

## **Final Report**

# **Grower Guide for Lychee Grading**

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**Project code:**

LY16003

**Project:**

Grower Guide for Lychee Grading – LY16003

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**Funding statement:**

This project has been funded by Hort Innovation, using the lychee research and development levy and contributions from the Australian Government. Hort Innovation is the grower-owned, not-for-profit research and development corporation for Australian horticulture.

**Publishing details:**

ISBN 978 0 7341 4445 4

Published and distributed by: Hort Innovation

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Sydney NSW 2000

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

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## Summary

The Australian Lychee industry, represented by the Australian Lychee Growers Association (ALGA), produces up to 3,000 tonnes of fruit per annum from farms distributed along the east coast of Australia from the Atherton Tableland in North Qld to Coffs Harbour in NSW.

There are approximately 250 lychee growers in Queensland and NSW, with new growers venturing into the industry regularly. Because of this there has become a need to bring various lychee grading standards together to formulate an overall industry growers guide reflecting the required industry grading standard. These standards and quality controls will benefit and strengthen the Australian lychee industry by ensuring the industry presents good quality fruit to its domestic and export markets and consumers.

## Keywords

Lychee; grading; guide; information; chart

## Introduction

Due to industry requirements & grower requests ALGA undertook a project to develop and provide a quality poster (chart) with the required level of detail for identifying and grading lychee fruit that would assist growers to meet requirements for packing their product for domestic and export markets.

ALGA has done a review of what is currently available/in use and below is information found on three existing grading charts/pickers guide:

- (1) ULMA Marketing Group Chart – circa 1997 (attached to RFP)
- (2) TABLELAND Lychee Grading Chart – 2003 (attached to RFP)
- (3) LYCHEE PICKERS Guide – circa 2000 (attached to RFP)

The ULMA & Tableland charts are similar but the ULMA charts are only available to ULMA members (limited number of growers) and the Tableland Charts relating to Tableland conditions. The Lychee Pickers guide was issued by Growcom and is purely information for pickers on how to harvest fruit as well as picker's safety information. This guide is no longer available.

## Methodology

Information and requirements for the grading guide were compiled by the Project Leader with assistance enlisted from members of the ALGA Executive, lychee growers & stakeholders. A draft copy of the grading guide was presented to members of the lychee SIAP on 27th September 2017. Input from the panel was taken into account and relevant changes & suggestions were made prior to the final print. The grading guide outlines the industry's handling requirements for pre and post-harvest fruit, the grading specifications for 1<sup>st</sup> grade, premium and export fruit as well as specifications for fruit into 2<sup>nd</sup> grade cartons.

The chart also included images, information and explanations of various defects and pest damage affecting lychee and the subsequent grading requirements.

The Project Leader met with Design, Print and Distribution providers to achieve a high quality industry grading guide. The guide is of a suitable size & presentation to allow growers to display the guide in the packing shed for the use and reference of their picking and packing teams.

## Outputs

A hard copy grading guide was supplied to each lychee grower, and a high resolution file was uploaded onto the ALGA website allowing growers to download and print additional A1 size grading charts. This will also assist in educating potential new growers & other stakeholders of the grading standards of the Australian lychee industry.

## Outcomes

ALGA has published and distributed a completed and user friendly laminated industry grading guide with a level of details for identification, quality images and descriptions to approx 250 growers in Queensland and Northern NSW.

Key outcomes:

- Industry standard grading requirements
- Industry Quality Control requirements
- Industry Best Practices procedures & understanding
- Contemporary tool available to growers
- Pest and disease damage awareness
- Pre & Post-harvest requirements
- Maintain high standard for domestic & export markets
- Maintain existing expectations of Australian lychees.

## Monitoring and evaluation

ALGA is in regular contact with all registered lychee growers and will continue to reinforce the need that the industry's key outcomes are met. Results can be measured in increased demand for supply thus maintaining a viable and profitable industry for all lychee growers.

At an appropriate time an evaluation may be conducted to assess if growers made changes to their existing grading standards based on the new Industry Grading Guide.

Additional stakeholder assessments can be made via ALGA's connections with various domestic and export market agents.

Ongoing fruit quality can be monitored by ALGA and the Executive committee members in growing areas in Queensland and Northern NSW to ensure industry quality grading standards are being met.

## Recommendations

Growers were advised that the new lychee industry grading guides could still be used with growers existing guides, especially if growers supply Woolworths, Coles, Aldi & IGA (Metcash) as these direct sales outlets have their own grading requirements. Also, any growers who are members of marketing groups would still need to grade to their marketing groups guidelines.

Many growers will still be using and displaying growing guides in their shed which were printed in the mid 1980's, even though there is absolutely nothing wrong with these guides any growers who have come into the industry since this time may have inherited one of these old publications or is grading without a guide.

Growing conditions, logistical issues, seasonal variations and varieties all contribute to our end product. By ensuring and promoting that the lychee industry has a grower & industry accepted grading standard can only be of benefit to all lychee growers, the Australian lychee industry, and our "fresh" lychee loving consumers.

## Refereed scientific publications

### Chapter in a book or Paper in conference proceedings

The Lychee Production Guide AgriLink 2012 Qld Department of Agriculture & Fisheries

Chapter 14: Pests, diseases and disorders

Chapter 15: Managing pests diseases and other problems

Chapter 16: Harvesting, grading & packing

Chapter 17: Marketing

## Intellectual property, commercialisation and confidentiality

Grading Guide Disclaimer:

“No part of this publication may be reproduced without the permission of ALGA”

No project IP, project outputs, commercialisation or confidentiality issues to report

## **Acknowledgements**

Australian Lychee Growers

ALGA Management Committee

SIAP Members

Hort Innovation

iGraphix Design Studio

## **Appendices**

ALGA Grading Guide A4 with bleed



# AUSTRALIAN LYCHEE INDUSTRY GRADING GUIDE

**HARVEST FRUIT THAT IS MATURE AND FIRM WITH A GOOD COLOUR (RED OR PINK SKIN) OR THE COLOUR OF THE VARIETY. FRUIT SHOULD BE HYDRATED TO PREVENT BROWNING AND COOLED BETWEEN 5°C AND 10°C FOR TRANSPORTATION.**



## GRADING FOR PREMIUM, EXPORT AND FIRST GRADE FRUIT:

- Fruit should be clean with no pulled stems or stings
- Fruit should have minimal dark blemish - no more than 5% dark blemish over entire fruit
- Fruit surface should have no more than 25% of light blemish, silvering or light browning
- The skin colour should be typical of the variety of fruit being harvested
- The fruit surface should have no more than 25% of yellowing
- Fruit must be at least 30 mm diameter across the widest part of the fruit (refer to diagram)
- Small seeded varieties should be at least 25 mm diameter across the widest part of the fruit (refer to diagram)

## GRADING FOR SECOND GRADE FRUIT:

- Fruit should be clean with no pulled stems or stings
- Fruit should have no more than 10% dark blemish
- Fruit surface should have no more than 50% of light blemish, silvering or light browning
- The skin colour should be typical of the variety of fruit being harvested
- The fruit surface should have no more than 50% of yellowing
- Wai Chee must be at least 30 mm diameter across the widest part of the fruit (refer to diagram)
- All other varieties should be at least 25 mm diameter across the widest part of the fruit (refer to diagram)

## SIZING-DIAMETER OF FRUIT FOR GRADING



< width >  
30 mm & 25 mm  
(refer to grading specifications)

## MINOR OR OTHER DEFECTS

**FLATID** - Fruit badly infested from Flatid egg mass, nymphs on fruit or fruit blemished with the black sooty mould may be unsaleable and rejected at the packing stage. (Fruit with light infestation may be successfully scrubbed & cleaned prior to packing and graded accordingly)



**SOOTY MOULD** - Sooty mould is a fungus that grows on the sugary secretions produced by scale, mealy bug or flatid insects. The dark mould should be scrubbed & the fruit cleaned prior to packing. (The sooty mould should be graded as a dark blemish)



**WIND RUB OR ABRASION** - The visual appearance or skin of the lychee fruit can be damaged by leaves, twigs and other fruit rubbing during windy conditions. (The fruit is still saleable but the skin damage should be graded as a light or dark blemish)



**LIGHT BROWNING & SILVERING** - Light browning or silvering on the skin of the lychee fruit is caused by hot dry weather and more common on Kwai Mai Pink and Tai So. (The fruit is still saleable with the fruit being graded as light or dark blemish)



**PEPPER SPOT** - Pinhead-sized black lesions (about 1 mm in diameter) appear on the surface of the fruit, usually across the shoulders around the stem end. In severe cases, the spots may merge to cover the surface of the fruit. The Kwai Mai Pink lychee variety appears to be more susceptible to Pepper Spot damage especially if grown in wetter, humid coastal areas. Pepper Spot damaged fruit can be graded at time of packing although only very minor dark blemish (less than 5% solid or scattered) would be acceptable in Premium, Export or First grade cartons. (Fruit with no more than 10% would be acceptable in Second grade cartons)



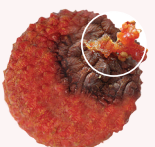
**ALL MAJOR DEFECTS ARE TO BE REJECTED DURING THE GRADING PROCESS WITH MINOR OR OTHER DEFECTS BEING GRADED ACCORDINGLY USING THIS GUIDE. A 2% MARGIN IN PREMIUM/FIRST GRADE & A 5% MARGIN IN SECOND GRADE OF MINOR OR OTHER DEFECTS SHOULD BE CONSIDERED ACCEPTABLE.**

## MAJOR OR REJECTED DEFECTS

**PULLED STEM** - Harvest fruit with a small part of the stem intact. If the stem is pulled off, the skin will tear and the fruit will lose moisture and dehydrate. (Fruit is not suitable for sale and should be rejected prior to packing)



**MACADAMIA NUT BORER** - The Macadamia Nut Borer larvae bore through the skin and into the seed of the lychee. The entry point can be found on the shoulder or near the peduncle of the fruit. Mature fruit damaged by macadamia nut borer may weep and stain other fruit. (Fruit is not suitable for sale and should be rejected prior to packing)



**FRUIT PIERCING MOTH STING** - The Fruit Piercing Moth will damage fruit by piercing small circular holes in the skin of the fruit. Juice may squirt from the hole when the fruit is squeezed. (Fruit is not suitable for sale and should be rejected prior to packing)



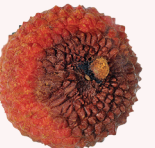
**ERINOSE MITE (ACERIA LITCHII)** - The Lychee erinose mite is a serious pest that deforms the underside of the leaves, the lychee flowers and eventually the lychee fruit. Fruit with severe erinose mite damage will be distorted with raised dark, spikey lumps. (Fruit is not suitable for sale and should be rejected prior to packing)



**ANTHRACNOSE FUNGI** - The Fungi will cause round, dark brown to black lesions on the surface of the fruit and will penetrate the fruit flesh. (Fruit is not suitable for sale and should be rejected prior to packing)



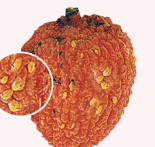
**STEM-END ROOT** - The fungus appears as browning of the skin at the stem end of the fruit and will rapidly spread. (Fruit is not suitable for sale and should be rejected prior to packing)



**SPLIT FRUIT** - Fruit splitting on trees occurs due to extreme weather conditions and uneven or inadequate watering. After harvest, care is needed when handling the fruit as dropping the fruit will result in the skin of the fruit splitting. (Split fruit is not saleable and should be rejected prior to grading & packing)



**GREEN SHIELD SCALE** - The eggs from the female green shield scale insect are small and yellow and can be easily confused with mealy bugs. The young stages of the scale are green. (The scale needs to be rejected in Premium, Export or First grade cartons. For second grade, it may be possible to clean the fruit prior to packing and grade accordingly)



**GROWERS SUPPLYING PREMIUM GRADE FRUIT TO WOOLWORTHS, COLES, ALDI AND OTHER DIRECT SALES OUTLETS WOULD NEED TO FOLLOW THE REQUIRED GRADING SPECIFICATIONS SET BY EACH OUTLET**



**Hort Innovation**  
Strategic levy investment

**LYCHEE FUND**

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