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# Value of horticulture industries in Western Australia

## 2022–23

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## Acknowledgement of Country

The Department of Primary Industries and Regional Development (DPIRD) acknowledges the Traditional Custodians of Country, the Aboriginal people of the many lands that we work on and their language groups throughout Western Australia, and recognises their continuing connection to the land and waters. DPIRD respects the continuing culture of Aboriginal people and the contribution they make to the life of our regions and we pay our respects to Elders past, present and emerging.

# Contents



# Executive summary

**The horticulture sector in Western Australia (WA) produces high quality fruit, vegetables, nuts and amenity horticulture. Western Australians benefit from consuming this steady supply of diverse, affordable and sustainably grown fresh fruit and vegetables. Amenity horticulture, in the form of parks and gardens, adds a great richness to the quality of life in WA.**

It is estimated that WA produced $1.75 billion worth of fruit, vegetables, nuts and amenity horticulture in 2022–23. The real value[1] of production at the wholesale level increased by 4% when compared to the 2020 figures presented in the report, *Situation analysis of horticulture in Western Australia*. WA farmers produced $831 million worth of vegetables, $580 million of fruit and $343 million of nuts and amenity horticulture. Carrots were the largest vegetable crop both by quantity and value, constituting 13% of the total value of vegetables. However, when fresh market (ware) and seed potatoes are combined, the potato industry is valued at $126 million, which is 15% of the total value of vegetables. Avocados were the largest fruit crop, representing 21% of the total value of fruit production.

Fluctuations in the production of fruit, given the tendency for alternate bearing,[2] affects the total value of the fruit industry. Averaging fruit production across 2 years can give a better indication of the total value than using data from a single year. Vegetables and amenity horticulture are on a growth path, despite some challenges for large export industries like carrots.

Most fruit and vegetable growers are going through a difficult period. Apart from the rising cost of inputs, including labour, consistently high interest rates may be affecting cash reserves. Prices, particularly export prices (in most cases), are not increasing in line with rising input costs. Additionally, uncertain weather patterns are affecting productivity and quality, and the cost of production, for example the cost of power for pumping water.

[1] Value, after accounting for inflation

[2] Alternate bearing is a natural tree phenomenon whereby the tree produces a large crop one year and small crop in the following year

Moving forward, as industries and supply chains become increasingly sophisticated and globally competitive, it will be essential to explore growth options, such as more investment in climate-controlled production systems, and measures to improve productivity at the farm and along the supply chain.

# Value of horticulture industries in Western Australia

**The horticulture industries in WA ensure a steady supply of diverse, affordable and sustainably grown fresh food to the community. It is vital to the growth of regional economies as well.**

Keeping track of the changes in the industry is essential to understanding the trends, making effective interventions, allocating research funds, better strategic planning and making informed decisions. With this in mind, 2020 data from the *Situation analysis of horticulture in Western Australia* is updated here using production data from 2022–23. The background and methodology used in writing this report is provided in **Appendix A**. Details of data sources is provided in **Appendix B**.

In 2022–23, WA's horticultural industries produced fresh fruit, vegetables, nuts and amenity horticulture worth an estimated $1.75 billion at the wholesale level.

The value of the top 10 fruit crops was calculated to be $519 million and the value of the top 10 vegetable crops was $590 million. The total value of fruit was estimated to be $580 million and vegetables $831 million. Data from the Australian Bureau of Statistics (ABS) for 2022–23 indicates that nuts and amenity horticulture have a combined farm gate value of $301 million, which was converted to wholesale value in the analysis. Including nuts and amenity horticulture, the total wholesale value of horticulture was estimated to be $1.75 billion in 2022–23.

Data from the *Situation analysis of horticulture in Western Australia* shows that the value of horticulture more than doubles between wholesale and the end consumer. This is particularly high in industries like wine grapes, where the value of wine grapes at the farm gate increases 10-fold before it reaches the end consumer as wine. This is a result of advanced manufacturing processes on farm to produce packaged and branded high value goods. This process adds significant value to regional economies. That flow-on effect is not calculated in this document.

The quantity and value of the top 10 fruit and vegetables in 2022–23 are shown in Figures 1 and 2.

# Value of top 10 fruit

= $519 m

**Avocados**
$119 m
20,782 t

**Wine grapes**
$104 m
56,888 t

**Strawberries**
$76 m
7,021 t

**Apples**
$64 m
25,108 t

**Table grapes**
$60 m
10,560 t

**Blueberries**
$35 m
1,440 t

**Olives**
$27 m
10,556 t

**Oranges**
$15 m
9,285 t

**Bananas**
$10 m
5,112 t

**Mandarins**
$10 m, 5,486 t

*Figure 1: Quantity and value of the top 10 fruit crops produced in WA in 2022–23*

## Avocados

Avocados are the highest value fruit crop in WA. However, fluctuations in production due to alternate bearing results in high variability in volumes and value from year to year. The production volume in the 2023–24 cropping season is over 65,000 tonnes and is more than double the value reported in 2022–23 shown here.

## Wine grapes

Wine grapes are not sold on the wholesale market, so the value given here is the farm gate value.

## Strawberries

Strawberries were the largest export fruit crop by value in 2022–23, with 27% of production, worth $22 million, exported. The decline in production has led to a higher price received per punnet, increasing by 53%, resulting in a total increase in wholesale value of 24% in real terms.

## Apples

Replanting has led to a decline in production, which will likely bounce back as new plantings mature. Supply from the eastern states is filling the gap. Real price remains stable. WA has the largest per capita consumption of apples nationally, according to data from Harvest to Home. This is possibly a result of industry focusing on quality, and the growing popularity of the Bravo® branded apples.

## Table grapes

Table grapes are the third largest fresh fruit crop by value. Production has increased by 42% since 2020. Of the total production, 13% was exported. Per capita production available for WA consumption increased from 2.3 to 3.18 kg/person/year, between 2020 and 2022–23, a 38% increase. This increase in supply has resulted in a 21% decline in real price and, hence, a real value increase of only 12%. Additionally, because of Queensland fruit fly outbreaks, table grapes had to be cold treated under the quarantine protocol, which affected the quality and caused spreading of fruit across the latter part of 2022–23, affecting the price.

## Blueberries

While blueberry production data was unavailable, there has been a per punnet increase in price, and based on stable volumes the real value of the industry is estimated to be $35 million (a 21% increase from 2020). The blueberry industry is on a growing path, with strong demand from domestic and overseas markets.

## Olives

Olive production has come down because of alternate bearing and adverse weather conditions.

## Oranges

There has been a decline in production of premium class oranges due to adverse weather events and challenging export conditions which have seen the value of WA oranges fall. There is no decline in the number of trees.

## Bananas

There is high competition from Queensland. Hot temperatures in Carnarvon over the past summer have meant lower volumes.

# Value of top 10 vegetables

= $590 m

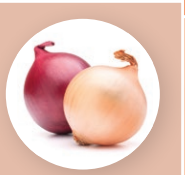
**Carrots**
$105 m
114,695 t

**Cucumbers**
$100 m
23,394 t

**Ware potatoes (fresh)**
$95 m
56,500 t

**Tomatoes**
$54 m
18,106 t

**Onions**
$53 m
30,431 t



**Melons**
$47 m
31,643 t

**Broccoli**
$41 m
11,647 t

**Lettuce**
$35 m
18,470 t

**Seed potatoes**
$31 m
23,390 t

**Mush-rooms**
$29 m
3,390 t

*Figure 2: Quantity and value of the top 10 vegetable crops produced in WA in 2022–23*

## Carrots

Carrots are still the largest vegetable crop by quantity and value in WA. However, carrot producers are experiencing cost price pressure, with the rising cost of capital, labour, power and other inputs resulting in reduced competitiveness in export markets. The export price and, consequently, the volume of exports has declined. Decline in export sales has resulted in a 14% fall in total production.

As 70% of the total quantity was previously being exported, when combined with a 10% decline in real price, averaged over domestic and export sales, the 14% reduction in production volume has resulted in a 23% decline in the real value of the carrot industry.

## Cucumbers

Fresh cucumbers are the second largest vegetable industry by value in WA. Tunnel house production from Geraldton is increasing, with the region now producing around 90% of the cucumbers grown in WA, predominantly over the winter production period.

## Ware potatoes (fresh)

Fresh potatoes are the third largest vegetable industry by value and second largest by quantity. A 10% decline in production has resulted in a 23% increase in real price and 10% increase in real value.

## Tomatoes

The WA tomato crop has declined in both quantity and value of production by 24% and 21% respectively. An increased supply of greenhouse tomatoes from the eastern states entering WA may have displaced the locally produced crop. Despite this, the real price of the WA grown tomato crop has increased by 3% in real terms.

Carnarvon production experienced quality issues with pests and rain during winter.

## Onions

A decline in production volume (26%) and an increase in export volume, now 22% of production, contributed to a 2% increase in real price. However, the increase in price was not enough to see an increase in the total real value of onion production, which fell by 9% overall in WA.

## Seed potatoes

Seed potato production increased by 7%, while the volume of seed potatoes exported increased by 22%. A real value increase of exports by 21% resulted in a stable real value, even though the real prices have declined by 7%.

# Production trends in WA horticulture industry

**The real value of horticulture increased by 4% compared to 2020. Note that the term 'real value' takes into account the change in value over time adjusted for inflation, as opposed to the nominal value, which gives values in dollars of the day, not adjusted for inflation.**

The value of fruit and horticulture in general is heavily influenced by alternate bearing in the avocado industry. The value of the avocado crop in 2019–20 accounted for 31.5% of the total value of WA's fruit crops. If we replace the 2022–23 avocado production and price with 2023–24 figures here, the value of fruit would be $707 million, which is 22% higher than the current value. Fluctuations in avocado production is explained in Figure 3.

Olives also experienced a drastic reduction in production because of the adverse weather conditions and alternate bearing.

A mixed trend is seen in the real price of different fruit crops. The real price of olives has increased, probably due to the data source, rather than an actual increase. (A more representative figure for growers has been obtained for this report.) The real price of strawberries increased by 53%, probably in response to the decline in production. See Figure 4 and Table 1.

The real value of vegetables increased by 3% compared to 2020. While carrots maintain their position as the largest export vegetable crop, both the quantity and real price of carrots are declining because of the decline in exports. Ware potatoes and onions experienced a more than 20% increase in real price. Cucumbers are the second largest vegetable by value. See Figure 5 and Table 2.

The reduction in fruit value is more than compensated for by the increase in the value of nuts and amenity horticulture.

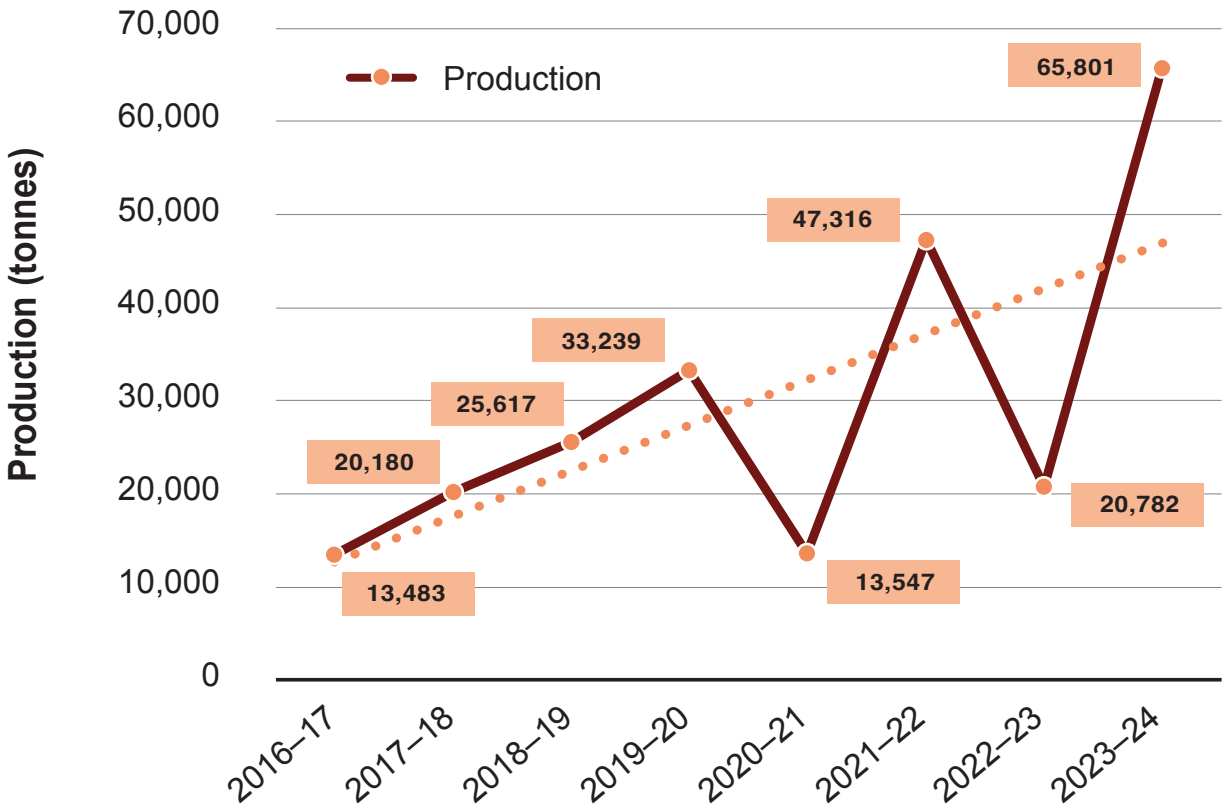



***Figure 3: Production trends in the WA avocado industry from 2019–17 to 2023–24***

## Notes for Figure 3

Production in the 2023–24 season is estimated to be 65,800 tonnes, which is about 45,000 tonnes more than reported in the 2022–23 season, as shown in Figure 3.

This on-off production cycle means that, depending on the year, producers will have more fruit, but lower value per unit, or less fruit but higher value per unit. Over the past 3 years, average production was 44,633 tonnes. In 2022–23 production was 53% less than average, and 47% more than the average in 2023–24.

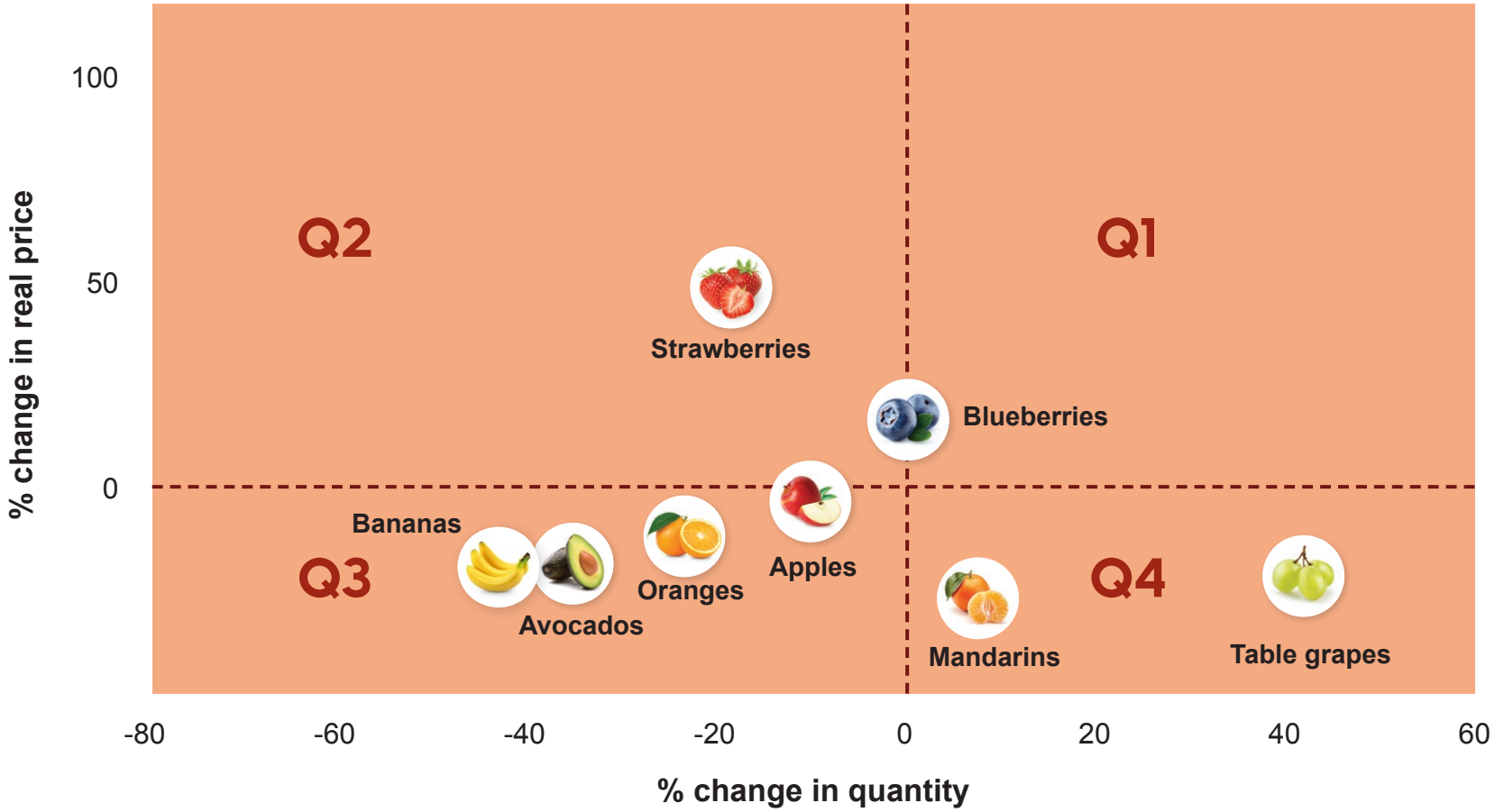



***Figure 4: Percentage changes in production quantity and real price of eight WA fruit crops in 2022–23***

Note: Wine and olives are excluded as the change in source data may not reflect the true growth of the industry.

## Notes for Figure 4

In Q1 and Q2 fruit crops were in comparatively healthy positions where price has increased. Even though the production of strawberries has decreased by 19%, prices have increased to compensate for the decline in production, showing the strong demand for the product.

In Q3 all industries showed a decline in real value. In these industries, prices haven't improved to compensate for the decline in production. This shows either a decline in demand or strong competition from the eastern states and/or overseas. Alternate bearing and adverse weather conditions affected the production of olives. Price increases in the olive industry are primarily influenced by changes in source data and may not accurately reflect actual market changes. Falls in the production and real value of avocados can be attributed to alternate bearing.

## Table 1: Trends in WA fruit industry*

| Fruit | % change in real price | % change in quantity | % change in real value |
|---|---|---|---|
| **Apples** | -2.39 | -10.11 | -12.25 |
| **Avocados** | -18.53 | -35.54 | -47.48 |
| **Bananas** | -18.99 | -45.80 | -56.11 |
| **Blueberries** | 20.56 | 0.00 | 20.56 |
| **Mandarins** | -26.06 | 7.34 | -20.64 |
| **Oranges** | -10.45 | -23.55 | -31.54 |
| **Strawberries** | 52.64 | -18.76 | 24.00 |
| **Table grapes** | -21.07 | 41.87 | 11.97 |

*All trends refer to the years between 2020 and 2022–23

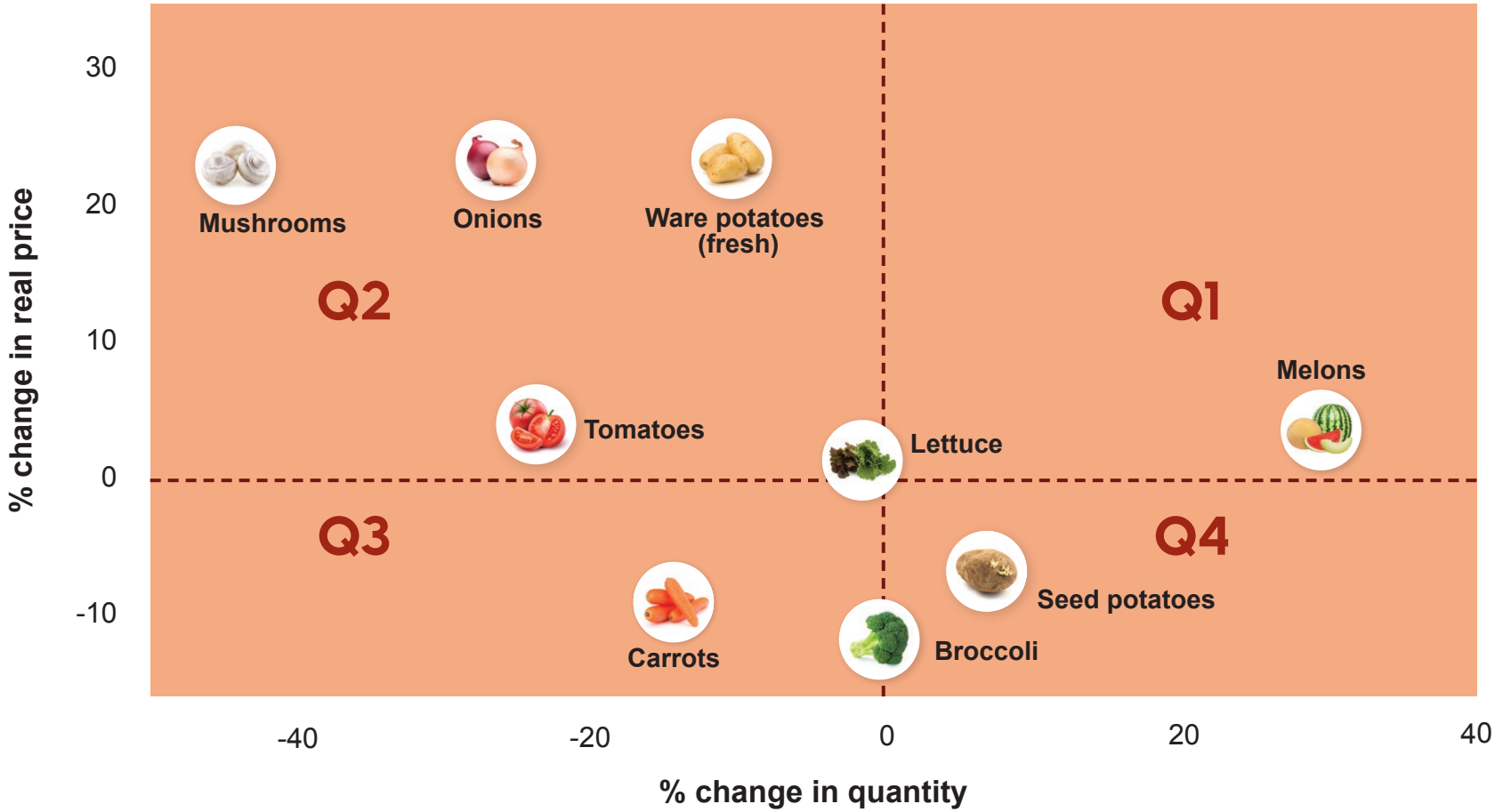



***Figure 5: Percentage changes in production quantity and real price of nine WA vegetable crops in 2022–23***

Note: Cucumbers are excluded as the change in source data may not reflect the true growth of the industry.

## Notes for Figure 5

All the vegetables in Q1 and Q2 experienced real price increases – ware potatoes and onions had a real price increase of 23%. Both quantity and price have increased for melons. Cucumber is excluded because part of the growth in cucumber production comes from the change in the source of data. Both the quantity and real price of carrots declined, with a decline in exported product resulting in a real value decline of 23%.

Most fruit and vegetable industries are going through a difficult period. Aside from the rising cost of inputs, including labour, consistently high interest rates may be affecting cash reserves. Domestic prices show an increasing trend, but this is not experienced in export markets, except for strawberries.

## Table 2: Trends in WA vegetable industry*

| Vegetable | % change in real price | % change in quantity | % change in real value |
|---|---|---|---|
| **Broccoli** | -12.37 | -0.41 | -12.73 |
| **Carrots** | -9.57 | -14.34 | -22.53 |
| **Lettuce** | 0.95 | -1.41 | -0.46 |
| **Melons** | 3.33 | 29.93 | 34.26 |
| **Mushrooms** | 22.80 | -44.09 | -31.34 |
| **Onions** | 23.17 | -26.39 | -9.33 |
| **Ware potatoes (fresh)** | 23.28 | -10.37 | 10.50 |
| **Seed potatoes** | -6.69 | 6.87 | -0.28 |
| **Tomatoes** | 3.18 | -23.71 | -21.29 |

*All trends refer to the years between 2020 and 2022–23

# References


- Agricultural Produce Commission (2022–23) (unpublished).
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- Radhakrishnan M, Lantzke N and Mattingley P (2022) *Situation analysis of horticulture in Western Australia*, Department of Primary Industries and Regional Development, Western Australian Government


# Appendix A

## Background

The 2022 report titled *Situation analysis of horticulture in Western Australia* provided a comprehensive analysis of the area, volume and value of the WA horticulture industry. It also provided information on flow-on benefits, including employment, to regional communities. The report investigated 28 fruit and 72 vegetable crops and also considered nuts and amenity horticulture. The intention is to publish this detailed situation analysis of horticulture every 5 years, with the next report due in 2027. This 2022–23 report provides an interim update of the wholesale value of horticulture.

## Methodology

The data refers to the 2022–23 financial year.

This report was compiled using production data from the Agricultural Produce Commission (APC), which was verified using different sources, including data from Market City (quantity of wholesale product sourced from WA) and the Global Trade Atlas (export data). Wherever the total production reported by the APC was less than the combined total of wholesale and export quantity, APC data was rejected. In those instances, data was sourced from the Australian Horticulture Statistics Handbook (AHSH) or estimated by experts in DPIRD based on available evidence. Wherever APC data was not available (e.g. mushrooms and olives), the AHSH was used as the source of data. Other sources were used for avocados (Infocado report), seed potatoes (The Western Australian Certified seed potato scheme) and ware potatoes (WA Potatoes). Details on olives were confirmed by industry experts from the Western Australian Olive Council.

The average price for WA product at Market City was used to calculate the value of fruit and vegetables. For exported products, a weighted average of wholesale and export prices was used as the unit price.

From the situation analysis report, the top 10 fruit crops constituted 90% of the fruit industry and the top 10 vegetable crops constituted 71% of vegetable industry. These proportions were used to estimate the total value of the fruit and vegetable industries. The value of nuts and amenity horticulture was updated using ABS data from 2022–23.

It should be noted that this methodology assumes that the types of fruit and vegetables that constituted the top 10 in 2020 are on top in 2022–23, but there may have been changes. Similarly, data about some of the crops in this publication could not be verified, and there are instances where no updates were factored in and data from 2020 was used instead (e.g. blueberries).

# Appendix B

## Table 3: Sources of data for this report

| Fruit/vegetable | Data sources | Comments |
|---|---|---|
| **Avocados** | Infocado | Industry data. 2022–23 is a low year |
| **Wine grapes** | Wines of Western Australia | Industry data is more reliable |
| **Table grapes** | APC | Confirmed by industry experts |
| **Apples** | APC | Confirmed by industry experts |
| **Blueberries** | Previous report | Data not updated |
| **Strawberries** | Australian Horticulture Statistics Handbook | Total production from APC was less than the combined export and wholesale product from WA at Market City |
| **Bananas** | APC | Confirmed by industry experts |
| **Olives** | Australian Horticulture Statistics Handbook (Based on olive industry levy) | Not available from APC; industry experts from the Western Australian Olive Council confirmed this data |
| **Oranges** | APC | Decline in production is confirmed by industry experts |
| **Mandarin** | APC | Decline in production is confirmed by industry experts |
| **Ware potatoes (fresh)** | WA Potatoes | Industry estimates |

## Table 3: Sources of data for this report

| Fruit/vegetable | Data sources | Comments |
|---|---|---|
| **Carrots** | APC | |
| **Cucumbers** | Estimated by DPIRD experts based on the number of hothouses in WA and average production | Total production from APC was less than the WA product at Market City |
| **Onions** | APC | |
| **Broccoli** | APC | |
| **Tomatoes** | Australian Horticulture Statistics Handbook | Total production from APC was less than the WA product at Market City |
| **Seed potatoes** | The Western Australian Certified seed potato scheme | Most reliable data |
| **Lettuce** | APC | |
| **Melons** | Australian Horticulture Statistics Handbook | Total production from APC was less than the combined export and wholesale product from WA at Market City |
| **Mushrooms** | Australian Horticulture Statistics Handbook | Not available from APC. Figures appear to be low but another data source was not available |

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