AUSTRALIAN PROCESSING TOMATO RESEARCH COUNCIL

ANNUAL INDUSTRY SURVEY

2019

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Executive Summary

During the 2018/2019 season, thirteen growers produced 211,961 tonnes of processed tomatoes, a slight decline on the volume grown in 2017/18, and the crop was again processed by three companies.

Some 2,347 hectares were planted, with total use of sub-surface drip irrigation for the first time. Following a partial break from transplants after 2011/2012, this season witnessed yet another increase in the proportion of transplants being used by growers.

For only the second time in ten years all the planted area was harvested. Average yield was 90.3 tonnes per hectare, which might be considered a good outcome given the weather conditions during December and January especially. In December, the industry incurred possibly its worst outbreak of bacterial speck, and January produced record high temperatures.

Soluble solids averaged 5.21%, continuing outcomes in recent years where solids have been consistently above the 5.00% benchmark.

Imports of processed tomato products, in equivalent raw tonnes, increased slightly during 2018 compared to the previous year, with Italy continuing to be the largest supplier to the Australian market. Exports declined, albeit at slightly higher price points, with a general decline in the smaller markets; the main markets of Vietnam, New Zealand and Thailand bought a little more product in equivalent raw tonnes.

During the last five to seven years, imports have accounted for about two thirds of domestic demand for processed tomato products; prior to this period the ratio was closer to 50%. This change in market proportion may have been influenced by wholesale and retail strategic reaction two poor Australian harvests in 2008 and 2011.

Australians consume an average of 23 kilograms of processed tomato products, in equivalent raw weight. Americans consume a little more, Europeans consume a little less. Therefore, the potential domestic market growth for the Australian industry may be equivalent to the population growth rate of about 1.6% per year.

Comparative data indicates that California leads global field productivity, with Australia coming second in the field of leading tomato-producing nations. However, despite recording much higher individual paddock yields, it seems that Australian average field productivity has plateaued at 90 to 100t/ha.

Such an outcome is not sustainable:

- For producers whose input costs (including that of irrigation water due to low rainfall and downstream demand) are increasing each season; and
- For processors competing with international products in a domestic market of static per capita demand.

Productivity elements that need to be continuously addressed include:

- Access to varieties that deliver optimum production and processing attributes. However, given we can achieve 150t/ha plus from current varieties, this is not the key productivity issue;

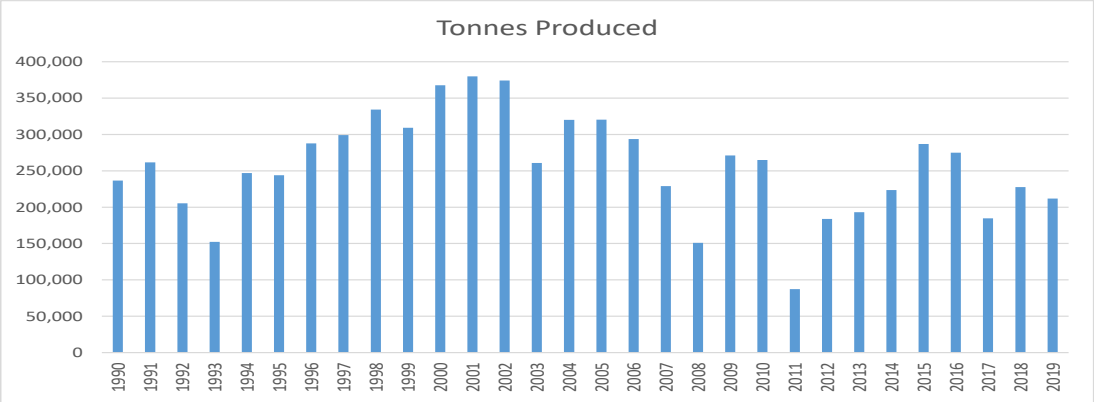
- Crop management practices that effectively monitor and control damaging pest and disease incursions. In particular, we need to ensure that incursions are recognized at a very early stage; and

- Flexible irrigation technologies and practices that are applied with a good understanding of variable soil physics and biology. Specifically, the industry must find solutions to successive seasonal yield reductions under sub-surface drip irrigation and improve the lifetime return on its irrigation infrastructure; and

Industry profitability and competitiveness must rise significantly above their current status. Through a multi-disciplinary research project during 2019-2020, APTRC will be focusing on field information that could assist the industry to develop solutions to yield reductions and return on irrigation infrastructure.

1 Industry Size

1.1 Volume

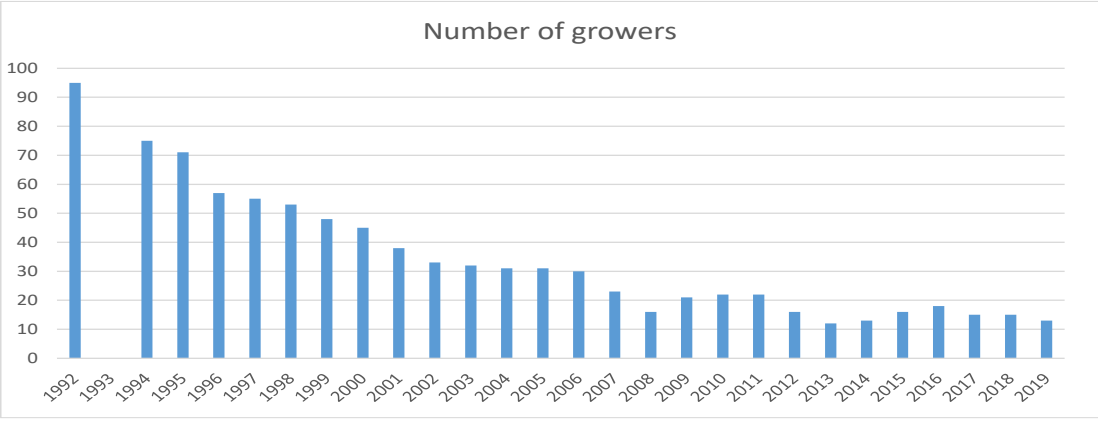


Graph 1-1: Paid tomato volumes delivered (tonnes)[1]

Growers delivered 211,961 tonnes of tomatoes during the 2018/19 season, a decrease of about 7% compared to the previous year. No fruit was supplied by fresh market growers.

Graph 1-1 indicates that the industry, in production terms, is still the same size it was in the early 1990s; successive strategic plans had been aiming for a better outcome than this. As will be noted later, implications of the 2008 and 2011 seasons, in particular, appear to have had a significant influence on domestic market demand.

1.2 Producers



Graph 1-2: Number of growers[1]

Thirteen specialist growing businesses supplied the 2018/19 intake, two less than in the previous season. This was the same number that delivered the 2014 volume.

While grower numbers have plateaued in recent years, it seems there is flexibility for additional growers to join a particular season if economic conditions prove attractive. This provides an opportunity for the industry to make the best of each season's potential.

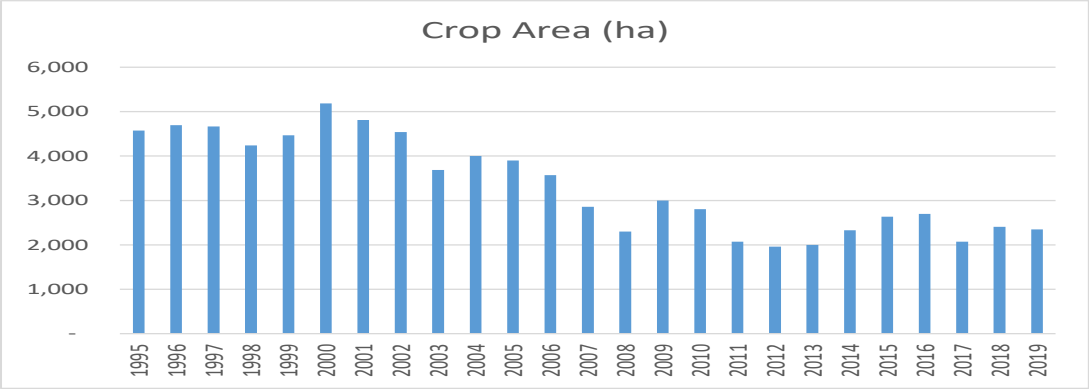
1.3 Processors

As in the previous season, the crop was processed by three businesses, with Kagome Foods and SPC Ardmona taking in the majority of the crop.

Presentations by Kagome and SPC at the 2019 Forum emphasised the ongoing competition they face in domestic and export markets, but tomatoes continued to be an important part of their product mix and strategies were in place to emphasise products that could deliver higher operating margins – not a quick road to success, but the building blocks for a successful future.

2 The Crop

2.1 Area and management



Graph 2-1: Planted crop area (ha)[1]

Some 2,347 hectares were planted to tomatoes, and the total area was harvested. The smaller areas planted in recent years are due to a combination of lower processor requirements and higher field yields.

Season	Drip %	Transplant %
1989/90	15%	
1998/99	48%	21%
2008/09	76%	57%
2008/09	76%	57%
2009/10	80%	65%
2010/11	88%	79%
2011/12	90%	81%
2011/13	98.5%	72%
2013/14	95.0%	59%
2014/15	99.9%	68%
2015/16	98.3%	69%
2016/17	99.6%	86%
2017/18	99.3%	88%
2018/19	100.0%	91%

Table 2-1: Proportions of drip and transplants[2]

For the first time, the Australian crop was fully grown under sub-surface drip irrigation.

However, a yield decline is typically observed with each successive year of tomato cropping under sub-surface drip. The general sense amongst the industry is that the yield reduction is due to soil factors, given that growers observe a return to first year yields following the ripping of paddocks. Some cracking soils naturally simulate this process.

It is imperative that growers can recoup the capital investment in sub-surface drip over a number of tomato crop seasons, and during 2019-2020 the industry will be conducting a detailed investigation into the behaviour and impact of this technology on a range of soils. The broad objective will be to match the optimum irrigation system to soil types. In some cases this might mean an alternative to sub-surface drip, and/or the use of low-pressure systems.

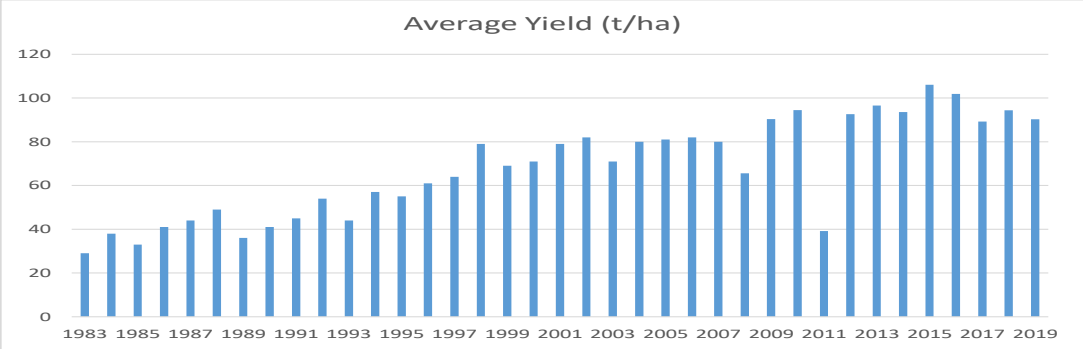
Following a partial break from transplants after 2011/12, recent years have witnessed a growing trend back to transplants.

2.2 Yield

Season	Planted Area	Harvested Area	Harvested Area %	Average Yield (t/ha) Planted Area	Average Yield (t/ha) Harvested Area	Comments
2010	3443	2806	81%	77	94.4	Wet harvest
2011	2850	2074	73%	28.5	39.2	Flooded crops
2012	2366	1962	83%	76.8	92.6	Wet harvest
2013	1999	1998	100%	96.6	96.6	Wet, late harvest
2014	2386	2330	98%	91.4	93.6	Wet, late harvest
2015	2700	2635	98%	103.5	106.1	Early crop failure
2016	2782	2697	97%	98.8	101.9	Poor crop stand, delayed harvest, over-contract fruit
2017	2183	2071	95%	84.6	89.2	Delayed harvest due to rain
2018	2457	2407	98%	92.5	94.4	Abandoned due to factory power outage and subsequent harvest delay
2019	2347	2347	100%	90.3	90.3	Extreme bacterial speck, high temperatures

Table 2-2: Average yield, harvest conditions (t/ha)[2]

Average yield in 2019 was 90.3 t/ha, with all planted area being harvested. This was yet another season where adverse conditions impacted on the crop. Weather events in mid-December created the conditions which encouraged possibly the industry's most extreme outbreak of bacterial speck. This was followed in January by some of the highest recorded temperatures in the tomato-growing regions.

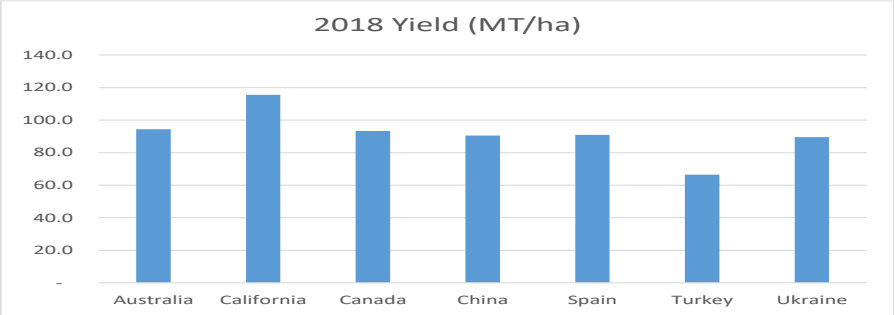


Graph 2-2: Average yield (t/ha)[1]

With average tomato prices remaining stable over many seasons, one of the factors which has mitigated this in maintaining grower profitability is the increase in average field yields.

Whilst Table 2-2, above, indicates some of the seasonal conditions that Australian growers must contend with, these are probably not totally dissimilar to conditions in seasons when yields were increasing. However, during the past ten years, average field yields have remained relatively static.

We know that yields up to 180 t/ha are being achieved from specific blocks, and it is critical that the industry continues working to drive average yields higher. This will require ongoing developments in cultivars, irrigation methodology, soil management, pest and disease management, and logistics.

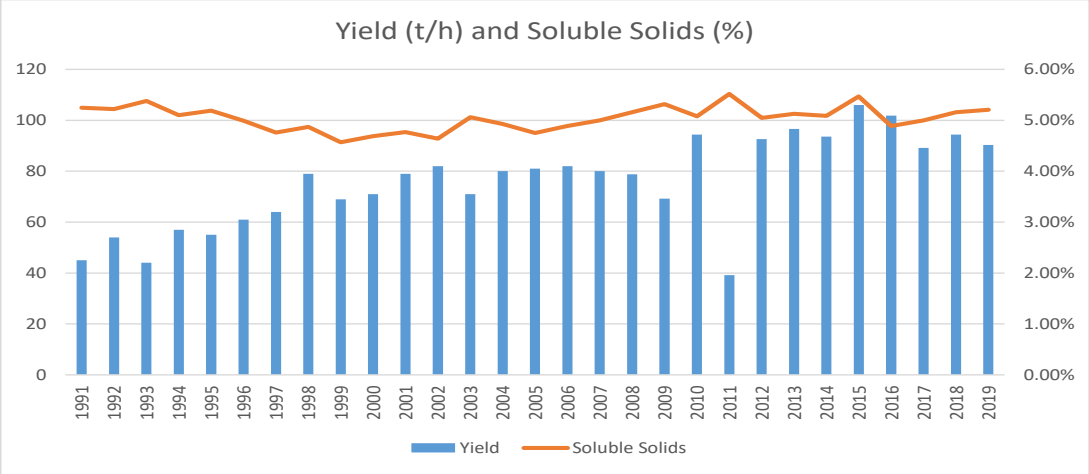


Graph 2-3: 2018 average yield (Mt/ha), by country[3]

Graph 2-3 presents the average yields for some countries during the development of the Australian industry. With California still showing the way, there is a group of countries challenging the 100t/ha benchmark. Data for Italy was not available for 2018, but its yields were 82.4 t/ha in 2017 and 75.6 t/ha in 2016.

In terms of international competitiveness, despite the specific challenges Australian growers face in one of the most volatile growing environments, the industry still rates very well compared to other countries.

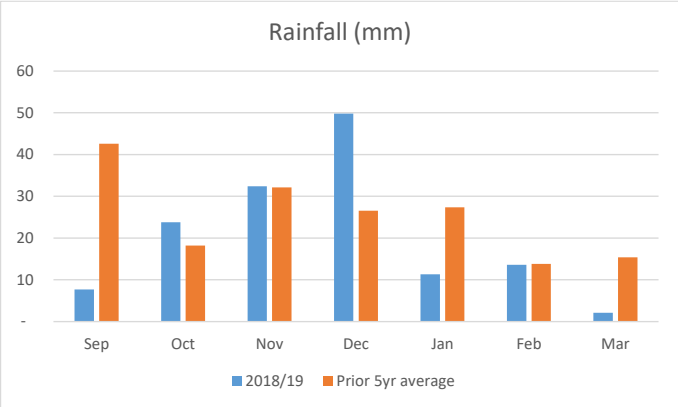
2.3 Soluble Solids



Graph 2-4: Soluble solids (%) and yield (t/ha)[1]

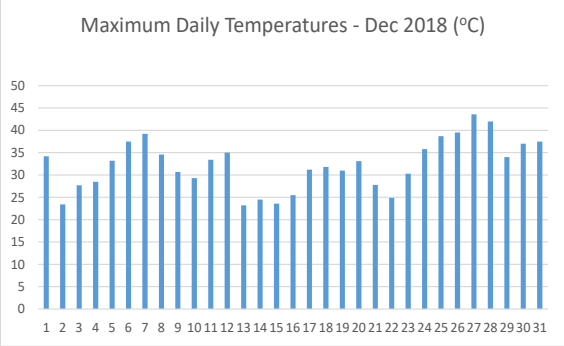
Average soluble solids for the season were 5.21%, above the minimum benchmark of 5.00% preferred by processors. The industry had been through a period in the 1990s when soluble solids were declining as yields increased. However, for the past ten years, soluble solids have only been less than 5.00% in one season. Previous annual surveys have noted that the improved solids performance may be due to factors such as tomato varieties and targeted crop nutrition, which emerged from the industry research program.

3 The Season



Graph 3-1: Rainfall at Echuca (mm)[4]

Planting commenced in late September on the back of an extended dry period. This resulted in initial low soil-moisture levels. Frequent showers and strong winds set back planting schedules and slowed the growth of young plants, with planting completed by late November, early December.



Graph 3-2: Maximum temperatures, Echuca[4]

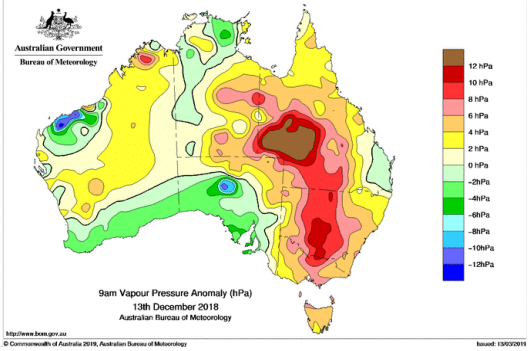
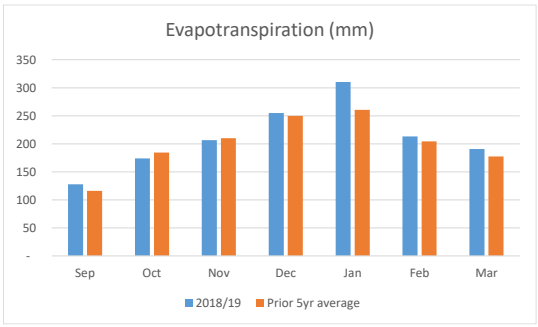
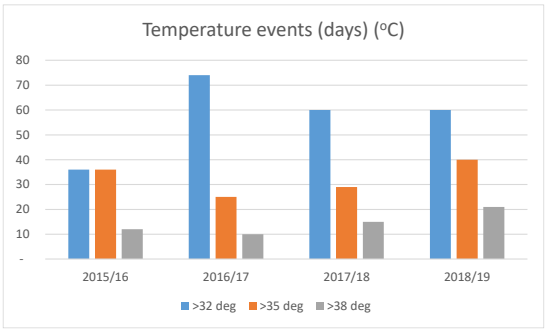


Image 3-1: Vapour Pressure Anomaly[4]

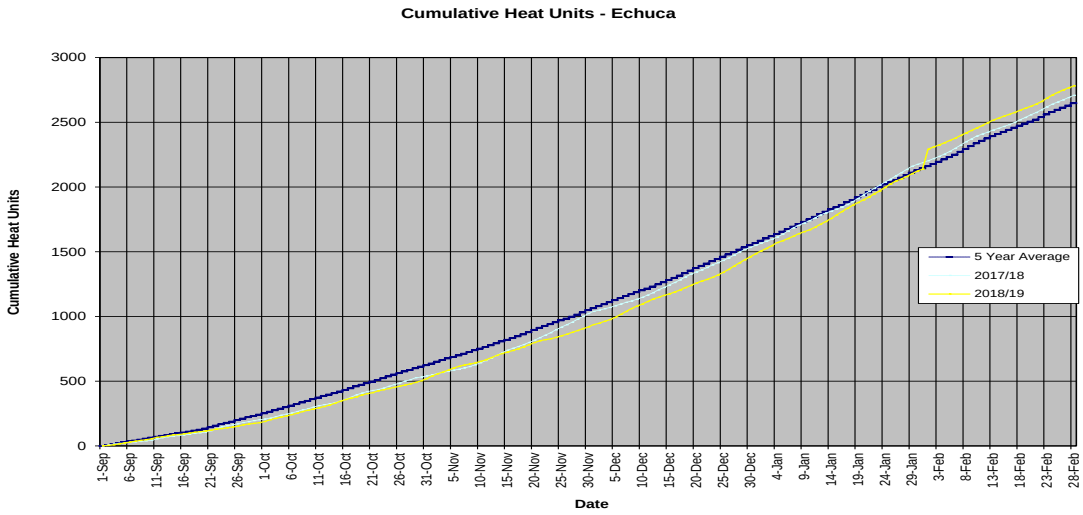
Around 12mm of rain fell about 10 December. This event was followed by a significant increase in humidity (compared to the long-term average) on 13 December, and that was immediately followed by four days of relatively low temperatures during which another 25mm of rain fell.

Shortly after these weather events, growers experienced possibly the worst outbreak of bacterial speck the industry has witnessed, badly affecting the most advanced crops at the time.



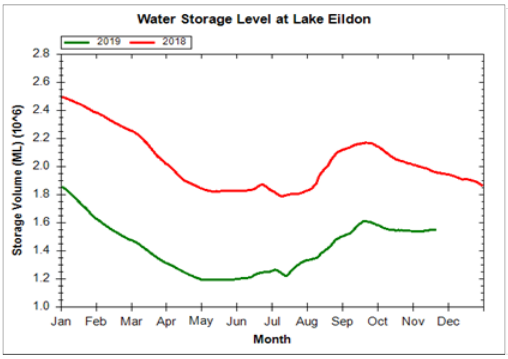


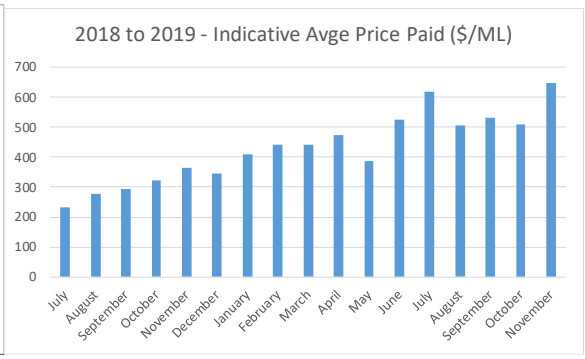
Graph 3-2: Evapotranspiration, Swan Hill (mm)[4] **Graph 3-3: Echuca temperature events[4]**



Graph 3-4: Heat units – Echuca[5]

Harvest began in mid-January for SPC growers, with Kagome growers commencing at the end of that month. There was extremely hot weather through the end of December and during January and this further affected the condition and management of crops, which had not had a great season. Harvest was completed by mid-April. The recent trend in the number of days with temperatures in excess of 38ºC bears consideration as to potential management issues in coming seasons.





Graph 3-5: Level of Lake Eildon[6] **Graph 3-6: Zone 1A water price ($/ML)[7]**

With Eastern Australia in the grip of long-term drought, the regional effect was coming to bear on the industry through the season as temporary market water prices increased. The

current outlook is for high water prices to continue unless there are significant rains, and the continuing investment in downstream horticultural plantings is a further factor which influences the price tomato growers must pay for irrigation water.

4 Trade

4.1 Imports

Product	Factor	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
Dried/powder	20	35,720	36,291	54,358	39,155	39,125	35,940	26,875	34,506	37,934	37,660
Whole/pcs <1.14L	1.1	39,969	49,030	50,371	49,173	48,060	42,660	45,222	40,965	43,354	42,683
Whole/pcs >1.14L	1.1	12,137	14,790	19,445	18,661	18,911	28,402	28,088	22,997	24,002	24,275
Paste/puree<1.14L	6	54,301	70,232	64,835	73,484	80,602	83,976	153,210	102,733	107,923	109,578
Paste/puree>1.14L	6	110,332	107,112	242,310	148,728	145,214	109,242	102,866	130,171	140,532	144,906
Juice [1]	1.1	43	86	143	264	137	116	75	83	38	75
Sauce/ketchup	2	14,415	22,314	26,760	28,902	33,633	38,628	39,276	38,462	45,705	45,946
Total Tomato		**266,917**	**299,855**	**458,222**	**358,367**	**365,682**	**338,964**	**395,612**	**369,917**	**399,488**	**405,123**

Table 4-1: Imports of Tomato Products[8] (equivalent raw tonnes)

The volume of imports increased slightly compared to 2017, with most categories contributing to that increase.

Italy supplied 98% of whole/pcs<1.14L, 93% of whole/pcs>1.14L, and 79% of paste/puree<1.14L. The USA supplied 45% of paste/puree>1.14L, with China and Italy each supplying about 20% of that category. Italy supplied 50% of the sauce/ketchup category, with New Zealand being the next largest supplier at 17%. These proportions are similar to those comprising 2017 imports.

In summary, Italy remains, by far, the largest source of imported processed tomato products into Australia.

Product	Factor	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
Dried/powder	20	5.02	5.28	3.81	5.04	5.30	5.67	6.28	5.54	5.72	5.77
Whole/pcs <1.14L	1.1	1.32	1.28	1.09	1.05	1.08	1.23	1.22	1.26	1.12	1.17
Whole/pcs >1.14L	1.1	1.04	0.88	0.82	0.81	0.91	1.05	1.04	0.95	0.90	0.97
Paste/puree<1.14L	6	1.71	1.48	1.23	1.18	1.24	1.44	1.42	1.39	1.29	1.27
Paste/puree>1.14L	6	1.24	1.12	0.95	0.95	0.94	1.12	1.33	1.18	1.10	1.15
Juice [1]	1.1	1.88	1.12	1.57	1.11	1.00	1.30	1.61	0.91	2.41	1.79
Sauce/ketchup	2	1.82	1.54	1.25	0.55	1.58	1.72	1.79	1.80	1.78	1.78
Total Tomato		**1.43**	**1.32**	**1.09**	**1.01**	**1.19**	**1.35**	**1.37**	**1.36**	**1.28**	**1.32**

Table 4-2: Average import prices ($/kg), at 2018 monetary value[8]

Except for dried/powdered products, there is generally a weak statistical correlation between imported volumes and price. That is, the variability in imported volumes does not appear to be price-driven – although each price point can still be lower than that at which Australian processors can supply product. There is also a weak correlation between imported volumes and the USD exchange rates across these years.

These factors will be considered further, below.

4.2 Exports

Product	Factor	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
Whole/pieces	1.1	2,658	956	1,035	1,581	1,075	2,552	746	461	133	62
Paste/puree	6	4,810	3,900	3,248	11,492	14,987	33,800	43,747	104,518	21,852	16,402
Sauce/ketchup	2	8,888	10,532	9,334	4,134	3,218	3,524	8,196	4,039	8,799	11,636
Juice [1]	1.1	66	47	201	237	224	195	131	57	50	80
Total Tomato		**16,422**	**15,435**	**13,818**	**17,444**	**19,504**	**40,070**	**52,819**	**109,075**	**30,834**	**28,180**

Table 4-3: Exports of tomato products[8] (equivalent raw tonnes)

The volume of exports declined from that of 2017, with the increase in sauce/ketchup products not compensating fully for the reduction in paste/puree products.

Whole/piece exports were affected by the lack of volume to Japan. Although the paste/puree volume declined in total, this appears to have been due to a general decline in volume to lesser markets; the main markets of Vietnam, New Zealand and Thailand took in a little more than in 2017.

Product		2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
Whole/pieces		3.10	4.63	3.12	2.93	3.28	1.29	4.04	5.03	6.55	4.66
Paste/puree		1.94	1.88	2.13	1.39	1.38	1.37	1.26	0.97	1.16	1.38
Sauce/ketchup		2.04	2.53	2.49	2.84	2.72	2.58	2.54	2.68	1.90	1.95
Juice [1]		1.45	1.26	1.18	1.44	1.20	1.21	1.26	1.58	1.11	1.70
Total Tomato		**2.35**	**2.73**	**2.51**	**2.31**	**2.14**	**1.56**	**1.85**	**1.23**	**1.64**	**1.79**

Table 4-4: Average export prices ($/kg), at 2018 monetary value[8]

Unlike import prices and volume variability, there is an expected strong statistical correlation between average export price and volume variability. For example, the volume of paste/puree sold in 2016 was double that of 2015, but the average price was also commensurately lower. Australian processors have indicated that future trade must be built on higher-margin, value-added products, and this strategy may be partially reflected in the higher average prices in 2018 for the two major categories. There is some, but not a strong, correlation between export volumes and the USD exchange rates across these years.

4.3 Market Demand

Calendar	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	5 Yr	7 yr
Imports	266,916	299,855	458,223	358,367	365,682	338,964	395,613	368,918	399,488	405,123		
Net Australian	254,578	249,543	71,465	179,090	171,491	181,561	234,007	165,773	153,848	199,456		
Dom Demand	521,494	549,398	529,688	537,457	537,173	520,525	629,620	534,691	553,336	604,579		
Imported %	51%	55%	87%	67%	68%	65%	63%	69%	72%	67%	67%	67%
Local %	49%	45%	13%	33%	32%	35%	37%	31%	28%	33%	33%	33%
Per capita (kgs)	24	25	24	24	23	22	26	22	22	24	23	23

Table 4-3: Apparent domestic market demand[2] (equivalent raw tonnes)

For individual years, combining data can produce non-matched results; ABS data is based on a calendar year, rather than a seasonal year, and this survey is unable to account for year-end stocks. However, these factors should tend to be mitigated when viewed over time.

Table 4-3 presents the information relating to apparent Australian market demand for processed tomato products; net Australian production equates to tomatoes processed less exports. The following indicators emerge from this information;

- Prior to the flood season of 2011, imported and local products provided a more even proportion of apparent demand. However, after 2011, the proportion of demand moved decidedly in favour of imported product. Looking at five and seven year intervals, after 2011, imported product has provided two thirds of Australian apparent demand. Data for 2008 presents another year when Australian production declined dramatically (Graph 1-1). One conclusion is that Australian secondary processors (and retailers), suffering a second reduced year of supply from the local industry in 2011 decided there would have to be a higher imported buy in order to guarantee supply to their customers, and this decision would be a longer-term one;

- It was previously noted that there was a weak statistical correlation between imported volumes and average prices, and between imported volumes and the USD exchange rate, over time. These outcomes may be influenced by the apparent long-term policy that secondary processors and retailers would strategically depend less on Australian production; and

- Regardless of annual variability in Australian consumption of tomato products, the longer-term data indicates that local per capita consumption has remained stable, at about 23 kilograms of equivalent raw tomatoes. (By comparison, US consumption is about 25 kilograms and EU consumption is about 20 kilograms). Given stable per capita consumption, the industry might expect market demand to increase at the same rate as population growth; for the eight years to 2019, the average growth rate was about 1.6%[9].

5 Global Production and Outlook

5.1 Production

In 2018, recorded global production totalled 34.830 million tonnes, a reduction of 7.8% compared to 2017. It is anticipated that production will increase in 2019, by about 7%, but still be short of the 2017 total.

In 2000, Australia contributed 1.35% of global production. By 2017, Australia contributed 0.49% of global production and ranked 23rd in industry volume; in 2018 these metrics improved, to 0.65% of global production and ranked 20th in industry volume. In 2018, Australia remained 4th in industry volume of those countries with a January-June harvest.

WPTC crop updates note the following about 2019 production:

- The Californian harvest is expected to be about one million short tons less than expected. Final factory inventory is also projected to be low, so there is an expectation that production in 2020 could increase to possibly 13 million short tons;
- The Northern Italy harvest experienced several hailstorms and extreme heat events, with production expected to be down 18% compared to 2018. Southern Italy had a bad start to the season, but their best September in twenty years. Although fruit quality was good, green fruit reduced factory yields and the volume of finished product is expected to be lower;
- Spain and Portugal had very good seasons, with expected appreciable increases in production compared to 2018;
- Turkish production is expected to increase significantly in 2019 under reasonable harvest conditions;
- Argentinian production was adversely affected by rain, and Chile experienced its most serious drought in fifty years. This is expected to result in a reduction of about 30% in Chilean plantings for 2020; and
- Australia is anticipating a modest rise in 2020 production;

Country	Season	2017	2018	2019E	% change 2018-19	Ranking 2018	% total 2018
USA	Jul-Dec	9,900	11,547	10,430	-10%	1	33.15%
Italy	Jul-Dec	5,200	4,650	4,800	3%	2	13.35%
China	Jul-Dec	6,200	3,800	4,500	18%	3	10.91%
Spain	Jul-Dec	3,350	2,800	3,200	14%	4	8.04%
Brazil	Jul-Dec	1,450	1,400	1,200	-14%	5	4.02%
Turkey	Jul-Dec	1,900	1,300	2,200	69%	6	3.73%
Chile	Jan-Jun	1,080	1,211	1,100	-9%	7	3.48%
Portugal	Jul-Dec	1,554	1,198	1,410	18%	8	3.44%
Iran	Jul-Dec	980	750	1,650	120%	9	2.15%
Ukraine	Jul-Dec	650	735	720	-2%	10	2.11%
Tunisia	Jul-Dec	643	618	807	31%	11	1.77%
Algeria	Jul-Dec	600	500	800	60%	12	1.44%
Russia	Jul-Dec	400	495	550	11%	13	1.42%
Canada	July-Dec	426	450	465	3%	14	1.29%
Argentina	Jan-Jun	488	427	395	-7%	15	1.23%
Egypt	Jul-Dec	300	400	400	0%	16	1.15%
Greece	Jul-Dec	400	320	400	25%	17	0.92%
Thailand	Jan-Jun	260	260	260	0%	18	0.75%
Dominican Republic	Jul-Dec	220	258	258	0%	19	0.74%
Australia	**Jan-Jun**	**185**	**228**	**212**	**-7%**	**20**	**0.65%**
Israel	Jul-Dec	200	200	200	0%	21	0.57%
Poland	Jul-Dec	200	200	200	0%	22	0.57%
France	Jul-Dec	195	139	150	8%	23	0.40%
South Africa	Jan-Jun	180	135	140	4%	24	0.39%
Morocco	Jul-Dec	130	130	130	0%	25	0.37%
India	Jan-Jun	130	130	130	0%	26	0.37%
Hungary	Jul-Dec	100	106	100	-6%	27	0.30%
Peru	Jan-Jun	110	100	100	0%	28	0.29%
Syria	Jul-Dec	70	70	70	0%	29	0.20%
Senegal	Jan-Jun	53	53	61	15%	30	0.15%
New Zealand	Jan-Jun	50	50	50	0%	31	0.14%
Mexico	Jan-Jun	40	40	40	0%	32	0.11%
Bulgaria	Jul-Dec	50	30	40	33%	33	0.09%
Japan	Jul-Dec	30	28	25	-11%	34	0.08%
Czech Republic	Jul-Dec	25	25	25	0%	35	0.07%
Venezuela	Jan-Jun	20	20	20	0%	36	0.06%
Slovakia	Jul-Dec	20	20	20	0%	37	0.06%
Malta	Jul-Dec	8	7	8	14%	38	0.02%
Total		**37,797**	**34,830**	**37,266**	7%		

Table 4-1a: World Production by Country ('000 metric tonnes)[3]

6 References and Sources

1. Previous survey data, B Horn and L Mann
2. Previous survey data, L Mann
3. World Processing Tomato Council
4. Bureau of Meteorology
5. Bureau of Meteorology, and previous survey data, L Mann
6. Goulburn-Murray Water
7. Victorian Water Registry
8. Australian Bureau of Statistics, and previous survey data, L Mann
9. Australian Bureau of Statistics