

# Australian Citrus

## Strategic R&D Plan



# 2012–17

A plan to guide strategic  
investment in citrus R&D

October 2012



# Overview of the Plan

## Vision

*A profitable citrus industry that delights consumers with consistently high quality, great tasting products.*

## Mission

*To efficiently deliver innovative and effective R&D solutions to support a profitable citrus industry.*

## Objectives & Key Strategy Areas

<b>Objective 1: Develop and Maintain Market Opportunities</b>	<b>Objective 2: Increase Product Value</b>	<b>Objective 3: Improve Efficiency and Sustainability</b>
<b>1.1 Market Access</b>  Ensuring open channels of international & domestic trade	<b>2.1 Product Enhancement</b>  Locking in competitive advantages: taste, freshness & food safety	<b>3.1 Production Efficiency &amp; Innovation</b>  Finding new ways to increase production outputs and/or reduce costs
<b>1.2 Market Research &amp; Analysis</b>  Understanding consumers, customers & competitors in order to develop new market opportunities	<b>2.2 Product Development</b>  Developing new varieties & rootstocks in line with consumer preferences	<b>3.2 Securing our Production Base</b>  Protecting our orchards from biosecurity & environmental threats
<b>Objective 4: Provide a Supportive Operating Environment</b>		
<b>4.1 Information &amp; Communication</b>  Keeping our stakeholders informed through effective and timely communication and extension	<b>4.2 Capacity &amp; Capability</b>  Supporting industry operations through enhanced skills training, leadership and planning	

# Introduction

## Why a New Plan?

The current Citrus Industry Strategic Plan “*Creating our future: A national strategy for the citrus industry 2006 – 2011*” has guided activities over the past four years.

With the period of this plan completed and the significance of changes taking place in the Research and Development (R&D) environment, it is an opportune time for the citrus industry to develop a fresh Strategic R&D Plan.

Many challenging issues are facing the Australian citrus industry; and Australian horticulture more generally. There has never been a more important time to actively plan for the future.

## What will the New Plan do?

This new plan has been developed to guide strategic investment of R&D levy expenditure managed through HAL over the next 5 years: 2012 - 2017.

During this period, Horticulture Australia Limited (HAL) is expected to oversee between \$25-30 million of investment in Citrus R&D. This will be funded through a combination of levy funds, voluntary contributions, and matched funding from the Federal Government.



## How has the Plan been developed?

This R&D investment plan has considered the needs of the various citrus production regions and the full breadth of the supply chain.

Extensive industry consultation has been undertaken with stakeholders spanning the supply chain in order to ascertain needs and related actions required to move the industry forward.

Regional forums were held in each of the major citrus growing regions followed by a national R&D workshop, enabling participants at each of these events to comment on past, current and proposed R&D activities.

An overview of the plan was prepared and circulated to all industry contacts for comment. Following a second phase of consultation, the plan will be finalised for subsequent endorsement by the Citrus Australia Board and adoption by the Citrus Industry Advisory Committee (IAC).

## How will the Plan be implemented?

This plan will be used by the Citrus IAC to guide R&D investment over the next five years. The plan will be reviewed by the IAC at least annually and will be used as the basis for developing Annual Investment Plans.

A detailed investment plan has been developed and will be continually reviewed by the Citrus IAC to further refine the investment program over the life of the plan.

## Vision

A profitable citrus industry that delights consumers with consistently high quality, great tasting products.

## Mission

To efficiently deliver innovative & effective R&D solutions to support a profitable citrus industry.

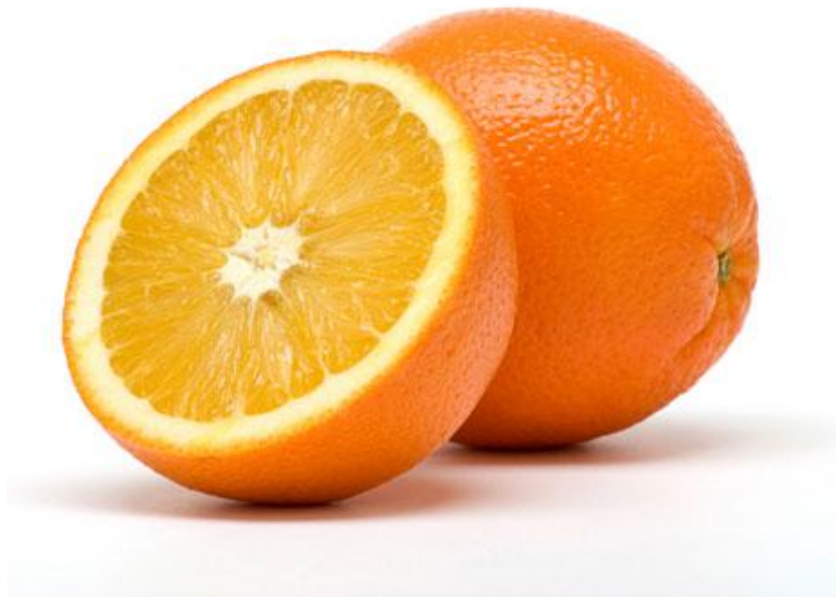
## Objectives

<b>Objective 1: Develop and maintain market opportunities</b>	<b>Objective 2: Increase product value</b>	<b>Objective 3: Improve efficiency and sustainability</b>
Increase demand for Australian citrus by ensuring adequate access to domestic and export markets and by understanding consumers, customers and competitors in these markets.	Ensure the price of Australian citrus is maximised by improving our reputation as a reliable supplier of high quality citrus, capitalising on aspects of taste, colour, freshness and food safety.	Improve the productivity and international competitiveness of the Australian citrus industry and safeguard against potential threats.

### **Objective 4:**

#### **Provide a supportive operating environment**

Support industry development through enhancement of the operating environment, encompassing leadership and skills development, partnerships, communication, extension, planning and R&D capacity.



## **Objective 1: Develop and Maintain Market Opportunities**

Citrus represents Australia's largest fresh fruit export. With over 25% of Australia's citrus crop now being exported, maintaining and improving access and sales penetration in international markets is critical to the industry's future.

### **1.1 Market Access**

Increasing global competition from lower cost producers and ongoing threats to existing access conditions place even greater importance on maintaining current market access and overcoming the complex array of trade barriers and restrictions faced by the industry. Neighbouring Asian countries are of particular focus, where Australia's close proximity provides an advantage over competitors. Improved export market access for Australian citrus also generates positive pricing pressure on domestic channels by reducing volume pressure in local markets.

### **1.2 Market Research & Analysis**

The ability to identify and capitalise on new market opportunities requires an understanding of production trends, market requirements, customer needs and competitor activities. This understanding is developed through accessing reliable and timely information.

## Objective 1: Develop and Maintain Market Opportunities

<b>Key Strategy Areas</b>	<b>1.1 Market Access</b>  Ensuring open channels of international & domestic trade	<b>1.2 Market Research &amp; Analysis</b>  Understanding consumers, customers & competitors in order to develop new market opportunities
<b>Strategies</b>	<b>1.1.1</b> Provide supporting data and resolve technical export market access issues  <b>1.1.2</b> Facilitate new or improved quarantine protocols for key export markets  <b>1.1.3</b> Provide supporting data and resolve technical domestic market access issues	<b>1.2.1</b> Collect & analyse ongoing production and market information to support decision making  <b>1.2.2</b> Identify, prioritise & develop new market opportunities  <b>1.2.3</b> Drive citrus consumption through targeted consumer research, evaluation and value chain engagement
<b>Outputs</b>	<ul style="list-style-type: none"> <li>➤ Scientific research to support improved quarantine and trade protocols for export and domestic markets</li> <li>➤ Annually updated market access priority list</li> </ul>	<ul style="list-style-type: none"> <li>➤ Market information reports: market intelligence &amp; scan data, market trends &amp; consumer preferences, competitor analysis &amp; market research reports</li> <li>➤ Market development plans</li> </ul>
<b>Industry Outcomes</b>	<ul style="list-style-type: none"> <li>➤ Increased volume and value of Australian citrus exports</li> <li>➤ Increased volume and value of domestic citrus sales</li> <li>➤ Market access improvement (export and domestic)</li> <li>➤ New &amp; existing markets are developed for Australian citrus</li> <li>➤ Co-investment by exporters and other industry stakeholders in market development initiatives</li> <li>➤ Industry data is current and readily available in a range of formats</li> </ul>	
<b>KPIs</b>	<ul style="list-style-type: none"> <li>➤ <b>Export market access:</b> develop the South Korean market to increase export trade from currently negligible volumes to 10,000 tonnes annually with a FOB value of A\$15 million.</li> <li>➤ <b>Domestic market access:</b> maintain postharvest dimethoate usage for fruit fly control and identify at least one alternate control treatment to ensure ongoing interstate movement of citrus.</li> <li>➤ <b>Market information:</b> install a market intelligence reporting system which provides: 3-yearly reports of plantings, long-term forecasting &amp; consumer trends; yearly reports of crop forecasts, end of season volumes &amp; marketing campaign evaluation; and weekly reports of market dispatch &amp; harvest rate.</li> </ul>	
<b>Target</b>	<ul style="list-style-type: none"> <li>➤ Increase the percentage of crop exported by 10% by 2016/17</li> </ul>	



## Objective 2: Increase Product Value

To become more internationally competitive it is imperative that in addition to maintaining and expanding existing and potential markets, the Australian citrus industry is able to supply a reliable, high quality product.

### **2.1 Product Enhancement:**

Australia has a reputation for producing high quality citrus with the parameters of eating quality, food safety, taste, colour, and freshness being of greatest importance. Ensuring consistent quality is a constant challenge, but with improved quality comes the reward of increased value. This can be achieved through process improvement throughout the entire value chain, focusing on aspects of eating quality and food safety.

### **2.2 Product Development:**

Access to superior varieties and rootstocks, selected to suit consumer preferences, can provide a multitude of benefits including extension of the marketing season, enhanced product quality and higher yields.



## Objective 2: Increase Product Value

<b>Key Strategy Areas</b>	<b>2.1 Product Enhancement</b>  Locking in competitive advantages: taste, freshness and food safety	<b>2.2 Product Development</b>  Developing new varieties & rootstocks in line with consumer preferences
<b>Strategies</b>	2.1.1 Implement a national quality standards program to improve eating quality and convenience  2.1.2 Develop new products and practices which enhance eating quality  2.1.3 Find ways to improve pre-harvest quality and retain postharvest freshness and integrity of our products  2.1.4 Establish programs to support food safety across the supply chain methods	2.2.1 Import best available varieties & rootstocks from around the world  2.2.2 Support world-class quarantine services for importation of new varieties  2.2.3 Breed, evaluate & commercialise new, improved varieties and rootstocks specifically suited to Australian conditions  2.2.4 Provide independent information on new varieties for growers
<b>Outputs</b>	<ul style="list-style-type: none"> <li>➤ Enhanced and widely adopted citrus quality standards</li> <li>➤ Taste enhancing products and practices</li> <li>➤ Postharvest treatments that maintain freshness and meet customer requirements</li> <li>➤ Food safety programs</li> </ul>	<ul style="list-style-type: none"> <li>➤ Commercially available new varieties &amp; rootstocks suited to Australian conditions and consumer preferences</li> <li>➤ Independent information on new varieties provided to growers</li> </ul>
<b>Industry Outcomes</b>	<ul style="list-style-type: none"> <li>➤ A strong international &amp; domestic quality reputation for Australian grown citrus</li> <li>➤ Proven industry commitment to the Australian Citrus Quality Standards</li> <li>➤ Increased volume and value of Australian citrus sales (export and domestic)</li> <li>➤ The industry effectively responds to any food safety issues that arise</li> </ul>	
<b>KPIs</b>	<ul style="list-style-type: none"> <li>➤ <b>Quality improvement:</b> achieve consistent 95% compliance with national eating quality standards by 2017.</li> <li>➤ <b>Food safety:</b> establish a national residue testing program that is targeted to specific markets and recognised by relevant governments.</li> <li>➤ <b>New products:</b> deliver to industry 10 new high-health varieties that have been independently evaluated for production and market potential.</li> </ul>	
<b>Target</b>	<ul style="list-style-type: none"> <li>➤ Increase local (farm gate) value of production per hectare by 10% by 2016/17</li> </ul>	



## Objective 3: Improve Efficiency and Sustainability

### 3.1 Production Efficiency & Innovation

Research that supports reduced input costs through improved efficiency is essential in countering increasing levels of global competition. Unpredictable variation in seasonal crop production caused by biennial bearing is of particular concern, leading to variability in production levels and fruit size. This causes considerable strain on many aspects of the citrus value chain including citrus packing, processing and marketing. Overcoming this variability is critical to supplying markets with consistently high quality fruit.

### 3.2 Securing our Production Base

Despite Australia's rigorous quarantine system, a variety of exotic pests still pose a threat to the Australian citrus industry. Climate change and increased climate variability will also present a range of future challenges for the industry. It will be critical to seek means for reducing the environmental impact from business operations and ensure efficient and sustainable management of natural resources including water and soils. Adoption of Integrated Pest Management (IPM) strategies will become increasingly essential. Safeguarding the industry against these and other risks requires ongoing investment in both planning and preparedness.

## Objective 3: Improve Efficiency and Sustainability

<b>Key Strategy Areas</b>	<b>3.1 Production Efficiency &amp; Innovation</b>  Finding new ways to increase production outputs and/or reduce costs	<b>3.2 Securing our Production Base</b>  Protecting our orchards from biosecurity & environmental threats
<b>Strategies</b>	3.1.1 Investigate cost effective means for increasing sustainable yields of marketable fruit  3.1.2 Explore, evaluate and promote lower cost or more productive production techniques	3.2.1 Strengthen industry planning and preparedness in relation to biosecurity and other risks, and facilitate awareness of new invasive pests and diseases  3.2.2 Support maintenance of clean planting material and encourage plantings that are based on high-health, genetically superior nursery trees  3.2.3 Support improved pest management strategies  3.2.4 Investigate sustainable use of water, soils and other natural resources
<b>Outputs</b>	<ul style="list-style-type: none"> <li>➤ Citrus production technology gap analysis and cost benefit analysis</li> <li>➤ Effective crop regulation practices</li> <li>➤ Lower cost production techniques</li> <li>➤ Precision application methodology for water, nutrition and pesticides/fungicides</li> </ul>	<ul style="list-style-type: none"> <li>➤ Current and adequately resourced biosecurity and risk management plans</li> <li>➤ Training and simulation activities undertaken to enhance risk response preparedness</li> </ul>
<b>Industry Outcomes</b>	<ul style="list-style-type: none"> <li>➤ Increased marketable yield per hectare and reduced cost of production per kilogram</li> <li>➤ Improved supply chain efficiency</li> <li>➤ Reduced environmental impact from citrus production</li> <li>➤ Effective industry response to biosecurity and other crisis issues</li> </ul>	
<b>KPI's</b>	<ul style="list-style-type: none"> <li>➤ <b>Crop regulation:</b> deliver a predictive cropping intensity model which allows growers to better regulate cropping cycles to meet market demand.</li> <li>➤ <b>Biosecurity:</b> develop and implement a national biosecurity program (including a national approach to fruit fly) which increases awareness, surveillance and capability as demonstrated via an outbreak simulation exercise.</li> </ul>	
<b>Target</b>	<ul style="list-style-type: none"> <li>➤ Increase average yield per hectare by 20% by 2016/17</li> </ul>	



## Objective 4: Provide a Supportive Operating Environment

### 4.1 Information & Communication

R&D can only be effective with high levels of adoption. It is important that effective extension mechanisms are in place to ensure that information is transferred in a timely and meaningful way, thereby maximising opportunity for rapid adoption. Communication and collaboration between all industry stakeholders need to be encouraged, in addition to the continued need for streamlining of industry communications.

### 4.2 Capacity & Capability

The Australian citrus industry has a recognised lack of structured leadership and skills development, with ongoing difficulties in attracting and retaining skilled staff. This requires establishment of a proactive capacity building program. The limited availability of R&D funding is a further issue requiring serious consideration.

## Objective 4: Provide a Supportive Operating Environment

<b>Key Strategy Areas</b>	<b>4.1 Information &amp; Communication</b>  Keeping our stakeholders informed through effective and timely communication and extension	<b>4.2 Capacity &amp; Capability</b>  Supporting industry operations through enhanced skills, leadership and planning
<b>Strategies</b>	4.1.1 Facilitate effective communication between all industry stakeholders including growers, supply chain members, service providers, government and community  4.1.2 Undertake and support effective extension activities to support adoption of best practice technologies	4.2.1 Enhance capacity to support current & future industry needs, focusing on enhanced leadership capacity and improved skills development across the citrus supply chain  4.2.2 Develop & maintain collaborative partnerships to support citrus industry development and analyse industry data to provide a sound basis for planning and communication to stakeholders  4.2.3 Ensure an effective advisory process that maintains regular and meaningful industry feedback for each key program and region  4.2.4 Ensure implementation of the Strategic R&D Plan
<b>Outputs</b>	<ul style="list-style-type: none"> <li>➤ Dynamic national website, electronic media, streamlined publications, regional &amp; national forums, and a national conference</li> <li>➤ Regular effectiveness survey of information/communications</li> </ul>	<ul style="list-style-type: none"> <li>➤ Scholarships, training programs and other initiatives supporting leadership &amp; skills development</li> <li>➤ Transparent and representative advisory committee structure</li> <li>➤ An Annual Investment Plan that is well-aligned to the Strategic R&amp;D Plan</li> <li>➤ Strategic R&amp;D Plan Implementation Review Report</li> </ul>
<b>Industry Outcomes</b>	<ul style="list-style-type: none"> <li>➤ Industry stakeholder satisfaction with information/communications program</li> <li>➤ Industry capacity is enhanced through increased skills development</li> <li>➤ Demonstrated return on levy funds invested in research &amp; development</li> </ul>	
<b>KPI's</b>	<ul style="list-style-type: none"> <li>➤ <b>R&amp;D investment:</b> demonstrate an increase in satisfaction with levy investment (including industry engagement, priority setting, process governance &amp; outcomes) by surveying levy payers at the start and end of plan.</li> <li>➤ <b>R&amp;D uptake:</b> demonstrate an increased rate of adoption of R&amp;D outcomes by surveying industry stakeholders at the start and end of plan.</li> </ul>	



# Australian Citrus R&D Action Plan

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This document summarises key actions and investments required to implement the Australian Citrus Strategic R&D Plan. Given the dynamic nature of the industry and its operating environment, this document is intended to be reviewed and updated on an ongoing basis.

Funding for these activities will primarily be sourced from the National Citrus R&D Levy, together with matched funding from the Federal Government, administered by Horticulture Australia Limited (HAL).

The plan has been underpinned by an analytical business case, identifying priority areas where investment is most likely to result in the greatest return.

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## Objective 1: Develop and Maintain Market Opportunities

	Strategy	Actions
1.1 Market Access	1.1.1 Provide supporting data and resolve technical export market access issues	<ul style="list-style-type: none"> <li>Develop a network of technical experts to drive development of novel systems approaches and disinfestation methods for key pests for sensitive markets (eg. Fullers rose weevil, red scale, mealy bugs, light brown apple moth, citrus black spot)</li> <li>Resolve fruit fly protocol issues: in-transit cold treatment, varietal anomalies, additional fruit fly species</li> </ul>
	1.1.2 Facilitate new or improved quarantine protocols for key export markets	<ul style="list-style-type: none"> <li>Annually review export market access priorities based on business case analysis</li> <li>Submit new protocol priorities and supporting analysis to OHMA</li> <li>Engage with relevant government authorities on key market access projects, including Biosecurity Australia, the Australian Quarantine Inspection Service (AQIS), the Australian Department of Agriculture, Fisheries and Forestry (DAFF), the Australian Department of Foreign Affairs and Trade (DFAT)</li> </ul>
	1.1.3 Provide supporting data and resolve technical domestic market access issues	<ul style="list-style-type: none"> <li>Conduct initial stocktake and prioritisation of domestic market access issues</li> <li>Annually review domestic market access priorities based on business case analysis</li> <li>Engage with state government authorities on strategies for managing key pests &amp; diseases affecting inter-state fruit movement</li> <li>Investigate and support research on alternative methods and approaches for fruit fly and citrus black spot</li> </ul>
1.2 Market Research & Analysis	1.2.1 Collect & analyse ongoing production and market information to support decision making	<ul style="list-style-type: none"> <li>Ensure ongoing collection and analysis of information relating to:               <ul style="list-style-type: none"> <li>National plantings database updated every 3 years</li> <li>Regional and national crop forecasts (seasonal and long-term)</li> <li>Weekly market dispatch reports generated through InfoCitrus</li> <li>Export and import data</li> <li>International competitor performance</li> <li>Consumption trends and consumer preferences</li> </ul> </li> </ul>
	1.2.2 Identify, prioritise & develop new market opportunities	<ul style="list-style-type: none"> <li>Analyse market intelligence data to highlight trends/opportunities in current and future markets</li> <li>Determine market development directions and value chain strategies based on ongoing market analysis</li> <li>Coordinate trade missions to / from priority new and existing markets</li> <li>Engage with Australian and overseas agencies regarding trade conditions in priority markets</li> <li>Maintain a watching brief on tariff arrangements and identify information requirements to support respective negotiations</li> <li>Develop a “one stop shop” for export market information</li> </ul>
	1.2.3 Drive citrus consumption through targeted consumer research, evaluation and value chain engagement	<ul style="list-style-type: none"> <li>Ensure consumer and market information drives citrus marketing strategies</li> <li>Strengthen whole of value chain consultation</li> <li>Review and implement best practice/innovative fresh produce marketing strategies</li> <li>Ensure regular evaluation of marketing strategy and programs</li> </ul>

## Objective 2: Increase Product Value

	Strategy	Actions
2.1 Product Enhancement	2.1.1 Implement a national quality standards program to improve eating quality and convenience	<ul style="list-style-type: none"> <li>Review and undertake sensory evaluation research to refine consumer eating quality preferences</li> <li>Annually review industry quality standards based on consumer preference analysis</li> <li>Engage full value chain in quality improvement through communication, training and monitoring</li> <li>Investigate all options for achieving quality standards compliance</li> </ul>
	2.1.2 Develop new products and practices which enhance eating quality	<ul style="list-style-type: none"> <li>Ensure that product development activities are focused on eating quality improvement</li> <li>Investigate and evaluate orchard practices which enhance eating quality</li> <li>Support research and extension of grading technology to differentiate superior eating quality product</li> </ul>
	2.1.3 Find ways to improve pre-harvest quality and retain postharvest freshness and integrity of our products	<ul style="list-style-type: none"> <li>Continued support and enhancement of a world-class post-harvest program</li> <li>Continually search for new orchard and postharvest technologies/practices for maintaining product integrity</li> <li>Investigate fruit waxes and coatings which enhance freshness and shelf-life of packed product</li> </ul>
	2.1.4 Establish programs to support food safety across the supply chain	<ul style="list-style-type: none"> <li>Investigate options for establishing a national government-recognised residue testing system customised to suit current export and domestic market requirements</li> <li>Continually inform industry of residue compliance requirements for export and domestic markets</li> <li>Undertake a strategic agrichemical review process (SARP) and initiate consequent recommendations to ensure a pro-active approach to agrichemical management</li> </ul>
2.2 Product Development	2.2.1 Import best available varieties & rootstocks from around the world	<ul style="list-style-type: none"> <li>Maintain surveillance of international variety development through overseas study trips and networks</li> <li>Enable industry access to promising public-domain varieties and rootstocks</li> </ul>
	2.2.2 Support world-class quarantine services for importation of new varieties	<ul style="list-style-type: none"> <li>Ongoing engagement with AQIS to ensure that quarantine facilities &amp; methodologies are technically appropriate for citrus budwood &amp; seed importation</li> <li>Establish communication network with variety importers/commercialisers to ensure smooth passage of material through quarantine</li> </ul>
	2.2.3 Breed, evaluate & commercialise new, improved varieties and rootstocks specifically suited to Australian conditions	<ul style="list-style-type: none"> <li>Maintain access to CSIRO breeding material for evaluation</li> <li>Support ongoing breeding and evaluation programs that are focused on key market preferences (eg. eating quality, early season, late season, seedless easy-peel and pigmented varieties)</li> </ul>
	2.2.4 Provide independent information on new varieties for growers	<ul style="list-style-type: none"> <li>Maintain and encourage commercialiser involvement in an impartial, national evaluation program with sites located in each key growing region</li> <li>Organise regular forums to facilitate communication between growers and commercialisers</li> <li>Maintain updated variety fact sheets</li> </ul>



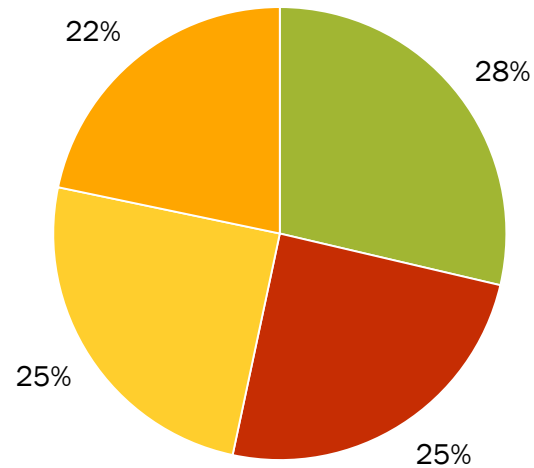
## Objective 3: Improve Efficiency and Sustainability

	Strategy	Actions
3.1 Production Efficiency & Innovation	3.1.1 Investigate cost effective means for increasing sustainable yields of marketable fruit	<ul style="list-style-type: none"> <li>Analyse cost benefits of production practices</li> <li>Conduct gap analysis of citrus production technology research</li> <li>Research, evaluate and promote production practices that ensure more even cropping and marketable fruit size and quality</li> </ul>
	3.1.2 Explore, evaluate and promote lower cost or more productive production techniques	<ul style="list-style-type: none"> <li>Support research into more labour efficient production practices (eg. mechanical harvesting)</li> <li>Investigate and promote new labour access programs (eg Pacific Seasonal Workers Program)</li> </ul>
3.2 Securing our Production Base	3.2.1 Strengthen industry planning and preparedness in relation to biosecurity and other risks, and facilitate awareness of new invasive pests and diseases	<ul style="list-style-type: none"> <li>Develop and implement a national biosecurity awareness program: <ul style="list-style-type: none"> <li>Facilitate awareness of new invasive pests and diseases through regular, coordinated communications such as fact sheets</li> </ul> </li> <li>Ensure biosecurity and other risk management plans are effective and up-to-date, supported by adequate education, training, surveillance and resourcing: <ul style="list-style-type: none"> <li>Establish a network of biosecurity contacts in each state/region</li> <li>Conduct outbreak simulation exercises to test response readiness</li> <li>Work with Plant Health Australia (PHA) to ensure appropriate arrangements in place for owner reimbursement costs</li> <li>Provide regular biosecurity training activities, including Emergency Plant Pest Response Deed (EPPRD) training for key industry representatives</li> <li>Provide technical data and support surveillance for exotic pests and for endemic pests affecting market access</li> </ul> </li> </ul>
	3.2.2 Support maintenance of clean planting material and encourage plantings based on high-health, genetically superior nursery trees	<ul style="list-style-type: none"> <li>Provide ongoing support for Auscitrus activities</li> <li>Promote take-up of Auscitrus seed and budwood through nursery networks and workshops</li> <li>Support indexing for the Auscitrus budwood scheme that is reliable and cost effective and keeps abreast of new pathogens and methodologies</li> </ul>
	3.2.3 Support improved pest management strategies	<ul style="list-style-type: none"> <li>Ensure adequate pathology and entomology resources</li> <li>Establish a network of pest management technicians &amp; researchers</li> <li>Engage in national and regional projects for managing fruit flies and other priority orchard pests and diseases</li> <li>Support development of Integrated Pest Management (IPM) strategies</li> </ul>
	3.2.4 Investigate sustainable use of water, soils and other natural resources	<ul style="list-style-type: none"> <li>Assist industry to demonstrate and improve its environmental credentials</li> <li>Support research and extension projects on water efficiency and fertigation</li> <li>Extended lifecycle studies to give reliable carbon and water use data</li> <li>Explore and report on clean energy opportunities including carbon sequestration and emissions in citrus production &amp; supply chain</li> </ul>

## Objective 4: Provide a Supportive Operating Environment

	Strategy	Actions
4.1 Information & Communication	4.1.1 Facilitate effective communication between all industry stakeholders including growers, supply chain members, service providers, government and community	<ul style="list-style-type: none"> <li>• Develop and implement an enhanced communications program incorporating regular surveys to gauge effectiveness and improvement strategies</li> <li>• Encourage information sharing and value chain interaction through a range of activities including: regional and national events, magazine, website, newsletter, workshops, field days</li> <li>• Provide timely industry data and supporting analysis to support decision making across the citrus value chain</li> <li>• Disseminate up-to-date production and market-related information through a variety of media</li> </ul>
	4.1.2 Undertake and support effective extension activities to support adoption of best practice technologies	<ul style="list-style-type: none"> <li>• Establish and maintain a national extension network and ensure linkage incorporated into future research activities</li> <li>• Transfer of technical information supported by an extension program encompassing field days, workshops, training sessions and electronic access to research reports, extensions publications and fact sheets.</li> <li>• Investigate ways to better facilitate dissemination of research funded by HAL and external agencies</li> </ul>
4.2 Capacity & Capability	4.2.1 Enhance capacity to support current & future industry needs, focusing on enhanced leadership capacity and improved skills development across the citrus supply chain	<ul style="list-style-type: none"> <li>• Develop and implement a national leadership program for the Australian citrus industry</li> <li>• Encourage involvement from across the citrus value chain in recognised training courses, international study trips and conferences</li> <li>• Promote external training programs and related initiatives that focus on leadership and skills development</li> </ul>
	4.2.2 Develop & maintain collaborative partnerships to support citrus industry development and analyse industry data to provide a sound basis for planning and communication to stakeholders	<ul style="list-style-type: none"> <li>• Identify existing and potential strategic partners and where beneficial, develop a plan for enhanced engagement</li> <li>• Engage with research agencies through the National Horticultural Research Network (NHRN)</li> <li>• Enhance collaboration within the citrus industry, across the horticultural industry, broader agricultural sector and international linkages</li> </ul>
	4.2.3 Ensure effective advisory process that maintains regular and meaningful industry feedback for each key program and region	<ul style="list-style-type: none"> <li>• Regularly review IAC and advisory committee structures and membership, ensuring that skill requirements are met, and responsibilities are aligned to the Strategic R&amp;D Plan</li> <li>• Develop and implement a structured consultation process, incorporating regular regional engagement</li> <li>• Establish and regularly review reference groups to support advisory process for key issue areas: orchard production, pest &amp; disease control, postharvest, juice production, nursery production and biosecurity:</li> </ul>
	4.2.4 Ensure implementation of the Strategic R&D Plan	<ul style="list-style-type: none"> <li>• Develop and implement effective R&amp;D projects in an integrated program approach that is aligned to the Strategic R&amp;D Plan</li> <li>• Ensure adequate resourcing is available to support implementation of the Strategic R&amp;D Plan including: <ul style="list-style-type: none"> <li>○ Appropriate levy structures/rates</li> <li>○ Appointment of a Market Access Manager, Biosecurity Manager and Value Chain Co-ordinators in each key region</li> <li>○ Development of future RD&amp;E capacity</li> </ul> </li> <li>• Annually review implementation of the Strategic R&amp;D Plan</li> </ul>

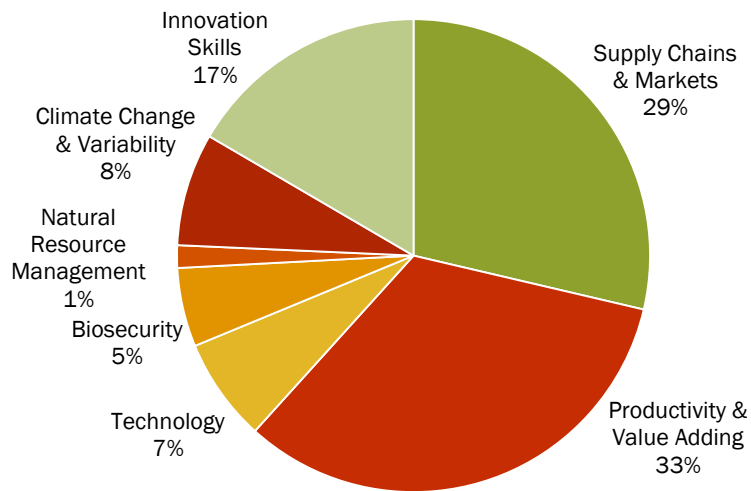
# Investment Analysis



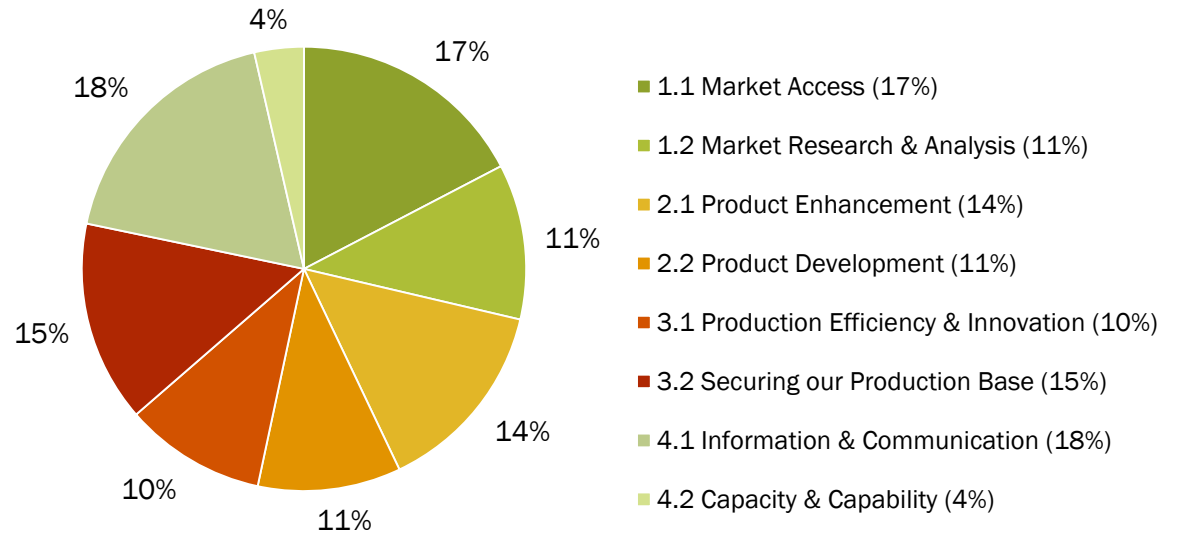
**R&D Investment by Objective**

- Obj 1 - Develop and maintain market opportunities
- Obj 2 - Increase product value
- Obj 3 - Improve efficiency & sustainability
- Obj 4 - Provide a supportive environment

**R&D Investment by Government Priorities**



**R&D Investment by Key Strategy Area**



For further information relating to the Australian Citrus Industry R&D Program visit:

Citrus Australia website: [www.citrusaustralia.com.au](http://www.citrusaustralia.com.au)

Horticulture Australia website: [www.horticulture.com.au](http://www.horticulture.com.au)



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