.47
PX 4608	62.85 B	55.43 B	3.82	1.35	1.37	0.89	59.25 B	60.59 B	61.97 B
PX 4606	66.47 B D	59.09 B D	3.61	1.06	1.45	1.24	62.71 B D	63.77 B D	65.23 B D
TSH 20	54.47	48.34	3.38	0.71	1.56	0.48	51.72	52.42	53.99
TSH 24	53.92	47.25	3.01	1.14	1.77	0.74	50.26	51.41	53.17
H 9661	60.17 B	53.22	2.90	0.66	0.88	2.50	56.12	56.79	57.67
PX 4610	58.04	53.65	2.75	0.31	0.80	0.53	56.40	56.71	57.51
PX 4611	61.58 B	57.10 B	2.46	0.36	0.87	0.79	59.56 B	59.92 B	60.79 B
H 7204	52.58	48.43	1.90	0.43	0.47	1.35	50.33	50.76	51.23
N 1477	51.50	48.10	2.20	0.41	0.26	0.55	50.29	50.70	50.96
H 7404	56.54	53.27	1.75	0.17	0.60	0.75	55.02	55.19	55.78
HYPEEL 696 (C)	**61.96 B**	**56.32 B**	**1.71**	**0.51**	**0.76**	**2.66**	**58.03 B**	**58.54 B**	**59.30 B**
H 9997	59.29	49.45	4.38	0.56	0.73	4.17	53.83	54.39	55.12
H 9314	58.67	54.31	2.17	0.67	0.96	0.56	56.48	57.16	58.12
H 3402	66.62 B D	60.81 B D	1.91	0.68	1.24	1.98	62.73 B D	63.41 B D	64.65 B D
PX 4628	62.05 B	51.94	5.39	1.46	3.03	0.22	57.33 B	58.80 B	61.83 B
H 8204	52.51	46.55	3.25	0.72	0.15	1.83	49.80	50.53	50.68
H 9704	56.04	49.74	3.15	1.04	0.98	1.14	52.88	53.91	54.89
H 9423 (B)	**49.92**	**46.59**	**1.17**	**0.72**	**0.47**	**0.98**	**47.77**	**48.48**	**48.95**
H 8004	57.95	52.65	1.52	0.59	0.63	2.56	54.17	54.76	55.39
H 1605	52.59	47.25	1.99	0.24	0.56	2.54	49.24	49.48	50.05
O 8245	60.25 B	54.74	1.94	0.73	0.89	1.95	56.68	57.41	58.30 B
H 9706	58.95	54.73	1.62	0.55	1.55	0.50	56.35	56.89	58.45 B
Probability	0.0707	0.1295	0.0509	0.1930	0.0001	0.0000	0.1174	0.1002	0.0642
LSD	9.3635	8.4142	2.0337	0.7564	0.7888	0.9637	8.9174	9.0820	9.3415
CV	11.76%	11.74%	52.25%	75.73%	54.68%	60.52%	11.80%	11.86%	11.98%
Mean	58.483	52.660	2.860	0.734	1.060	1.170	55.520	56.253	57.314

Entries are ranked according to average maturity from 3 test sites. Means followed by the same letter are significantly better than the check cultivar denoted by that same letter.

Yields in this table are based on harvested fruit from 3 plots; 5 plants from each plot .

Table 5. Processing tomato yield trial, 2006. Yield (tons/acre) from the Ridgetown site (berrian sandy loam).

Name	Total	Red	Breakers	Processing Green	Grass Green	Limited Use Rots	Red & Breakers	Red, Breakers, Processing	Red, Breakers, Processing & Grass Green
TSH 18	54.62	46.69	4.75	0.73	1.79	0.65	51.44	52.17	53.97
TSH 04 (D)	**51.86**	**47.05**	**3.30**	**0.52**	**0.66**	**0.33**	**50.35**	**50.87**	**51.53**
N 2820	60.23	50.52	3.86	1.69	1.95	2.19	54.39	56.08	58.04
PX 4620	64.68 A	51.40 A	5.13	3.46	3.43	1.27	56.53	59.99	63.42
TSH 16	62.18	51.85 A	3.59	1.17	1.55	4.03	55.43	56.60	58.15
TSH 22	58.68	47.24	4.65	1.44	3.88	1.47	51.89	53.32	57.21
N 2806	56.03	49.04	2.66	1.10	2.45	0.78	51.70	52.81	55.25
O 7983	49.51	40.55	4.18	0.42	1.34	3.02	44.72	45.14	46.48
H 9364	60.87	48.36	4.76	1.71	2.39	3.64	53.12	54.83	57.22
PX 4603	57.60	45.24	5.04	1.77	2.22	3.33	50.28	52.05	54.27
TSH 07	59.23	48.07	3.23	0.99	4.12	2.82	51.30	52.29	56.41
CC 337 (A)	**50.15**	**40.74**	**5.80**	**1.41**	**1.70**	**0.49**	**46.54**	**47.95**	**49.65**
PX 4623	52.71	42.85	4.77	1.32	1.65	2.11	47.62	48.94	50.59
TSH 08	64.39	51.81 A	7.01	1.18	2.71	1.68	58.82 A	60.00	62.71
PX 4608	64.17	51.20 A	5.24	1.28	2.27	4.17	56.44	57.72	59.99
PX 4606	65.59 A	50.31	7.52	1.17	3.09	3.51	57.83	59.00	62.09
TSH 20	74.45 AB D	59.03 AB D	6.08	1.78	3.16	4.39	65.12 AB D	66.91 AB D	70.06 AB D
TSH 24	59.20	49.75	4.31	0.63	2.43	2.09	54.06	54.69	57.12
H 9661	60.30	44.16	5.07	2.73	4.70	3.64	49.23	51.96	56.66
PX 4610	59.05	48.05	4.19	0.81	2.77	3.24	52.23	53.05	55.81
PX 4611	73.57 AB	53.54 A	7.49	1.74	4.86	5.93	61.03 A	62.77 A	67.64 AB D
H 7204	55.36	43.65	6.33	1.65	1.75	1.98	49.98	51.63	53.38
N 1477	63.32	48.29	7.33	1.09	3.22	3.39	55.62	56.71	59.93
H 7404	51.01	42.90	3.46	1.27	1.11	2.26	46.37	47.63	48.74
HYPEEL 696 (C)	**73.43 AB D**	**59.63 AB D**	**6.38**	**1.06**	**1.91**	**4.45**	**66.01 AB**	**67.07 AB D**	**68.98 AB D**
H 9997	61.57	46.56	6.42	1.18	1.59	5.83	52.98	54.15	55.74
H 9314	69.40 AB D	57.84 AB D	5.70	1.83	1.90	2.13	63.54 AB D	65.37 AB D	67.27 AB D
H 3402	58.38	49.12	4.10	1.26	1.64	2.26	53.23	54.49	56.13
PX 4628	62.59	45.45	7.23	3.88	4.45	1.59	52.68	56.56	61.01
H 8204	55.76	44.01	3.76	1.13	1.81	5.06	47.77	48.89	50.70
H 9704	62.56	49.01	6.87	1.33	2.23	3.11	55.89	57.21	59.45
H 9423 (B)	**53.91**	**46.13**	**4.05**	**0.90**	**0.92**	**1.90**	**50.18**	**51.08**	**52.00**
H 8004	64.87 A	52.82 A	5.00	1.88	2.99	2.19	57.81	59.70	62.68
H 1605	58.02	46.79	5.17	1.09	2.01	2.95	51.97	53.06	55.06
O 8245	54.02	43.36	4.59	1.00	1.79	3.28	47.94	48.94	50.74
H 9706	67.61 A D	56.32 AB	4.22	1.59	3.27	2.20	60.54 A	62.13 A	65.41 A
Probability	0.3416	0.2193	0.3649	0.3115	0.9457	0.0040	0.3323	0.3804	0.5516
LSD	14.3286	10.0526	2.9875	1.5686	3.1585	2.2504	11.5982	12.2322	14.2302
CV	17.46%	15.20%	43.12%	81.07%	95.23%	59.90%	15.87%	16.31%	18.17%
Mean	60.302	48.593	5.090	1.422	2.437	2.760	53.682	55.105	57.542

Entries are ranked according to average maturity from 3 test sites. Means followed by the same letter are significantly better than the check cultivar denoted by that same letter.

Yields in this table are based on harvested fruit from 3 plots; 5 plants from each plot .

Handling Evaluations

After plot harvest, samples from the second replication at each site were retained for fruit handling evaluation trials.

Step 1: Weigh out a 3 kg sample of fruit and drop the sample onto a concrete floor from a height of 4 feet.

Only the fruit with cracks extending into the flesh are weighed.

This test estimates resistance to cracking or firmness. It answers the question, “Which cultivar is firmest?”

This procedure also simulates mechanical handling on the tomatoes that will be peeled at a later step.

Step 2: Count the number of fruit that have stems still attached.

This will provide an answer to the questions, “Is the cultivar jointless?”, “Are there any stems attached after harvest?”.

Depending on the end use, and methods used, some processors are able to tolerate a few attached stems, while others are not.

Step 3: Count the total number of fruit in the 3 kg sample.

This provides an answer to the question, “What is the average fruit size?”

Step 4: The uniformity of fruit size is estimated, on a weight basis by grading the fruit into 4 categories.

(a) 1" or less - fruit in this category are smaller that most users will want to deal with

(b) greater than 1" and less than or equal to 1 1/2" - this is a fairly typical size for wholepeel tomatoes

(c) greater than 1 1/2"and less than or equal to 1 3/4" - this is also a fairly typical size for whole, canned tomatoes

(d) greater than 1 3/4" - these fruit tend to be a bit too large, depending on the size of can

Wholepeel tomatoes need to have “cosmetic appeal” - in other words, they need to look good. A can of very uniformly sized, shaped, and coloured tomatoes will be more attractive to look at than a can of tomatoes that contains a mixture of sizes, shapes and colours (degrees of redness).

Consumers tend to equate attractive food with good quality food. The more uniform the tomatoes, the more likely the repeat sale.

Table 6. Average fruit size and uniformity of fruit size, 2006.

Name	Average Fruit Size (g)	Size (1)% <1"	Size (2)% >1" & <1.5"	Size (3)% >1.5" & <1.75"	Size (4)% >1.75"	Size (2+3)%
H 8004	72.34 A CD	0.00	15.03	28.56	57.19	43.59
H 8204	70.22 A CD	0.00	5.15	25.35	69.90	30.50
PX 4603	69.71 A CD	0.18	16.45	43.48	40.65	59.93 B
PX 4610	69.26 A CD	0.00	21.47	36.81	42.39	58.28 B
H 1605	67.87 A CD	0.00	21.74	29.70	48.78	51.44
TSH 18	67.53 A D	0.00	20.40	48.34	31.95	68.74 B
H 9661	66.57 A D	0.16	15.39	29.57	55.03	44.95
PX 4623	64.76 A	0.00	25.05	37.44	37.88	62.49 B
H 9423 (B)	**64.38 A**	**0.00**	**12.49**	**27.56**	**60.49**	**40.04**
H 9997	64.14 A	0.00	18.93	20.56	60.94	39.49
H 9706	61.34 A	0.00	26.78	30.93	42.85	57.70 B
TSH 22	60.50 A	1.03	65.62	31.57	2.01	97.19 BC
O 7983	58.01	0.00	28.88	43.97	27.56	72.84 B
TSH 24	57.64	0.13	86.42	13.58	0.00	100.00 BC
PX 4611	57.57	0.00	54.22	42.83	3.61	97.06 BC
HYPEEL 696 (C)	**56.24**	**0.13**	**22.14**	**43.21**	**34.81**	**65.35 B**
H 9704	55.96	0.00	19.29	37.57	43.41	56.86 B
PX 4620	55.88	0.00	31.01	41.85	27.72	72.87 B
O 8245	55.81	0.00	25.28	28.29	46.75	53.58
H 7404	55.80	0.00	30.61	39.00	30.70	69.61 B
TSH 20	55.77	0.00	53.16	41.97	5.64	95.13 BC
H 9364	55.15	0.16	40.98	36.88	22.18	77.86 B
TSH 16	54.73	0.00	41.34	43.28	15.92	84.61 BC
N 2806	54.66	0.31	35.17	51.68	13.29	86.86 BC
TSH 04 (D)	**53.90**	**0.22**	**46.18**	**43.15**	**10.57**	**89.32 BC**
N 2820	53.72	0.00	33.80	32.37	33.71	66.18 B
PX 4606	53.29	0.00	61.74	31.93	6.91	93.67 BC
H 7204	53.26	0.00	28.45	45.40	26.60	73.85 B
PX 4608	52.47	0.00	14.81	36.05	49.32	50.86
N 1477	52.29	0.85	45.00	48.83	5.55	93.82 BC
H 3402	52.14	0.00	52.42	39.26	8.61	91.69 BC
TSH 08	51.37	0.22	50.90	47.96	0.78	98.86 BC
TSH 07	48.50	0.00	60.65	32.87	6.76	93.51 BC
CC 337 (A)	**48.03**	**0.18**	**76.79**	**23.26**	**0.00**	**100.06 BC**
PX 4628	46.79	0.87	58.19	35.88	5.71	94.07 BC
H 9314	44.11	0.13	57.44	33.22	9.59	90.66 BC
Probability	0.0020	0.0007	0.0000	0.0628	0.0000	0.0000
LSD	11.3055	0.3866	15.6291	16.3270	14.9229	14.9818
CV	14.37%	223.3%	31.33%	33.11%	40.04%	15.10%
Mean	57.825	0.127	36.649	36.226	27.382	72.875

Means in the average fruit size and size (2+3) columns followed by the same letter are significantly better than the check cultivar denoted by that same letter. The sum of different size categories across rows may not total 100 due to rounding off. Means are based on 3 samples. Each sample consisted of 3kg of fruit.

Table 7. Percent fruit with stems still attached after shaking from plant, 2006.

Name	Stems %
N 2820	18.02
H 9704	8.09
H 7404	7.93
TSH 18	6.64
H 9997	6.09
H 9423 (B)	**6.00**
H 8004	5.75
H 7204	5.59
H 8204	5.52
H 1605	5.28
H 9661	5.12
PX 4610	4.84
H 9706	4.21
PX 4608	4.13
N 2806	4.07
TSH 22	4.00
TSH 16	3.62
H 3402	3.62
TSH 04 (D)	**2.42**
PX 4603	2.31
CC 337 (A)	**2.04**
H 9314	1.99
H 9364	1.83
O 8245	1.80
TSH 07	1.69
PX 4620	1.39
PX 4628	1.15
PX 4623	0.69
TSH 08	0.62
O 7983	0.56
N 1477	0.00
TSH 24	0.00
PX 4611	0.00
HYPEEL 696 (C)	**0.00**
TSH 20	0.00
PX 4606	0.00
Probability	0.0000
LSD	3.5909
CV	74.77%
Mean	3.529

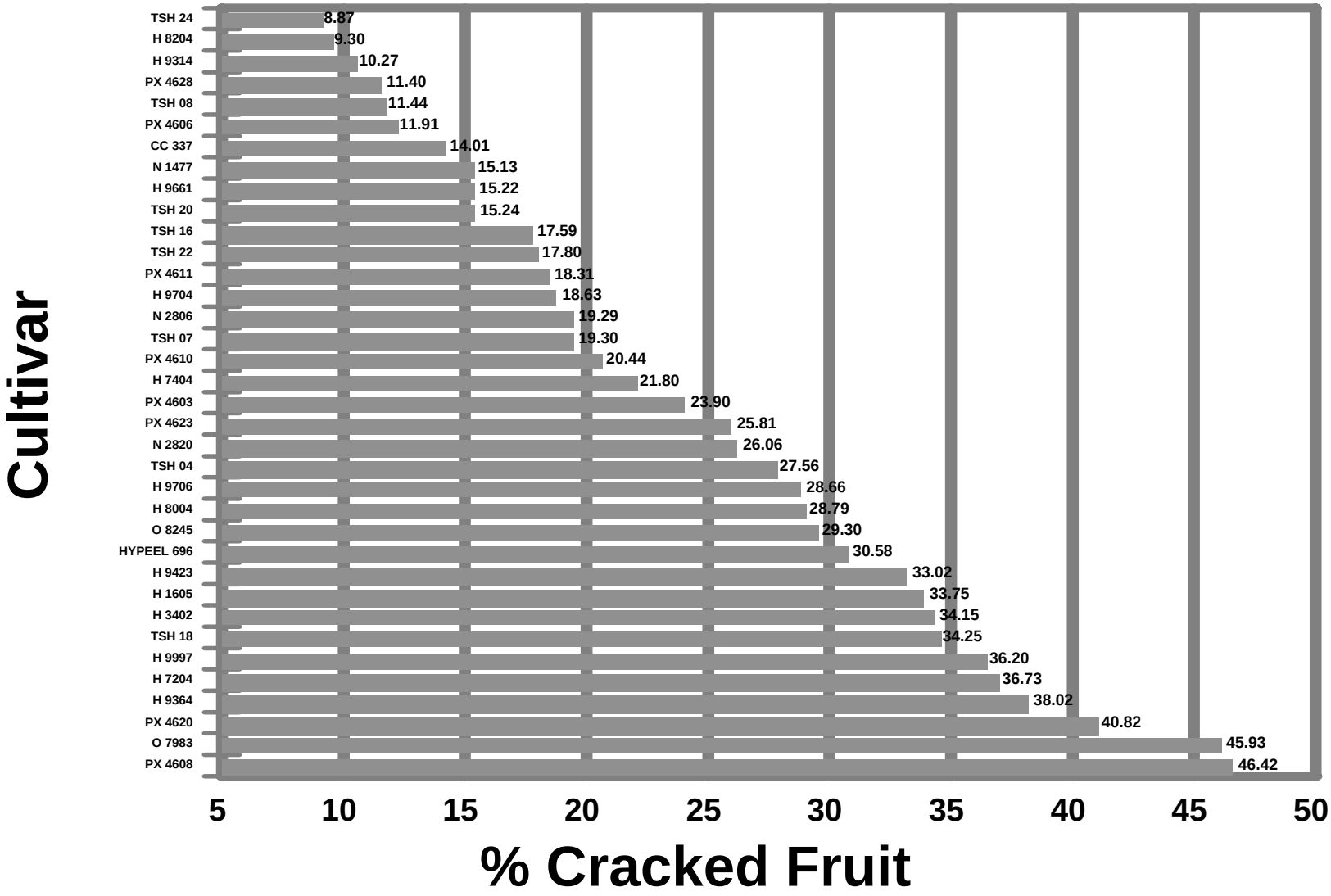
Means are based on 3 samples. Each sample consists of 3 kg of fruit.

Table 8. Percent fruit (by weight) with cracks extending into the flesh after dropping on concrete from a four foot height, 2006. This test estimates firmness.

Name	Cracked Fruit (%)
PX 4608	46.42
O 7983	45.93
PX 4620	40.82
H 9364	38.02
H 7204	36.73
H 9997	36.20
TSH 18	34.25
H 3402	34.15
H 1605	33.75
H 9423 (B)	**33.02**
HYPEEL 696 (C)	**30.58**
O 8245	29.30
H 8004	28.79
H 9706	28.66
TSH 04 (D)	**27.56**
N 2820	26.06
PX 4623	25.81
PX 4603	23.90
H 7404	21.80
PX 4610	20.44
TSH 07	19.30
N 2806	19.29
H 9704	18.63
PX 4611	18.31
TSH 22	17.80
TSH 16	17.59
TSH 20	15.24
H 9661	15.22
N 1477	15.13
CC 337 (A)	**14.01**
PX 4606	11.91
TSH 08	11.44
PX 4628	11.40
H 9314	10.27
H 8204	9.30
TSH 24	8.87
Probability	0.0001
LSD	14.6635
CV	44.28%
Mean	24.330

Means followed by the same letter are significantly better than the check cultivar denoted by that same letter. Means are based on 3 samples. Each sample consisted of 3 kg of fruit.

Percent Cracked Tomato Fruit, 2006



Peeling Evaluations

After going through the handling evaluations (Steps 1 through 4) described above, the 3 kg fruit samples were peeled.

Step 5: The tomatoes were submerged in caustic potash (30% solution by weight) with Turgitol surfactant (0.3% by volume), at 102 +/- 1°C for 40 seconds.

The sample was rinsed twice in water and the peels were removed mechanically.

The peeled tomatoes were rinsed in a citric acid solution (pH 3.5) to neutralize any remaining caustic solution.

The tomatoes were drained and weighed.

The weight measured here (in kg) was divided by the initial weight (3 kg) to determine what percent of the weight was lost in the chemical action of the caustic and the aggressive action of the peeling equipment.

What does this tell me?

These results, shown in Table 9, answer the questions, “What is the peeling recovery?”, “How much is lost in the peeling process?”, or conversely, “How much remains after the peels are taken off?”.

There is some evidence that peeling recovery is also a good indicator of firmness.

Table 9. Percent (by weight) of fruit recovered after peeling but before sorting, 2006. Demonstrates how much remains after exposure to caustic and peeler.

Name	Peeling Recovery (%)			
H 8004	85.17	A	C	D
N 2806	84.86	A	C	D
H 9423 (B)	**84.54**	**A**	**C**	**D**
H 8204	84.25	A	C	D
H 9661	83.65	A		D
H 9706	83.45	A		
PX 4628	83.43	A		
PX 4610	83.19	A		
TSH 08	83.11	A		
H 9997	83.07	A		
H 9314	82.88	A		
PX 4623	82.45	A		
H 9704	82.25	A		
H 3402	81.92	A		
TSH 24	81.85	A		
TSH 22	81.68	A		
N 1477	81.48	A		
TSH 16	81.19	A		
O 8245	81.13	A		
HYPEEL 696 (C)	**80.98**			
H 1605	80.96			
PX 4603	80.87			
H 7204	80.85			
PX 4608	80.51			
H 7404	80.44			
TSH 20	80.35			
TSH 07	80.34			
TSH 04 (D)	**80.27**			
PX 4606	79.78			
PX 4611	78.78			
H 9364	78.73			
O 7983	78.40			
PX 4620	78.29			
TSH 18	77.93			
CC 337 (A)	**77.75**			
N 2820	77.04			
Probability	0.0013			
LSD	3.2662			
CV	2.95%			
Mean	81.328			

Means followed by the same letter are significantly better than the check cultivar denoted by that same letter. Means are based on 3 samples. Each sample consisted of 3kg of fruit.

Step 6: After peeling, the tomatoes were sorted for colour, peels still attached, and blemishes.

The Colourmet spectrophotometer was used as a standard for acceptable colour.

After sorting the fruit that were good enough to be canned were weighed.

This weight was divided by the weight of peeled tomatoes. The resulting number, the Percent Cannable (Table 10), shows the percent of fruit that have no significant colour defects, and that peeled relatively easily.

What does this tell me?

This answers the following questions, “How much sorting will be required in the factory?”, “What percent of tomatoes will have to be put into the juice/sauce line after peeling?”, “How good do the tomatoes look after they’ve been peeled?”.

NOTE ON STEP 6:

The peeling process in this study was kept the same for all cultivars and it should be noted that the caustic concentration was 30% by weight for 2006.

In actual practice, processors will adjust the time, temperature and concentration of caustic, in the peeling procedure in order to efficiently remove the peels from most cultivars.

Table 10. Percent (by weight) of cannable tomatoes when sorted after peeling, 2006. Shows how little or how much sorting is required after peeling.

Name	% Cannable		
CC 337 (A)	**99.27**	**C**	**D**
H 3402	97.81	C	D
PX 4628	97.75	C	D
TSH 20	97.32	C	D
H 8004	96.67	C	D
N 2806	96.02	C	D
TSH 08	95.40		D
H 9704	95.13		D
TSH 22	95.07		D
PX 4623	94.76		D
H 7404	94.61		D
H 1605	93.59		D
PX 4603	93.31		D
PX 4610	92.97		D
H 9423 (B)	**92.66**		**D**
H 7204	92.64		D
H 8204	92.11		D
TSH 24	92.00		D
H 9314	91.84		D
TSH 07	91.70		D
N 1477	91.07		D
PX 4608	90.56		
TSH 16	90.27		
PX 4620	89.49		
TSH 18	89.26		
H 9997	88.95		
HYPEEL 696 (C)	**88.12**		
PX 4611	87.94		
PX 4606	86.92		
H 9364	86.29		
O 8245	85.89		
TSH 04 (D)	**83.29**		
H 9661	82.27		
O 7983	81.94		
N 2820	81.50		
H 9706	78.29		
Probability	0.0005		
LSD	7.6453		
CV	6.18%		
Mean	90.964		

Means followed by the same letter are significantly better than the check cultivar denoted by that same letter. In this case no entries were better than the poorest check. Means are based on 3 samples. Each samples consisted of 3 kg of fruit.

Step 7: This step consists of making a calculation of % Canning Recovery with data already gathered.

In step 6 above, we looked at % Cannable by comparing the weight of the tomatoes after peeling, with the weight after sorting.

In this step the % Canning Recovery is calculated by comparing the weight of tomatoes before peeling with the weight after sorting.

What does this tell me?

These results answer the questions, “Of the initial weight of tomatoes received at the factory, what % will actually end up in the can?”, “If 100 tons of tomatoes are put in the flume, how many tons will end up in a can?”

The actual % canning recovery that processors get will probably be very different than what we report here.

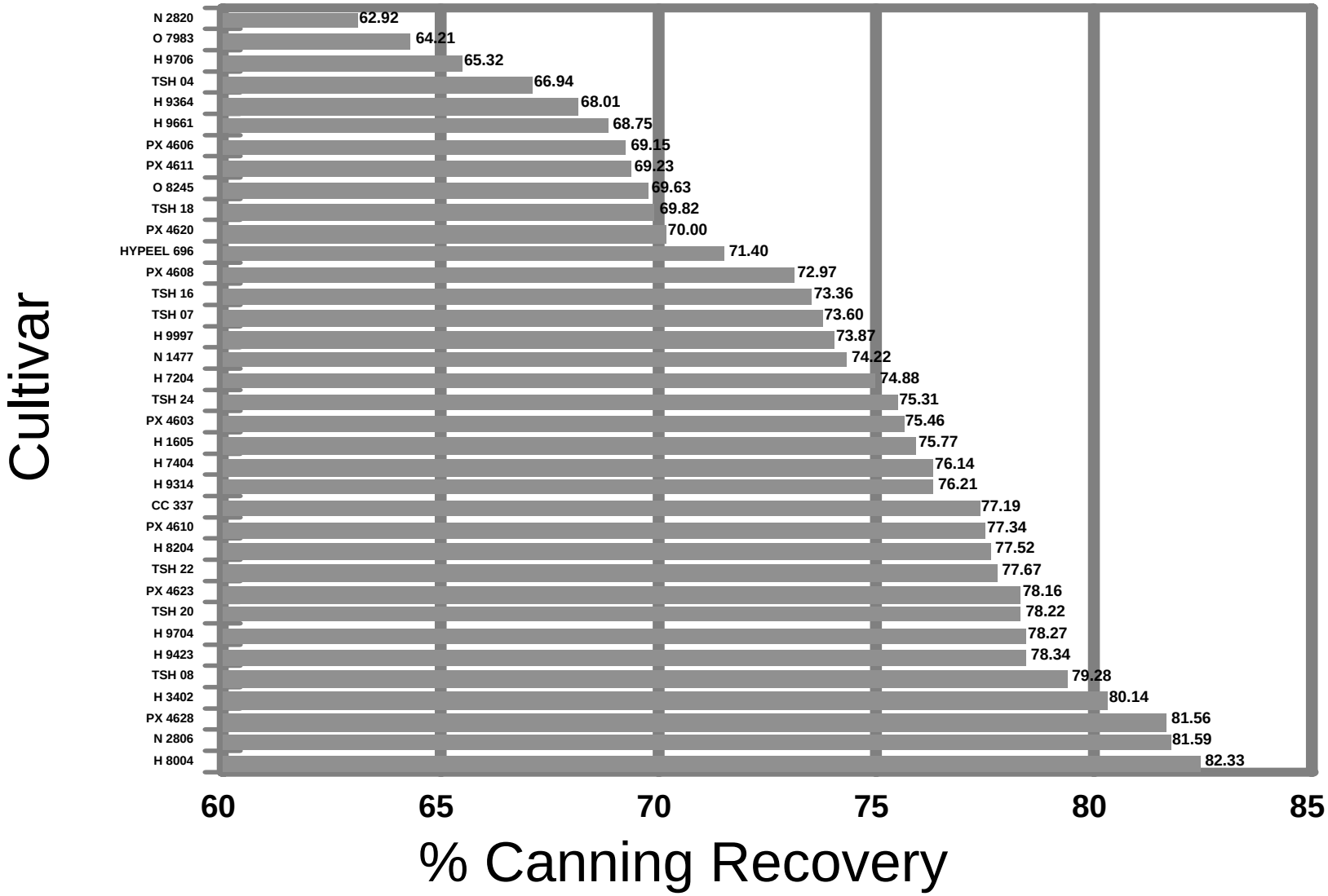
In this case it’s more important to look at the ranking of cultivars, rather than the actual numbers.

Table 11. Percent (by weight) canning recovery, 2006. Shows the percent fruit suitable for canning based on the initial weight sent through the peeling line.

Name	% Canning Recovery		
H 8004	82.33	C	D
N 2806	81.59	C	D
PX 4628	81.56	C	D
H 3402	80.14	C	D
TSH 08	79.28	C	D
H 9423 (B)	**78.34**		**D**
H 9704	78.27		D
TSH 20	78.22		D
PX 4623	78.16		D
TSH 22	77.67		D
H 8204	77.52		D
PX 4610	77.34		D
CC 337 (A)	**77.19**		**D**
H 9314	76.21		D
H 7404	76.14		D
H 1605	75.77		D
PX 4603	75.46		D
TSH 24	75.31		D
H 7204	74.88		D
N 1477	74.22		
H 9997	73.87		
TSH 07	73.60		
TSH 16	73.36		
PX 4608	72.97		
HYPEEL 696 (C)	**71.40**		
PX 4620	70.00		
TSH 18	69.82		
O 8245	69.63		
PX 4611	69.23		
PX 4606	69.15		
H 9661	68.75		
H 9364	68.01		
TSH 04 (D)	**66.94**		
H 9706	65.32		
O 7983	64.21		
N 2820	62.92		
Probability	0.0002		
LSD	7.3157		
CV	7.26%		
Mean	74.022		

Means are based on 3 samples. Each sample consisted of 3 kg of fruit.

Percent Canning Recovery, 2006



Quality Evaluations

When yield was evaluated in the field, a sample of tomatoes were taken to the pilot plant for handling and peeling evaluations. Part of this same sample was used for juice quality evaluations.

Step 8: The tomatoes for quality evaluations were washed and dried and cut in half from end to end.

One half of each tomato was blended, under vacuum, for 40 seconds.

The other half of each tomato went into a covered Pyrex® dish for microwave heating (to 95 °C for 15 sec) in order to deactivate the pectinase enzyme.

Step 9: Juice from the blended sample was collected through a screen to remove seeds.

Agtron colour, pH , and Soluble Solids (°Brix) were measured.

What does this tell me?

The lower the number for Agtron colour, the better the red colour in the juice.

A pH value of 4.3 is considered the threshold for food safety. If the pH is higher than this, there may be concerns about can spoilage unless more acid is added to the can.

Natural tomato soluble solids (NTSS) were measured on a Palette PR101 digital refractometer. Soluble solids are important in the manufacture of paste since paste is bought and sold on the basis of the solids content. If the soluble solids content is low, then it is more expensive to evaporate more water to get the required solids content.

Step 10: Microwaved tomato halves were run through a finisher (0.033 mesh) and the juice was cooled to 20 +/- 2 °C.

Consistency was estimated using this juice (50 ml for 30 sec) on a Bostwick consistometer. A true Bostwick consistency measurement is normally done on tomato paste. This is a modified Bostwick because juice was used instead of paste.

What does this tell me?

A low modified Bostwick reading is important. It indicates that when this juice is concentrated into paste it will be relatively "thick". In some tomato products sugar can be added but, by definition, no starch or other thickeners may be added. All of the "thickness" of the end product must come from the tomato.

Table 12. Results of quality evaluations on juice samples, 2006.

Name	Agtron	Soluble Solids	pH	Modified Boswick (cm)
CC 337 (A)	**19.00**	**4.87 BC**	**4.40 BC**	**7.03**
H 1605	18.00	5.03 BC	4.32	7.23
H 3402	18.33	5.30 ABCD	4.37 C	6.43
H 7204	21.00	4.70 C	4.26	7.23
H 7404	21.33	5.17 BCD	4.30	6.73
H 8004	20.67	4.83 BC	4.35 C	6.43
H 8204	19.33	4.97 BC	4.30	4.00
H 9314	21.67	4.40	4.32	5.97
H 9364	20.33	4.43	4.42 BCD	7.30
H 9423 (B)	**19.33**	**4.47**	**4.34**	**6.57**
H 9661	23.33 AB	4.63	4.30	6.33
H 9704	17.00	4.00	4.36 C	6.07
H 9706	20.67	4.63	4.42 BCD	6.60
H 9997	16.00	4.47	4.38 C	6.03
HYPEEL 696 (C)	**22.67 AB**	**4.33**	**4.31**	**7.67 B**
N 1477	21.33	4.30	4.33	6.50
N 2806	18.00	4.80 C	4.40 BC	7.07
N 2820	21.33	4.80 C	4.28	6.83
O 7983	23.33 AB	4.60	4.35	8.00 AB
O 8245	25.00 AB D	4.47	4.31	7.50 B
PX 4603	20.67	4.70 C	4.35	6.50
PX 4606	21.00	4.53	4.37 C	6.87
PX 4608	19.33	4.53	4.37 C	6.60
PX 4610	20.33	5.23 ABCD	4.31	6.77
PX 4611	22.00 A	4.67	4.31	6.60
PX 4620	21.33	4.70 C	4.35	7.43 B
PX 4623	21.00	5.37 ABCD	4.34	6.70
PX 4628	18.33	4.63	4.36 C	6.73
TSH 04 (D)	**21.00**	**4.70 C**	**4.37 C**	**7.17**
TSH 07	21.33	4.57	4.38 C	7.80 B
TSH 08	22.00 A	4.87 BC	4.32	6.00
TSH 16	19.33	4.60	4.36 C	7.00
TSH 18	21.00	4.60	4.31	7.00
TSH 20	16.00	4.80 C	4.43 BCD	6.83
TSH 22	22.33 AB	5.57 ABCD	4.34	6.60
TSH 24	19.67	5.20 BCD	4.33	7.00
Probability	0.0000	0.0000	0.0000	0.0000
LSD	2.685	0.3662	0.0450	0.8507
CV	9.67%	5.68%	0.76%	9.25%
Mean	20.398	4.735	4.345	6.754

Means followed by the same letter are significantly better than the check cultivar denoted by that same letter for Soluble solids only. The opposite of this is true for Agtron, pH, and Modified Bostwick since lower numbers are better for these measurements. Please see text for explanation of the modified bostwick measurement. Means are based on 3 samples.

Summary

These summary statements are presented in this format with the understanding that end users of cultivars may have preferences for a particular cultivar source based on general characteristics of material released.

Processors and growers are encouraged to evaluate material, on a relatively small scale, from a variety of programs in order to find the cultivars that best meet their particular management methods and ultimate needs.

It should be noted that these conclusions are based primarily on the results from the 2006 season. Having acknowledged this limitation, the following summary comments are provided.

(For each source, the entries are listed in order of observed maturity in 2006.)

Heinz Seed: H9364, H9661, H7204, H7404, H9997, H9314, H3402, H8204, H9704, H9423, H8004, H1605, H9706
H9364 - early maturity and excellent yield both traits similar to 2005
H9661 - good yield, good fruit size, good firmness, very good peeling recovery
H9997 - very good peeling recovery, excellent agtron colour, good consistency similar to 2005
H9314 - good yield, good firmness, very good peeling recovery, very good consistency
H3402 - good yield, very good peeled colour, excellent SS for the last 3 years
H8204 - large fruit size, good peeled colour, firmness and SS and consistency good to very good similar to 2005
H8004 - good yield, large fruit, very good peeling traits, good SS
H1605 - large fruit size, very good peeled colour, very good SS

CanGro Foods: N2820, N2806, CC337, N1477

N2806 - good yield, early maturity, good firmness, very good peeling traits, good SS
CC337 - good firmness and reliably good peeled colour over years
N1477 - reliably good firmness over 3 years

Seminis: Hypeel 696
Hypeel 696 - mid/late season check, consistent performer for good yield

Tomato Solutions: TSH18, TSH04, PX4620, TSH16, TSH22, PX4603, TSH07, PX4623, TSH08, PX4608, PX4606, TSH20, TSH24, PX 4610, PX 4611, PX 4628

TSH18 - very early maturity, good fruit size
TSH04 - early season check, reliable performer for many years
TSH16 - good yield, early maturity, good firmness
TSH07 - early maturity, good firmness
TSH08 - reliably good firmness and peeling traits for last 6 years, good SS, good consistency
TSH20 - very good yield, reliably good firmness and peeled colour for several years, excellent SS
TSH24 - very firm, good SS
PX4610 - large fruit size, good firmness, good peeling traits
PX4611 - good firmness

THE FINAL WORD . . .

SO WHAT SHOULD I EVALUATE OR GROW NEXT YEAR?

With 36 entries in the trial and many traits that influence success with a cultivar, this can be a difficult question.

The best way to answer this question is to run your own, larger scale, trials. There are several ways, however, to decide which varieties you should include in your trials. Here is a very simple method (there may be other preferable ways):

First, decide which traits are your highest priorities. Then go to the relevant tables in this report and assign a score of 1 to every variety that is equal to, or better than the average for that trait. Then tally the results and choose those with top scores.

For example, if we choose a combination of field, handling, processing and quality traits: 'rot' (a lower number is better), 'yield potential', 'red ripe yield', 'cracking' (a low number indicates firm fruit), 'size2+3', '% peeling recovery', '% cannable', '% canning recovery', 'Agtron colour', and 'soluble solids', then the following cultivars (in order of maturity) tend to be very high scoring (6 or more points out of 10):

TSH22	N2806	TSH07	CC337	TSH08
TSH20	TSH24	PX4610	N1477	H9314
H3402	PX4628	H8204	H9704	H8004

You can try this method yourself by picking and choosing which traits are most important to you and finding which entries will get a perfect score, or at least the highest score.

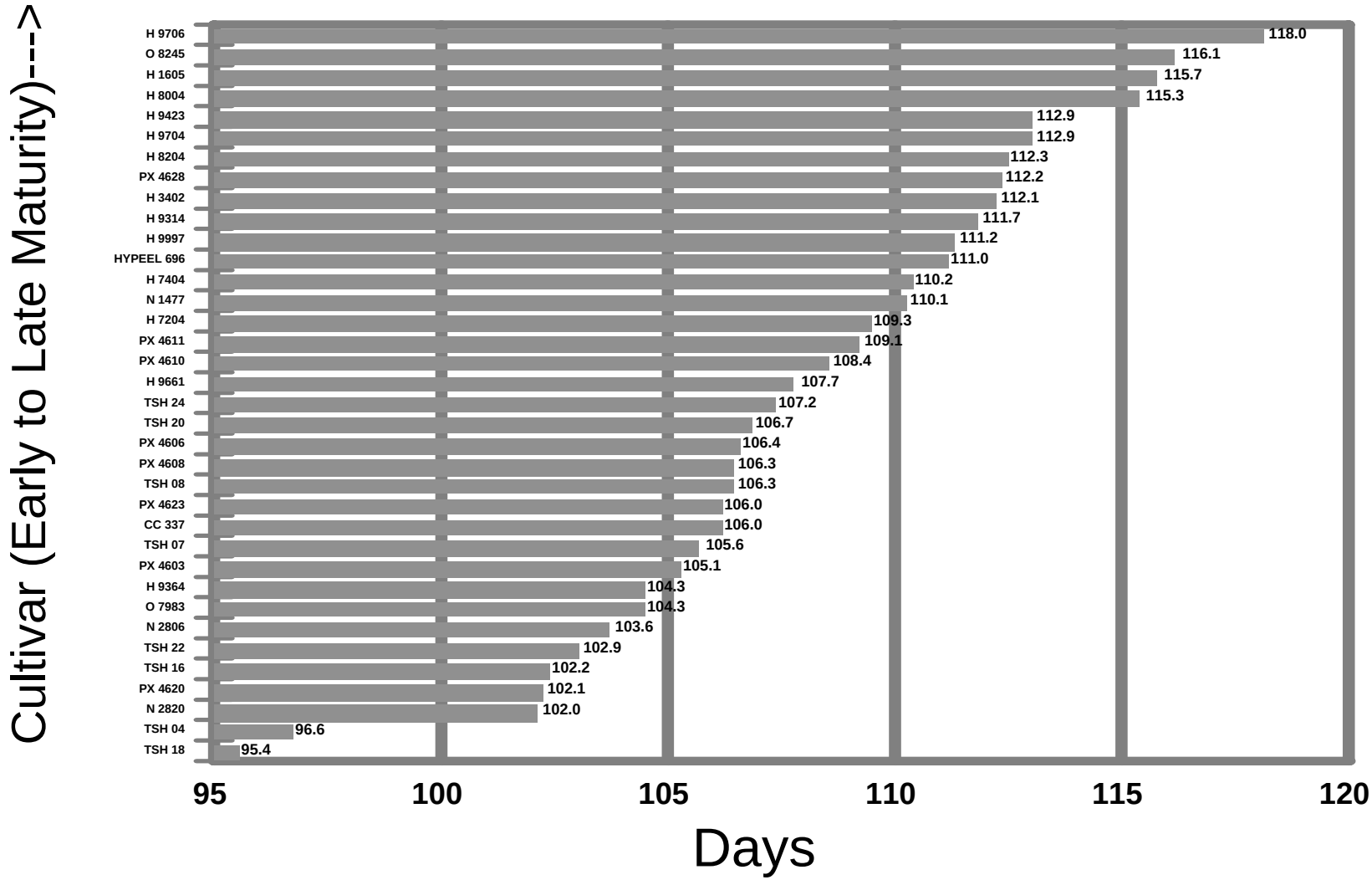
Please note that this simple method provides only a guide for picking cultivars for trial.

This method is not a substitute for proper, on-site trials and evaluations of varieties under your specific management system, soils and microclimate.

Appendix 1. Maturity ranking 2006, based on results from all three yield sites (Dresden, Leamington and Ridgetown).

Name	Days to Harvest
TSH 18	95.4
TSH 04	**96.6**
N 2820	102.0
PX 4620	102.1
TSH 16	102.2
TSH 22	102.9
N 2806	103.6
O 7983	104.3
H 9364	104.3
PX 4603	105.1
TSH 07	105.6
CC 337	**106.0**
PX 4623	106.0
TSH 08	106.3
PX 4608	106.3
PX 4606	106.4
TSH 20	106.7
TSH 24	107.2
H 9661	107.7
PX 4610	108.4
PX 4611	109.1
H 7204	109.3
N 1477	110.1
H 7404	110.2
HYPEEL 696	**111.0**
H 9997	111.2
H 9314	111.7
H 3402	112.1
PX 4628	112.2
H 8204	112.3
H 9704	112.9
H 9423	**112.9**
H 8004	115.3
H 1605	115.7
O 8245	116.1
H 9706	118.0

Maturity Index 2006



Appendix 2 - Visual Ratings on Peeled Tomatoes

The table on the next page shows the average visual rating given to the peeled tomato samples.

This rating is based on a general impression of peeled colour, wholeness, uniformity of colour and freedom from peels, defects, disease and the overall appeal of the sample.

The scale ranged from 1 (bad) to 5 (excellent).

This is another case where the ranking is more important than the actual score received.

Rating in this way provides a means to communicate the overall impression of a cultivar that is very difficult or time consuming to measure or describe in any other way.

Appendix 2. Visual appearance rating on peeled fruit, 2006. Rating scale of 1 (poor) to 5 (excellent). See text for explanation.

Name	Rating
TSH 20	4.83
TSH 08	4.50
N 2806	4.50
CC 337	**4.33**
H 9423	**4.33**
PX 4628	4.33
PX 4603	4.33
H 3402	4.33
N 1477	4.33
H 7404	4.17
H 1605	4.17
H 8004	4.17
PX 4606	4.17
TSH 04	**4.00**
PX 4610	4.00
H 9704	4.00
H 9706	4.00
TSH 22	4.00
PX 4608	4.00
TSH 24	3.83
H 8204	3.83
TSH 18	3.83
H 7204	3.83
PX 4611	3.83
H 9314	3.83
TSH 07	3.83
PX 4623	3.67
PX 4620	3.67
H 9997	3.67
N 2820	3.50
TSH 16	3.50
H 9661	3.33
H 9364	3.33
O 8245	3.00
O 7983	3.00
HYPEEL 696	**2.67**
Mean rating	3.907

Means are based on 3 samples.