



Primary Industries Education  
Foundation Australia



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## Hort Innovation

# Australian Apples Supply Chain



**PIEFA Food & Fibre** 

**CARD GAME**



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**CARD GAME**



## Growing



### ➤ CONSIDERATIONS:

- Growing apples involves various orchard operations and the sustainable management of resources. This includes grafting, pruning and thinning which are essential for maintaining healthy trees, optimising fruit production and yield. Other key tasks in the growing stage include fertilising, irrigating and spraying trees in the orchard.



## Picking



### ➤ CONSIDERATIONS:

- The timing of picking is decided by maturity indicators such as colour change, firmness, and sugar content.
- Picking can be done manually for smaller orchards or through mechanical harvesters in larger commercial settings.



## Initial Inspection



### › CONSIDERATIONS:

- Inspection is a crucial step in the post-harvest process that ensures the quality and marketability of the fruit by visually assessing colour, size, shape, firmness, and the absence of defects.



## Cleaning



### ➤ CONSIDERATIONS:

- Cleaning is a post-harvest handling process carried out to enhance the apples visual appeal, remove any surface contaminants, and ensure consumer safety by meeting hygiene standards for consumption and commercial distribution.



## Grading



### > CONSIDERATIONS:

- Apples are graded according to criteria such as size, colour, shape, and the absence of defects.
- Automated grading machines or skilled workers carefully sort apples, segregating them into different grades.



## Sorting



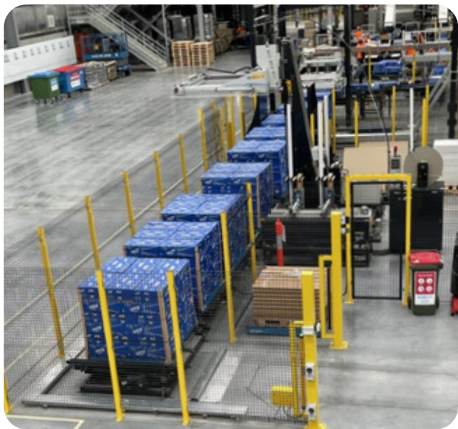
### ➤ CONSIDERATIONS:

- Automated sorting machines or manual labour is employed to categorise apples according to size, colour, and the presence of defects.
- Size sorting ensures uniformity within each batch, facilitating consistent packaging and pricing.





## Packing



### ➤ CONSIDERATIONS:

- After apples undergo sorting, they are systematically placed into packaging containers, e.g. sturdy cardboard boxes.
- The process requires attention to detail to prevent bruising or damage during handling and transit.



## Labelling



### ➤ CONSIDERATIONS:

- Labels or branding information are added to individual apples as well as packaging to convey important details about the apple variety, origin, and quality.



## Value-added Product Production



### ➤ CONSIDERATIONS:

- Involves transforming apples into a variety of processed goods, expanding their use beyond fresh consumption.
- These value-added products cater to various consumer preferences.



## Cold Storage



### ➤ CONSIDERATIONS:

- Maintaining low temperatures, (0 to 4°C) slows down the natural ripening and ageing processes of the fruit.
- Cold storage helps apples preserve their crisp texture, flavour, and nutritional content, extending their shelf life.



## Packaging



### ➤ CONSIDERATIONS:

- Once sorted, apples are carefully placed into packaging containers such as boxes, crates, or bags.
- Packaging is designed to protect the apples during transportation and storage, maintaining their freshness and preventing damage.



## Transport



### ➤ CONSIDERATIONS:

- Temperature-controlled transport helps preserve the freshness and quality of the apples.
- Efficient logistics and careful handling contribute to delivering quality apples to markets.



## Central Markets



### ➤ CONSIDERATIONS:

- Central markets are key hubs for the distribution and sale of apples, where growers, distributors, and retailers converge to buy and sell fresh produce.
- The centralisation of these markets streamlines the distribution process.



## Domestic Retail and Food Service



### ➤ CONSIDERATIONS:

- Apples play a prominent role as a versatile and popular fruit.
- Retail settings, supermarkets, grocery stores, and farmers' markets provide consumers with a wide variety of options to purchase apples within Australia.





## Domestic Consumer



### ➤ CONSIDERATIONS:

- Domestic consumers can choose from a diverse range of apple varieties.
- The year-round availability of apples in retail stores makes them a convenient and healthy option for Australian households.



## Export



### ➤ CONSIDERATIONS:

- Australian apples are exported to various international markets with key destinations including Southeast Asia, the Middle East, and North Asia.
- Trade partnerships and agreements may influence the distribution of Australian apples in different regions.



## Export Retail and Food Services



### ➤ CONSIDERATIONS:

- The apple industry is expanding its global reach through increased export activities, targeting both retail and food services markets.
- Apple producers aim to meet the rising demand for fresh and high-quality apples worldwide.



## Export Consumer



### ➤ CONSIDERATIONS:

- The apple industry is strategically positioned in the global market to meet the growing demand from international consumers.
- Apple producers aim to provide consumers worldwide with high-quality, fresh apple varieties and value-added products.



## Orchardist



### ➤ CONSIDERATIONS:

- Engage in the cultivation and management of apple orchards.
- They work to optimise yield, quality, and sustainable practices to contribute to the success of apple production and meet market demands.



## Orchard Manager



### ➤ CONSIDERATIONS:

- Plan and coordinate planting schedules, manage irrigation systems, implement pest and disease control, supervise pruning and harvesting activities.
- Play a crucial role in budgeting, resource allocation, and implementing sustainable practices to optimise yields and meet market demands.



# Agronomist



## ➤ CONSIDERATIONS:

- Advise on soil and crop management, implement integrated pest management strategies, and assist with varietal selection and orchard planning.
- Educate orchard staff, foster environmental stewardship, and ensure the crops' overall health and quality from planting to post-harvest management.



## Quality Control Supervisor



### ➤ CONSIDERATIONS:

- Implement stringent quality assurance protocols, oversee inspection and grading processes, and collaborate with various stakeholders to align quality control measures with industry standards and consumer expectations.
- Play a pivotal role in maintaining and enhancing the quality of apples from orchard to market.





## Contractor



### ➤ CONSIDERATIONS:

- Responsible for executing various tasks related to orchard management and coordinating with orchard owners or managers to ensure that projects are completed efficiently and within specified timelines
- Contribute to the overall health and productivity of the orchard.



## Fruit Picker



### ➤ CONSIDERATIONS:

- Harvest ripe apples while adhering to quality standards and safety protocols.
- Efficiently select, pick, and sort apples from trees, contributing to the overall success of the orchard's production goals.



# Packhouse Supervisor



## ➤ CONSIDERATIONS:

- Oversee the packing and sorting operations of harvested apples to ensure compliance with quality standards and customer specifications.
- Coordinate and manage packhouse staff and oversee the packing process.



## Packhouse Worker



### ➤ CONSIDERATIONS:

- Responsible for sorting, grading, and packaging harvested apples in accordance with quality standards.
- Operate machinery to facilitate the efficient packing process.
- Maintain a clean and organised work environment.



# Central Market Wholesaler



## ➤ CONSIDERATIONS:

- Distribute and sell apples within a central market.
- Facilitate the efficient flow to retailers, manage pricing strategies, and foster strong relationships with suppliers and buyers to optimise market operations.



## Grafter



### ➤ CONSIDERATIONS:

- Grafting is a horticultural technique where parts of one plant (the scion) are joined to another plant (the rootstock), creating a new plant with desirable characteristics.
- Grafters perform the grafting process to reproduce apple trees with important characteristics, such as specific fruit quality, taste, or resistance to diseases. This is especially important for maintaining consistent and high-quality apple varieties.



## Electric Secateurs



### ➤ CONSIDERATIONS:

- Electric secateurs are tools designed to make the process of pruning and cutting branches more efficient, precise, and easier. These tools feature a cutting mechanism that is activated by pressing a button or a trigger.
- When using electric secateurs in apple orchard management it's important for operators to follow safety guidelines and wear appropriate protective attire to avoid accidents.



# Drift Reduction Spray Technology



## ➤ CONSIDERATIONS:

- Drift reduction spray technology is an important aspect of pesticide application in apple production. It is designed to minimise the dispersion of spray droplets beyond the target area, reducing environmental impact and improving the efficiency of pesticide application.
- Producers can choose from a variety of drift reduction products. These products are often formulated to modify the physical properties of the spray solution, such as viscosity and droplet size to reduce the risk of spray drift in orchards.





# Harvesting Machinery



## ➤ CONSIDERATIONS:

- Modern harvesting machinery in the apple industry has revolutionised the efficiency and scale of fruit harvesting operations.
- Automated picking and sorting capabilities streamline the harvesting process, increasing overall productivity in apple orchards.



## Sorting, Grading, and Packing Machinery



### ➤ CONSIDERATIONS:

- This technology streamlines post-harvest processes by categorising apples based on size, colour, and quality.
- Enhances efficiency and precision, ensuring apples meet market standards and are ready for distribution to domestic and export markets.



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## Apples All Year Round

Scan the QR code or visit the link below to learn more about the Australian apple industry.

[http://www.primezone.edu.au/  
resource/apples-all-year-round](http://www.primezone.edu.au/resource/apples-all-year-round)



Instructions for the

# Australian Apples Supply Chain

PIEFA Food & Fibre Card Game



Scan the QR code or visit  
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game instructions.

[https://primezone.edu.au/resource/  
piefa-food-fibre-card-game/](https://primezone.edu.au/resource/piefa-food-fibre-card-game/)



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**A number of images used  
in the card game have been  
supplied with permission  
from Montague Orchards.**

Primary Industries Education  
Foundation Australia thanks them  
for their support in the development  
of PIEFA Food and Fibre Card Game  
Australian Apples Supply Chain.



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