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**Rural Industries Research and  
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# **The Effect of Coffee Cherry Maturity on Taste**

RIRDC Publication No. 10/079







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# **The Effect of Coffee Cherry Maturity on Taste**

by David Peasley

July 2010

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RIRDC Project No. PRJ-004687

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# Foreword

Exciting new flavour profiles are emerging from the Australian subtropical coffee industry as alternative processing methods are starting to unlock the potential for this traditional plunger-style coffee to produce the flavour complexities and extra body required to suit the rapidly expanding espresso market.

The move to investigate new processing techniques began in 1997 during a visit by Dr Ernesto Illy to the production region in the hinterland behind Byron Bay. Dr Illy, Italy's world renowned coffee espresso master demonstrated that the whole coffee cherry which had been naturally dried had the characteristics required to target the espresso market.

Since then, leading producers have used professional tasters to guide the development of harvesting and processing systems to deliver the distinctive flavour profile of coffee from this unique region for both the plunger and espresso markets.

Understanding how each stage of maturity of the harvested coffee cherry will affect the taste of the final product in the cup is fundamental to developing the optimum flavour profile and in maximising the yield of saleable coffee from the mix of cherry maturities in the harvester bin. This one year project explored the effect of each of the five maturity stages of cherry had on final taste when processed and tasted separately.

Results from taste tests confirmed that the prime red stage of coffee cherry maturity produced the highest and most consistent taste scores for the five flavour attributes, sweetness, balance, body, flavour and aftertaste. Two other findings have implications for harvesting and processing systems. Firstly, the 'tree dried naturals' were highly variable in the taste scores and secondly, the green immature cherry stage showed some interesting flavour characteristics when dried as a whole cherry.

New developments in processing overseas such as *Operation Cherry Red* from Ethiopia have emerged subsequent to the completion of the trial indicating that a high quality espresso coffee can be produced by drying the whole prime red cherry to the raisin or naturals stage without the use of water.

This is an exciting opportunity for the subtropical coffee industry in Australia to develop a unique distinctive high quality espresso coffee consistent with the region's terroir (special flavour characteristics bestowed by the region). Dry processing offers a high degree of environmental sustainability and potential cost savings. It is also consistent with the objectives of the Australian subtropical coffee industries new strategic plan.

This one year project was funded from RIRDC Core Funds which are provided by the Australian Government.

This report is an addition to RIRDC's diverse range of over 2000 research publications and it forms part of our New Plants Products R&D program, which aims to facilitate the development of new industries based on plants or plant products that have commercial potential for Australia.

Most of RIRDC's publications are available for viewing, free downloading or purchasing online at [www.rirdc.gov.au](http://www.rirdc.gov.au). Purchases can also be made by phoning 1300 634 313.

**Craig Burns**  
Acting Managing Director  
Rural Industries Research and Development Corporation

# About the Author

David Peasley co-authored the RIRDC funded reference publication ‘Coffee growing in Australia – a machine harvesting perspective’ in the mid 1990’s and tested coffee varieties for their suitability under subtropical conditions during the 1980’s and early 1990’s. RIRDC also funded David to conduct further trial work from 1999 to 2002 on irrigating coffee and developed strategies for management in cooperation with Chris Rolfe producing the publication “Best Management Guidelines for Irrigation of Coffee in the Subtropics”. David chaired the inaugural Australian Coffee Industry R&D Committee in 1993 and has provided a consultancy service to subtropical coffee growers over the past 13 years. In 1990 he organised a coffee marketing summit to see if there was a market for subtropical coffee from this region. In 1985, 1990, 1991 and 1996 he travelled to Brazil, Hawaii and Sri Lanka to study a range of management systems for coffee. David is presently compiling a coffee growing manual for the subtropics.

# Acknowledgments

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Green Cauldron Coffee, Federal NSW

Mountain Top Coffee, via Nimbin, NSW

Kahawa Estate Coffee, Teven NSW

Espressology Pty Ltd, Copacabana NSW

The assistance of Instaurator and Jos Webber in providing peer review of this report is gratefully acknowledged.

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# Executive Summary

## What the report is about

Finding out how each stage of maturity of the coffee cherry affects taste is fundamental to developing harvesting management strategies to maximise the yield of marketable coffee and for developing processing systems that deliver the optimum flavour profile for the target market- plunger or espresso.

This report presents the results of a one year project to investigate the individual contribution each stage of cherry maturity, from the immature green cherry through to the overripe 'raisin' or 'naturals' stage has to the taste in the cup.

A preliminary trial conducted in 2008 showed some unexpected results in taste tests. It identified the need for further research to develop best management systems for harvesting and processing in order to produce maximum yield of marketable, high quality coffee and the optimum flavour profile for the subtropical coffee industry.

## Who the report is targeted at

Growers, harvester operators, processors, buyers, traders, roasters and tasters.

## Background

There are two distinct growing areas in Australia – the tropics and subtropics.

The tropical production area is centred on the Atherton Tablelands in the Mareeba area, and coastal lowlands of far north Queensland. The tropical industry is represented by the Australian Coffee Growers Association (ACGA).

The Australian Subtropical Coffee Association (ASTCA) represents the subtropical production area on the coast and hinterland of north eastern New South Wales inland from Byron Bay.

The subtropical industry is now consolidating into larger production units and processing facilities taking advantage of economies of scale. There has been a corresponding decline in the number of smaller producers in recent years. Production in the subtropical industry is approximately 300 tonnes of dry green bean (raw coffee) from a production area of 250 hectares.

Prices for subtropical 'cool climate' coffee have remained well above the comparable imported product for many years in Australia largely as a result of limited supply and active promotion by individual brands. Restricted supply has also limited expansion into the export market though individual brands are achieving recognition through international competitions in Europe and the US.

Traditionally the subtropical coffee industry has used wet processing to produce a high quality mild, medium acid, clean coffee for the 'plunger' market. However new complexities of flavour have emerged by using different processing systems which retain the mucilage on the bean and use minimal water benefiting growers, the environment and the community.

The new focus on espresso began after a visit to Australia's subtropical coffee growing areas in 1997 by Dr Ernesto Illy, Italy's world renowned coffee espresso master who is credited with the introduction of science based methodologies to produce high quality espresso coffee. Dr Illy showed growers they could expand their market opportunities by producing a high quality smooth style espresso from the whole dried cherry. Since then, a concerted effort to 'work back from the cup to the



plantation' has seen the industry work towards developing an optimum flavour profile and maximise the intrinsic quality characteristics of 'cool climate' coffee consistent with the 'terroir'\* of the region.

*(\*terroir – was originally a French term used in wine, coffee and tea to denote special characteristics that geography bestowed upon particular varieties)*

### **Aims/objectives**

- To determine the optimum flavour profile for the market place for Australian subtropical coffee.
- To determine the flavour characteristics of a range of maturities of coffee cherries and how each stage affects the quality of the end product.
- From these trials, determine the amount of each maturity stage which is acceptable in the harvested field sample. This will assist in the selectivity of harvesting dates and the setting of the harvester shaker mechanism.

Growers in the subtropical areas of eastern Australia will be the major beneficiaries as well as processors, roasters and the consuming public. Increased profitability is achievable if fewer passes of the harvester are required, and a higher proportion of the harvested cherry can be utilised to enhance the flower profile for the rapidly expanding espresso market or the traditional plunger market.

The subtropical coffee industry will benefit when the optimum style espresso is determined and produced consistently. This project is a necessary early step in defining that flavour profile or style.

### **Methods used**

- Bulk harvested samples from four plantations using the same variety, K7, were separated into five maturity stages and individually processed and sundried.
- The immature green and overripe tree dried stages were sundried whole as the bean cannot be separated from the cherry skin using conventional pulping equipment.
- The wet pulped coffee bean was either fermented in water or treated with a pectolytic enzyme to remove the sticky mucilage.
- Beans were washed when the mucilage had degraded and the washed coffee was placed on drying racks for 6 – 7 days until they reached 12% moisture as parchment coffee.
- Parchment samples were bagged and stored for 3 months before hulling and dispatched for test tasting.
- The sundried green and overripe tree dried whole beans were bagged when the bean reached 12% moisture and also stored for 3 months.
- 300 gram samples of dry green bean (DGB) were then forwarded for taste testing by professional taster, Instaurator – Espresso Pty Ltd in Sydney and a certified Q Grader Mick Kiely who also conducted green bean grading assessment.
- Cupping was conducted using international 'Cup of Excellence' protocols using international benchmarking to score each sample out of 10 for sweetness, balance, body, flavour and aftertaste.

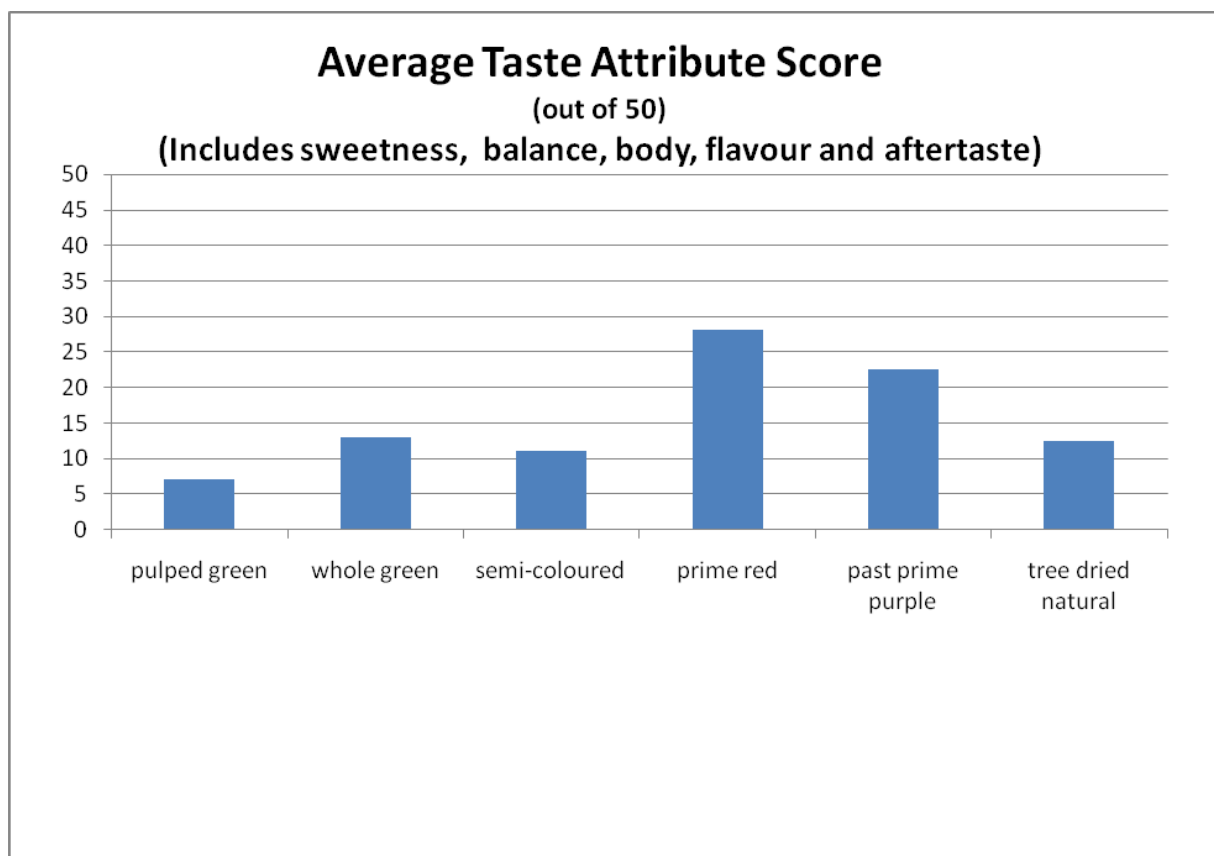
- Details of the procedures and scoring systems are presented in the attached cupping score sheets.

## Results/key findings

Results of taste evaluations for the flavour attributes of sweetness, balance, body, flavour and aftertaste showed –

- Prime red cherry provided the most consistent and highest taste attribute score, averaging 28.2 out of 50 with a range of 22 – 33 from the seven samples submitted.
- The highest variability in taste occurred in the tree-dried naturals averaging 12.2; however the range of scores was 5 – 29.
- Whole green cherry scored 13, well above the pulped green sample with a score of 7.

Taste evaluations established a consistent correlation between coffee cherry maturity and taste; however, the trial highlighted the critical importance different methods of processing have in controlling the outcome of the end product.



There were some interesting outcomes in the taste evaluations. These were –

- “Overall the coffees in general exhibited smooth, mellow flavour with medium body and low acidity, free of taints and faults. The coffees would lend themselves to being marketed according to ‘terroir’ and possibly stomach friendly in both the plunger and espresso markets”.
- A surprising finding occurred with the whole green immature cherry sample. This stage is usually rejected before pulping; however they were sundried as a whole cherry in this trial. The cupping

evaluation revealed “a surprising finding that by sundrying green cherry until it is matured and ‘raisin-like’, improves flavour”.

- This surprising result supports the results of the preliminary trial conducted during the 2008 season where the highest cupping score was achieved by blending immature green cherry with the overripe ‘naturals’. Cupping comments by the same cupper described this blend as “nice sweetness, good body, and good smoothness. Very good integrity. Good floral notes/great tropical fruit, body increased as it cooled; would be interesting as an espresso/slight rosewater flavour; low acidity”.
- There is potential for great variability in taste of tree dried naturals with taste scores ranging from 5 to 28. The high score indicates there is potential to achieve high quality coffee under controlled harvesting and processing systems.
- Drying the whole green cherry instead of wet processing, improved the flavour, relative to wet pulp cherry, and supporting the promising results achieved in 2008. Wet pulped green cherry produced the typical ‘diesel-like’ aftertaste, justifying its rejection as waste.

### **Implications for relevant stakeholders:**

- The taste evaluations support the planned direction of the strategic plan for the subtropical coffee industry to market plunger and espresso styles of coffee according to the ‘terroir’ of the region.
- Both the maturity stage of the cherry and processing method are involved in the ultimate expression of taste in the cup.
- Traditional wet processing to produce washed coffee produces a coffee more suited to the plunger market and lacks the complexity of flavour and body required for the espresso market.
- Retaining the mucilage around the coffee bean appears to improve the flavour complexity and body of coffee from this region making it suitable for the espresso market. However, this cannot be achieved consistently by using the tree dried cherry.
- Alternative processing methods such as natural fermentation, semi-washed and dry processing of whole prime cherry should be considered to achieve the optimum flavour profile for the espresso style.
- A positive implication for the community and the environment is the possibility that coffee can be processed without using water.
- Immature green cherry may provide a useful addition to the flavour profile when processed as a whole dried cherry to the ‘naturals’ stage and blended with other maturity stages. It appears it can at least be included in the processing range for further evaluation.

### **Recommendations**

Alternative processing systems should be investigated to optimise the flavour profile for the espresso market in order to achieve greater consistency in flavour. Different processing methods have been trialled; including letting the cherry dry on the tree as tree-dried naturals. Variable results have been achieved with tree drying and processing remains the single greatest challenge for the emerging industry to achieve a consistent, high quality distinctive product.

Dry processing of prime red cherry under controlled conditions such as the Ethiopian *Operation Cherry Red* system offers the potential to produce a distinctive, high quality, mild espresso style suitable for the rapidly expanding espresso market. Trials should be conducted under commercial processing conditions.

Reducing water use for processing has obvious environmental and cost saving advantages for the Australian subtropical coffee industry.

Producing a consistent, high quality espresso style based on dry processing will add to the region's existing reputation for producing fine plunger coffee, offering greater choice to consumers and meeting the environmental and profitability objectives of the industry's new strategic plan which focuses on the 'terroir' of the region.

Further trialling of controlled drying of whole green cherry should be carried out to explore its potential for inclusion in the range of flavour profiles produced in the region, either as a blended or stand-alone product.

# Introduction

Since the resurgence of the coffee industry in the subtropics of Australia in the 1990's with the advent of machine harvesting, the region has produced a high quality, mild, medium acidity coffee which suited the 'plunger' market. Harvesting and 'wet' processing targeted the prime red cherry stage of maturity removing the sweet sticky 'mucilage' around the bean by aqua-pulping with high pressure water or by fermentation or the use of enzymes.

This process produced a clean, attractive, washed coffee. Bean size was large and high prices were being achieved. However, the espresso market has exploded in popularity with domestic espresso machines now commonplace. Espresso style coffee requires more complexities of flavour and body than the plunger style and the subtropical washed coffee did not suit the espresso style.

That began to change in 1997 when Italy's world renowned 'espresso guru' Dr Ernesto Illy showed local growers they could produce a smooth style espresso. The change relied on retaining the sweet mucilage layer between the bean and the skin, and allowing it to dry and mature on the bean, to impart further flavour complexities and body to the final product.

How this is done has been a focus for the industry since Dr Illy's visit. Different processing methods have been trialled, including letting the cherry dry on the tree as tree-dried naturals. Variable results have been achieved with tree drying and processing remains the single greatest challenge for the emerging industry to achieve a consistent, high quality distinctive product.

Fundamental to developing the most suitable processing system for the subtropical growing industry however, understanding how each stage of the maturity of the coffee cherry affects the taste. How much green, semi coloured, or overripe naturals is acceptable in the processed coffee before the optimum flavour profile is affected, and how does each maturity stage contribute to the desired flavour profile for both the plunger and espresso styles.

A preliminary trial conducted in 2008 revealed unexpected but promising results from whole dried green and tree-dried naturals when they were combined. This project attempts to further explore the contribution each cherry stage has on the taste in the cup.



# Objectives

- To determine the optimum flavour profile for the market place for Australian subtropical coffee.
- To determine the quality characteristics of a range of maturities of coffee cherries and how each stage affects the quality of the end product.
- From these trials, determine the amount of each maturity stage which is acceptable in the harvested field sample. This will assist in the scheduling of harvesting dates and the setting of the harvester shaker mechanism.

# Methodology

Ideally commercial processing systems operating at each plantation were to be used for this trial, however difficulties were encountered in using commercial scale equipment to process a range of small sized cherry samples required for the trial in addition to mechanical problems with the driers at the time of the trial. In order to standardise the processing system and to minimise the variability of different processing systems the traditional wet process pulping equipment and sun drying was selected.

The numbers of samples for taste evaluation had to be rationalised due to budget constraints.

- Four plantations were selected to provide a representative sample of coffee from the region. Three of the four source plantations were machine harvested, the other harvested by hand.
- All samples were from mature K7 variety trees.
- Bulk samples were collected directly from the harvester bin, or during wet processing and cherries were separated manually into 5 maturity stages - green immature, semi coloured, prime red, past prime purple and tree dried 'naturals'.
- The immature green cherry cannot be effectively pulped (separating the beans from the skin), so this stage was sun-dried whole.
- Full sized immature green cherry from one plantation was aqua pulped and separated manually from the bulk pulped sample.
- Semi coloured, prime red and past prime purple samples were separately pulped using conventional equipment (aqua pulper or drum pulper).
- Overripe naturals also cannot be effectively pulped using traditional equipment (unless it is pre-soaked) due to the lack of moist mucilage between the skin and the bean. Whole 'naturals' were sundried and stored dry for the three months prior to hulling.
- Semi coloured, prime red and past prime pulped beans were partly covered with water and a pectolytic enzyme added to remove the mucilage.
- A comparison between enzyme treated and natural fermentation of pulped bean to remove the mucilage was conducted on prime cherry and past prime purple samples.
- Aqua pulping (removal of the mucilage by water pressure) was used on one processing site.
- An additional assessment was conducted to assess the effect of semi drying on pulped 'prime red' sample with the mucilage intact.
- Semi-coloured stage samples were enzyme treated because of the low sugar content which does not suit fermentation.
- Brix° (sugar) levels on cherries were measured for the prime and past prime samples using an Atago NI 0-32% Brix° refractometer. (Other maturity stages do not contain enough moisture in the mucilage for testing).
- When the fermented and enzyme samples reached the gritty, river sand feel, (around 7 hours for enzyme treatment and 24 hours for the fermented samples), they were thoroughly washed to remove degraded mucilage.

- Washed samples were placed immediately onto drying racks for sun drying.
- All samples were sun dried to 12% moisture as measured by a WILE-65 Grain moisture tester (a microprocessor controlled instrument that provides a direct moisture readout), using a conversion scale for raw coffee. Sun drying time was 6 – 7 days.
- Tree dried naturals and immature green whole cherries received a longer drying time (3 – 4 days) due to the intact cherry skin.
- All samples were then stored in new hessian bags in under modified ambient temperature and humidity storage area for 3 months to ‘cure’, in the ‘parchment’ stage before hulling.
- Hulling of all samples was carried out over 2 days, on 24 and 25 January 2010.
- Hulled ‘green bean’ was then size graded and beans above grade 17 screen size were used for green coffee and roasted grading tests.
- A 300 gram sample size of green bean was then forwarded for cupping and green bean assessment by Espresso Pty Ltd in Sydney. Evaluations were under the control of head cupper, Instaurator, internationally renowned coffee judge, author and taster with the Speciality Coffee Association in America and Australia.
- Cupping evaluation was carried out using international ‘Cup of Excellence’ protocols.
- Evaluation of each sample involved roasting the whole bean to an objective colour scale using Agtron Whole Bean M-Basic score.
- Cupping evaluation is done within an international benchmarking configuration and is exactly how coffees would initially be evaluated internationally at all levels including - NY exchange, Specialty Coffee Associations or Cup of Excellence (CoE), whether drip, plunger or espresso style.
- Each sample was scored out of 10 for sweetness, balance, body, flavour and aftertaste.
- Head cupper, Instaurator is certified by the Specialty Coffee Association of America as a ‘super taster’ in 2002. Cupping evaluation was conducted individually by Instaurator and Mick Kiely, Certified Q Grader by the Coffee Quality Institute in Los Angeles. He also conducted the green coffee grading.
- Details of the dry green bean (DGB) grading scores are available but were not included in this report. The taste attribute score is a total of the five components of taste, including sweetness, balance, body, flavour and aftertaste out of 50.
- The overall score each tasting result sheet is out of 100 and is a combination of the green coffee classification system used by SCAA Specialty (out of 50) and the taste score also out of 50.

*The taste attribute score is a total of the five components of taste, including sweetness, balance, body, flavour and aftertaste out of 50.*



# Results

Flavour attribute scores and recommendations from the Head Cupper support the planned vision for the Australian subtropical industry to produce both plunger and espresso styles according to the ‘terroir’ of the region.

Taste evaluations established a consistent correlation between coffee cherry maturity and taste; and highlighted the critical importance different methods have in controlling each of the flavour attributes of sweetness, body, balance, flavour and aftertaste.

The distribution of taste scores for prime red was 22, 27, 28, 28, 28, 32, 33, averaging 28.2. These were the highest and most consistent scores in the trial.

The distribution of taste scores for tree dried naturals was 5, 5, 29, 12, 11, 11, averaging 12.2. This is probably due to the uncontrolled ripening pattern and weather on the exposed cherries while attached to the tree for a prolonged period of time.

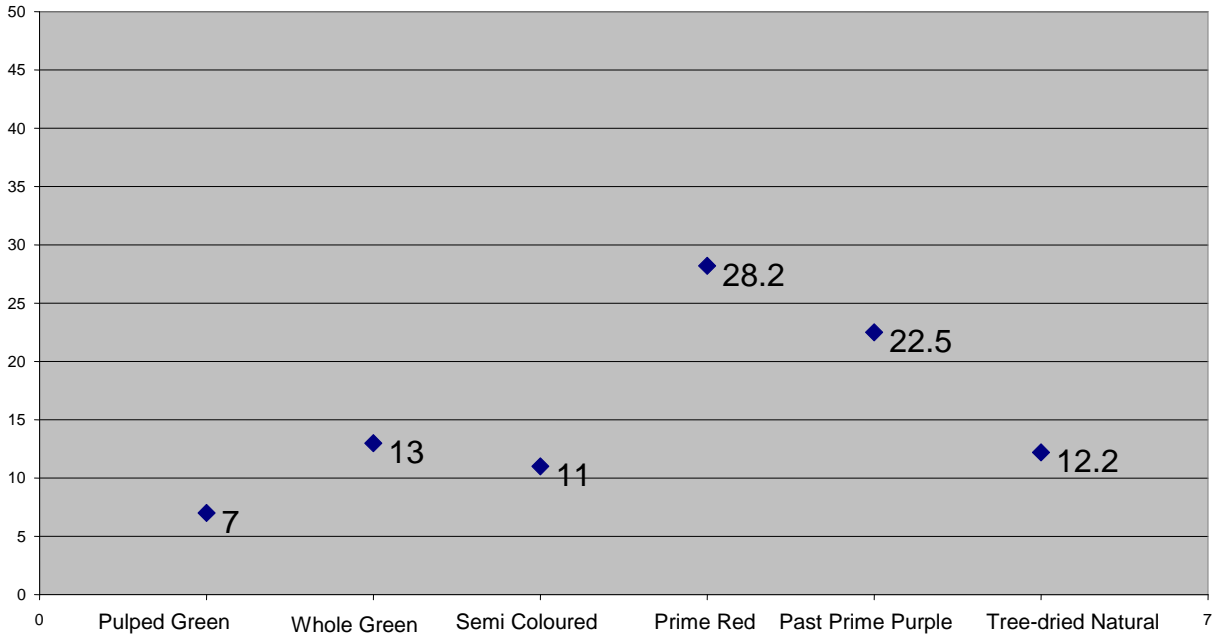
The one high score achieved from the tree dried naturals shows that there is potential to achieve the desired flavour profile under controlled harvesting and processing conditions.

The taste scores were achieved using wet processing which removes mucilage. This process is well suited for plunger but not espresso.

If mucilage was retained and cherry dried under controlled conditions this could increase the score by increasing the complexity of the flavour profile and body.

Results of the taste attribute scores for each maturity stage are presented below –

**AVERAGE TASTE ATTRIBUTE SCORE  
(out of 50)**  
**(Includes sweetness, balance, body, flavour, aftertaste)**



Though a consistent correlation between coffee cherry maturity and taste was not achieved, there were some interesting outcomes in the taste evaluations. These were –

- “Overall the coffees in general exhibited smooth, mellow flavour with medium body and low acidity, free of taints and faults. The coffees would lend themselves to being marketed according to ‘terroir’ and possibly stomach friendly in both the plunger and espresso markets”.
- A surprising finding occurred with the whole green immature cherry sample. This stage is usually rejected before pulping; however they were sundried as a whole cherry in this trial. The cupping evaluation revealed “a surprising finding that by sundrying green cherry until it is matured and ‘raisin-like’, improves flavour”.
- This surprising result supports the results of the preliminary trial conducted during the 2008 season where the highest cupping score was achieved by blending immature green cherry with the overripe ‘naturals’. Cupping comments by the same cupper described this blend as “nice sweetness, good body, and good smoothness. Very good integrity. Good floral notes/great tropical fruit, body increased as it cooled; would be interesting as an espresso/slight rosewater flavour; low acidity”. (See Appendix 2).

Details of flavour attribute evaluation are provided in Appendix 1.

# Implications

- Both the maturity stage of the cherry and processing method are involved in the ultimate expression of taste in the cup.
- Traditional wet processing which removed mucilage is well suited for plunger does not produce the flavour complexities and body suitable for the espresso style.
- Retaining the mucilage around the coffee bean has the potential to improve the flavour complexity and body of coffee from this region making it suitable for the espresso market. However, this cannot be achieved consistently by using the tree dried cherry where variable ripening patterns and climatic influences occur.
- A new processing system involving sundrying of 100% prime red cherry without contaminants has the potential to produce a distinctive, complex flavour profile.
- Alternative processing methods such as natural fermentation, semi-washed and dry processing of whole prime cherry should be considered to achieve the optimum flavour profile for the espresso style.
- Further commercial trials are required to determine the most appropriate methods of processing for whole green, prime red and overripe maturity stages of cherry maturity. Controlled drying of whole cherry, reduced water use and dry processing should all be evaluated.
- The benefits for the environment and the potential reduction in processing infrastructure and operating costs are significant if water use can be reduced or eliminated.
- Improving the flavour complexity and body using alternative processing methods and targeting prime red, overripe purple and possibly whole green cherry could provide a greater range of coffee styles for the market place.

# Recommendations

The Australian subtropical coffee industry should investigate the suitability of using different processing systems to produce a high quality distinctive ‘naturals’ style of coffee based on using prime red cherry and controlled drying of whole cherry, e.g. the Ethiopian *Operation Cherry Red* or similar system.

Dry processing of whole green cherry requires further investigation under commercial conditions. Green cherry now regarded as a contaminant could have a commercial use in blending if processed appropriately

Producing a high consistent high quality smooth style espresso without using water has obvious attractions for the subtropical industry, coffee consumers, the community and the environment as well as meeting the environmental and profitability objectives of the new industry’s strategic plan focussing on the ‘terroir’ of the region.

# Appendices

## Appendix 1 – 2009 harvest season taste results



### Coffee Review Professional Services for RIRDC “The Effect of Coffee Cherry Maturity on Taste”

#### Protocols

Cup of Excellence protocols were used for cupping evaluation, including cupping forms, 4 cups per sample 4 stirs per sample; dry aroma is not scored but noted where appropriate.  
Green Grading coffee classification system used was: SCAA Specialty.

#### Personnel

Head cupper was Instaurator, certified by the Specialty Coffee Association of America as a 'supertaster' 2002.

Green coffee grading was done by Mick Kiely, Certified Q Grader by Coffee Quality Institute at Headquarters Los Angeles.

Scoring >70 = exchange grade; >80 = Specialty Grade; >84 = Cup of Excellence grade.

#### Observations

1. Green cherry was sun dried i.e. rapidly matured. It was a surprising finding that by sun-drying green cherry until it is matured and raisin like, improves flavour.

2. Where a score shows 68-60 this reflects a decrease in flavour quality during the course of the cupping evaluation as the decrease in liquor temperature occurs. This can also work the other way where the coffee score improves. Opinions differ as to a final score: one school of thought takes only the final score as the actual score whereas another school of thought averages the scores from start to finish.

3. Overall coffees in general exhibited smooth, mellow flavour with medium body and low acidity. With improvements to processing, using traditional water fermentation techniques without enzymes it would be possible to improve overall complexity and quality.

#### Recommendations

The cupping evaluation is done within an international benchmarking configuration i.e. this is exactly how coffees would initially be evaluated internationally at all levels: NY Exchange, Specialty Coffee Associations or Cup of Excellence (COE), whether for drip, plunger or espresso.

While the coffees would not qualify for COE as yet. In exhibiting generally clean, mild flavour and being free of taints and faults, with medium body and low acidity, the coffees would lend themselves to being marketed according to Terroir and possibly stomach-friendly in both the plunger and espresso markets

The following coffees would be recommended as being more suitable for espresso based on, better body, low acidity, distinctive flavour characteristics and overall consistency:

# 4, 5, 6, 10, 13, 15, 17

A handwritten signature in black ink, appearing to be "Mick Kiely", written over a horizontal line.

INSTAURATOR  
HEAD CUPPER  
22 February 2010

## Coffee Review Professional Services for RIRDC "The Effect of Cherry Maturity on Taste"

Instaurator Reviews: February 2010

Name: Sample #1 GCC 2009 PPP (Past Prime Purple) Harvest date: 13/10/09

Origin/Area: Northern Rivers region, NSW, Australia

Process: Washed, (enzyme added)

Green Evaluation: Class 1 Specialty Grade

Roast: Evaluated at a light roast (Agtron Whole Bean M-Basic 58).

### Attribute scores

Sweetness 6

Balance 5

Body 6

Flavor 6

Aftertaste 5

**OVERALL RATING: 78**

### CUPPING Sensory assessment:

Inconsistent between cups; tangy at first with some astringency; 1 cup better than other 3; astringency persisted and then overall it faded as it cooled and became flat. Dry aroma was inconsistent 1<sup>st</sup> cup was very sweet – honey like.

### Recommendation:

N/A.

### Assessment Key

Attribute scores and ratings. Attribute scores (Aroma, Acidity, etc.) are assigned on a scale of 1 – 10, reflecting a judgment that considers intensity, quality and appropriateness to origin. Overall rating is on a scale of 50 – 100. Thus:

Attribute score	Overall rating	Description
9 – 10	95 – 100	Exceptional
8 – 9	90 – 94	Outstanding
7 – 8	85 – 89	Very Good
6 – 7	80 – 84	Good
5 – 6	75 – 79	Fair
3 – 5	70 – 74	Exchange Minimum
1 – 3	<70	Defective

**Roast level.** Attribute scores and sensory assessment are based on a reading of the coffee at the indicated degree of roast. Readings may (but not always) be confirmed at a different degree of roast. Agtron Whole Bean M-Basic numbers are determined by Agtron M-Basic machine reading of the color of the roasted whole beans. Names assigned to degree of roast (light, medium, dark, etc.) are based on the Specialty Coffee Association of America nomenclature for the M-Basic or "Gourmet" Agtron Whole Bean M-Basic scale.



**Coffee Review Professional Services for RIRDC**  
**“The Effect of Cherry Maturity on Taste”**  
Instaurator Reviews: February 2010

**Name:** Sample #2 GCC 2009 Prime Red      **Harvest date:** 13/10/09

**Origin/Area:** Northern Rivers region, NSW, Australia

**Process:** Washed, (enzyme added)

**Green Evaluation:** Class 1 Specialty Grade

**Roast:** Evaluated at a light roast (Agtron Whole Bean M-Basic 58).

**Attribute scores**

Sweetness 5

Balance 4

Body 4

Flavor 5

Aftertaste 4

**OVERALL RATING: 70**

**CUPPING Sensory assessment:**

Plain ordinary taste, lacking complexity; tang increased as it cooled but was sour – granny smith apple like (malic acid).

**Recommendation:**

N/A.

**Assessment Key**

**Attribute scores and ratings.** Attribute scores (Aroma, Acidity, etc.) are assigned on a scale of 1 – 10, reflecting a judgment that considers intensity, quality and appropriateness to origin. Overall rating is on a scale of 50 – 100. Thus:

Attribute score	Overall rating	Description
9 – 10	95 – 100	Exceptional
8 – 9	90 – 94	Outstanding
7 – 8	85 – 89	Very Good
6 – 7	80 – 84	Good
5 – 6	75 – 79	Fair
3 – 5	70 – 74	Exchange Minimum
1 – 3	<70	Defective

**Roast level.** Attribute scores and sensory assessment are based on a reading of the coffee at the indicated degree of roast. Readings may (but not always) be confirmed at a different degree of roast. Agtron Whole Bean M-Basic numbers are determined by Agtron M-Basic machine reading of the color of the roasted whole beans. Names assigned to degree of roast (light, medium, dark, etc.) are based on the Specialty Coffee Association of America nomenclature for the M-Basic or “Gourmet” Agtron Whole Bean M-Basic scale.



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**Coffee Review Professional Services for RIRDC  
“The Effect of Cherry Maturity on Taste”  
Instaurator Reviews: February 2010**

**Name:** Sample #3 GCC 2009 Semi Coloured Cherry      **Harvest date:** 13/10/09

**Origin/Area:** Northern Rivers region, NSW, Australia

**Process:** Washed, (enzyme added)

**Green Evaluation:** Class 4 Below Standard Grade

**Roast:** Evaluated at a light roast (Agtron Whole Bean M-Basic 58).

**Attribute scores**

Sweetness 2  
Balance 3  
Body 2  
Flavor 2  
Aftertaste 2

**OVERALL RATING: 68**

**CUPPING Sensory assessment:**

Dead, dusty; astringency increased as it cooled

**Recommendation:**

N/A.

**Assessment Key**

**Attribute scores and ratings.** Attribute scores (Aroma, Acidity, etc.) are assigned on a scale of 1 – 10, reflecting a judgment that considers intensity, quality and appropriateness to origin. Overall rating is on a scale of 50 – 100. Thus:

Attribute score	Overall rating	Description
9 – 10	95 – 100	Exceptional
8 – 9	90 – 94	Outstanding
7 – 8	85 – 89	Very Good
6 – 7	80 – 84	Good
5 – 6	75 – 79	Fair
3 – 5	70 – 74	Exchange Minimum
1 – 3	<70	Defective

**Roast level.** Attribute scores and sensory assessment are based on a reading of the coffee at the indicated degree of roast. Readings may (but not always) be confirmed at a different degree of roast. Agtron Whole Bean M-Basic numbers are determined by Agtron M-Basic machine reading of the color of the roasted whole beans. Names assigned to degree of roast (light, medium, dark, etc.) are based on the Specialty Coffee Association of America nomenclature for the M-Basic or “Gourmet” Agtron Whole Bean M-Basic scale.



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**Coffee Review Professional Services for RIRDC  
“The Effect of Cherry Maturity on Taste”**

Instaurator Reviews: February 2010

**Name:** Sample #4 GCC 2009 PPP (Past Prime Purple)      **Harvest date:** 13/10/09**Origin/Area:** Northern Rivers region, NSW, Australia**Process:** Washed, water fermented (No enzyme added)**Green Evaluation:** Class 1 Specialty Grade**Roast:** Evaluated at a light roast (Agtron Whole Bean M-Basic 58).**Attribute scores**

Sweetness 3

Balance 3

Body 4

Flavor 4

Aftertaste 3

**OVERALL RATING: 70****CUPPING Sensory assessment:**

Very Astringent at first; one dimensional; tang emerged as it cooled with a slight butterscotch and creamy mouth-feel at the finish.

**Recommendation:**

N/A.

**Assessment Key**

**Attribute scores and ratings.** Attribute scores (Aroma, Acidity, etc.) are assigned on a scale of 1 – 10, reflecting a judgment that considers intensity, quality and appropriateness to origin. Overall rating is on a scale of 50 – 100. Thus:

Attribute score	Overall rating	Description
9 – 10	95 – 100	Exceptional
8 – 9	90 – 94	Outstanding
7 – 8	85 – 89	Very Good
6 – 7	80 – 84	Good
5 – 6	75 – 79	Fair
3 – 5	70 – 74	Exchange Minimum
1 – 3	<70	Defective

**Roast level.** Attribute scores and sensory assessment are based on a reading of the coffee at the indicated degree of roast. Readings may (but not always) be confirmed at a different degree of roast. Agtron Whole Bean M-Basic numbers are determined by Agtron M-Basic machine reading of the color of the roasted whole beans. Names assigned to degree of roast (light, medium, dark, etc.) are based on the Specialty Coffee Association of America nomenclature for the M-Basic or “Gourmet” Agtron Whole Bean M-Basic scale.



**Coffee Review Professional Services for RIRDC  
"The Effect of Cherry Maturity on Taste"**

Instaurator Reviews: February 2010

Name: Sample #5 GCC 2009 Immature Green Cherry Harvest date: 13/10/09

Origin/Area: Northern Rivers region, NSW, Australia

Process: Natural 'raisin' sun-dried/matured

Green Evaluation: Class 3 Exchange Grade

Roast: Evaluated at a light roast (Agtron Whole Bean M-Basic 58).

**Attribute scores**

Sweetness 2

Balance 2

Body 3

Flavor 4

Aftertaste 2

**OVERALL RATING: 68****CUPPING Sensory assessment:**

Sour fermented dry aroma; Very slight muscatel flavour; moldy-fruit; tokay-like.

**Recommendation:**

This would normally be rejected in cupping; it may be of interest to re-trial as espresso.

**Assessment Key**

**Attribute scores and ratings.** Attribute scores (Aroma, Acidity, etc.) are assigned on a scale of 1 – 10, reflecting a judgment that considers intensity, quality and appropriateness to origin. Overall rating is on a scale of 50 – 100. Thus:

Attribute score	Overall rating	Description
9 – 10	95 – 100	Exceptional
8 – 9	90 – 94	Outstanding
7 – 8	85 – 89	Very Good
6 – 7	80 – 84	Good
5 – 6	75 – 79	Fair
3 – 5	70 – 74	Exchange Minimum
1 – 3	<70	Defective

**Roast level.** Attribute scores and sensory assessment are based on a reading of the coffee at the indicated degree of roast. Readings may (but not always) be confirmed at a different degree of roast. Agtron Whole Bean M-Basic numbers are determined by Agtron M-Basic machine reading of the color of the roasted whole beans. Names assigned to degree of roast (light, medium, dark, etc.) are based on the Specialty Coffee Association of America nomenclature for the M-Basic or "Gourmet" Agtron Whole Bean M-Basic scale.



**Coffee Review Professional Services for RIRDC  
“The Effect of Cherry Maturity on Taste”**

Instaurator Reviews: February 2010

Name: Sample #6 GCC 2009 Prime Red Cherry Harvest date: 13/10/09

Origin/Area: Northern Rivers region, NSW, Australia

Process: Washed, water-soak fermented

Green Evaluation: Class 1 Specialty Grade

Roast: Evaluated at a light roast (Agtron Whole Bean M-Basic 58).

**Attribute scores**

Sweetness 5

Balance 6

Body 5

Flavor 6

Aftertaste 5

**OVERALL RATING: 75****CUPPING Sensory assessment:**

Started rather ordinary and plain; improved as it cooled; sweet & smooth; very low acid slight vanilla; dry aroma was slightly funky/turpny.

**Recommendation:**

N/A.

**Assessment Key**

**Attribute scores and ratings.** Attribute scores (Aroma, Acidity, etc.) are assigned on a scale of 1 – 10, reflecting a judgment that considers intensity, quality and appropriateness to origin. Overall rating is on a scale of 50 – 100. Thus:

Attribute score	Overall rating	Description
9 – 10	95 – 100	Exceptional
8 – 9	90 – 94	Outstanding
7 – 8	85 – 89	Very Good
6 – 7	80 – 84	Good
5 – 6	75 – 79	Fair
3 – 5	70 – 74	Exchange Minimum
1 – 3	<70	Defective

**Roast level.** Attribute scores and sensory assessment are based on a reading of the coffee at the indicated degree of roast. Readings may (but not always) be confirmed at a different degree of roast. Agtron Whole Bean M-Basic numbers are determined by Agtron M-Basic machine reading of the color of the roasted whole beans. Names assigned to degree of roast (light, medium, dark, etc.) are based on the Specialty Coffee Association of America nomenclature for the M-Basic or “Gourmet” Agtron Whole Bean M-Basic scale.



**Coffee Review Professional Services for RIRDC  
"The Effect of Cherry Maturity on Taste"**

Instaurator Reviews: February 2010

Name: Sample #7 GCC 2009 Naturals

Harvest date: 13/10/09

Origin/Area: Northern Rivers region, NSW, Australia

Process: Tree-dried

Green Evaluation: Class 3 Exchange Grade

Roast: Evaluated at a light roast (Agtron Whole Bean M-Basic 58).

**Attribute scores**

Sweetness 1

Balance 1

Body 1

Flavor 1

Aftertaste 1

**OVERALL RATING: 50****CUPPING Sensory assessment:**

Dry aroma dull; Tainted off-flavour; baggy, defective; astringent.

**Recommendation:**

Reject.

**Assessment Key**

**Attribute scores and ratings.** Attribute scores (Aroma, Acidity, etc.) are assigned on a scale of 1 – 10, reflecting a judgment that considers intensity, quality and appropriateness to origin. Overall rating is on a scale of 50 – 100. Thus:

Attribute score	Overall rating	Description
9 – 10	95 – 100	Exceptional
8 – 9	90 – 94	Outstanding
7 – 8	85 – 89	Very Good
6 – 7	80 – 84	Good
5 – 6	75 – 79	Fair
3 – 5	70 – 74	Exchange Minimum
1 – 3	<70	Defective

**Roast level.** Attribute scores and sensory assessment are based on a reading of the coffee at the indicated degree of roast. Readings may (but not always) be confirmed at a different degree of roast. Agtron Whole Bean M-Basic numbers are determined by Agtron M-Basic machine reading of the color of the roasted whole beans. Names assigned to degree of roast (light, medium, dark, etc.) are based on the Specialty Coffee Association of America nomenclature for the M-Basic or "Gourmet" Agtron Whole Bean M-Basic scale.



**Coffee Review Professional Services for RIRDC**  
**“The Effect of Cherry Maturity on Taste”**  
Instaurator Reviews: February 2010

Name: Sample #8 GCC 2009 Naturals                      Harvest date: 25/11/09

Origin/Area: Northern Rivers region, NSW, Australia

Process: Tree-dried (Fungus affected)

Green Evaluation: Class 3 Exchange Grade

Roast: Evaluated at a light roast (Agtron Whole Bean M-Basic 58).

**Attribute scores**

Sweetness 1  
Balance 1  
Body 1  
Flavor 1  
Aftertaste 1

**OVERALL RATING: 62**

**CUPPING Sensory assessment:**

Dry aroma soupy defective; sour astringent; poor flavour; plain & ordinary as it cooled.

**Recommendation:**

Reject.

**Assessment Key**

**Attribute scores and ratings.** Attribute scores (Aroma, Acidity, etc.) are assigned on a scale of 1 – 10, reflecting a judgment that considers intensity, quality and appropriateness to origin. Overall rating is on a scale of 50 – 100. Thus:

Attribute score	Overall rating	Description
9 – 10	95 – 100	Exceptional
8 – 9	90 – 94	Outstanding
7 – 8	85 – 89	Very Good
6 – 7	80 – 84	Good
5 – 6	75 – 79	Fair
3 – 5	70 – 74	Exchange Minimum
1 – 3	<70	Defective

**Roast level.** Attribute scores and sensory assessment are based on a reading of the coffee at the indicated degree of roast. Readings may (but not always) be confirmed at a different degree of roast. Agtron Whole Bean M-Basic numbers are determined by Agtron M-Basic machine reading of the color of the roasted whole beans. Names assigned to degree of roast (light, medium, dark, etc.) are based on the Specialty Coffee Association of America nomenclature for the M-Basic or “Gourmet” Agtron Whole Bean M-Basic scale.



**Coffee Review Professional Services for RIRDC  
“The Effect of Cherry Maturity on Taste”**

Instaurator Reviews: February 2010

Name: Sample #9 Mix 2009 semi-colour/PPP Harvest date: N/A

Origin/Area: Northern Rivers region, NSW, Australia

Process: N/A

Green Evaluation: Class 3 Exchange Grade

Roast: Evaluated at a light roast (Agtron Whole Bean M-Basic 58).

**Attribute scores**

Sweetness

Balance 3

Body 3

Flavor 3

Aftertaste 3

**OVERALL RATING: 65-70****CUPPING Sensory assessment:**

Dry aroma fruity; average plain flavour; improved slightly as it cooled; very low acid.

**Recommendation:**

N/A.

**Assessment Key**

**Attribute scores and ratings.** Attribute scores (Aroma, Acidity, etc.) are assigned on a scale of 1 – 10, reflecting a judgment that considers intensity, quality and appropriateness to origin. Overall rating is on a scale of 50 – 100. Thus:

Attribute score	Overall rating	Description
9 – 10	95 – 100	Exceptional
8 – 9	90 – 94	Outstanding
7 – 8	85 – 89	Very Good
6 – 7	80 – 84	Good
5 – 6	75 – 79	Fair
3 – 5	70 – 74	Exchange Minimum
1 – 3	<70	Defective

**Roast level.** Attribute scores and sensory assessment are based on a reading of the coffee at the indicated degree of roast. Readings may (but not always) be confirmed at a different degree of roast. Agtron Whole Bean M-Basic numbers are determined by Agtron M-Basic machine reading of the color of the roasted whole beans. Names assigned to degree of roast (light, medium, dark, etc.) are based on the Specialty Coffee Association of America nomenclature for the M-Basic or “Gourmet” Agtron Whole Bean M-Basic scale.



**Coffee Review Professional Services for RIRDC  
"The Effect of Cherry Maturity on Taste"**

Instaurator Reviews: February 2010

Name: Sample #10 MTC Naturals Harvest date: 20/11/09

Origin/Area: Northern Rivers region, NSW, Australia

Process: N/A "Fruit-fly infested"

Green Evaluation: Class 4 Below Standard Grade

Roast: Evaluated at a light roast (Agtron Whole Bean M-Basic 58).

**Attribute scores**

Sweetness 6

Balance 5

Body 6

Flavor 6

Aftertaste 6

**OVERALL RATING: 78****CUPPING Sensory assessment:**

Dry aroma sweet; good body; low acidity; good sweetness as it cooled; and good consistency.

**Recommendation:**

N/A.

**Assessment Key**

**Attribute scores and ratings.** Attribute scores (Aroma, Acidity, etc.) are assigned on a scale of 1 – 10, reflecting a judgment that considers intensity, quality and appropriateness to origin. Overall rating is on a scale of 50 – 100. Thus:

Attribute score	Overall rating	Description
9 – 10	95 – 100	Exceptional
8 – 9	90 – 94	Outstanding
7 – 8	85 – 89	Very Good
6 – 7	80 – 84	Good
5 – 6	75 – 79	Fair
3 – 5	70 – 74	Exchange Minimum
1 – 3	<70	Defective

**Roast level.** Attribute scores and sensory assessment are based on a reading of the coffee at the indicated degree of roast. Readings may (but not always) be confirmed at a different degree of roast. Agtron Whole Bean M-Basic numbers are determined by Agtron M-Basic machine reading of the color of the roasted whole beans. Names assigned to degree of roast (light, medium, dark, etc.) are based on the Specialty Coffee Association of America nomenclature for the M-Basic or "Gourmet" Agtron Whole Bean M-Basic scale.



**Coffee Review Professional Services for RIRDC  
"The Effect of Cherry Maturity on Taste"**

Instaurator Reviews: February 2010

Name: Sample #11 Kawaha Immature Green Harvest date: 28/10/09

Origin/Area: Northern Rivers region, NSW, Australia

Process: Aqua-pulped

Green Evaluation: Class 3 Exchange Grade

Roast: Evaluated at a light roast (Agtron Whole Bean M-Basic 58).

**Attribute scores**

Sweetness 2

Balance 1

Body 2

Flavor 1

Aftertaste 1

**OVERALL RATING: 68-60****CUPPING Sensory assessment:**

Dry aroma Tarry; hard diesel like aftertaste; dry and dusty flavour as it cooled.

**Recommendation:**

Reject.

**Assessment Key**

**Attribute scores and ratings.** Attribute scores (Aroma, Acidity, etc.) are assigned on a scale of 1 – 10, reflecting a judgment that considers intensity, quality and appropriateness to origin. Overall rating is on a scale of 50 – 100. Thus:

Attribute score	Overall rating	Description
9 – 10	95 – 100	Exceptional
8 – 9	90 – 94	Outstanding
7 – 8	85 – 89	Very Good
6 – 7	80 – 84	Good
5 – 6	75 – 79	Fair
3 – 5	70 – 74	Exchange Minimum
1 – 3	<70	Defective

**Roast level.** Attribute scores and sensory assessment are based on a reading of the coffee at the indicated degree of roast. Readings may (but not always) be confirmed at a different degree of roast. Agtron Whole Bean M-Basic numbers are determined by Agtron M-Basic machine reading of the color of the roasted whole beans. Names assigned to degree of roast (light, medium, dark, etc.) are based on the Specialty Coffee Association of America nomenclature for the M-Basic or "Gourmet" Agtron Whole Bean M-Basic scale.





**Coffee Review Professional Services for RIRDC**  
**“The Effect of Cherry Maturity on Taste”**  
Instaurator Reviews: February 2010

**Name:** Sample #12 Kawaha Prime Red Cherry ‘Oversize’      **Harvest date:** 28/10/09

**Origin/Area:** Northern Rivers region, NSW, Australia

**Process:** Washed – Enzyme added

**Green Evaluation:** Class 3 Exchange Grade

**Roast:** Evaluated at a light roast (Agtron Whole Bean M-Basic 58).

**Attribute scores**

Sweetness 6

Balance 6

Body 5

Flavor 6

Aftertaste 5

**OVERALL RATING: 75**

**CUPPING Sensory assessment:**

Dry aroma sweet; initial sweet taste; light body; slight acidity; smooth and became slightly better as it cooled.

**Recommendation:**

N/A.

**Assessment Key**

**Attribute scores and ratings.** Attribute scores (Aroma, Acidity, etc.) are assigned on a scale of 1 – 10, reflecting a judgment that considers intensity, quality and appropriateness to origin. Overall rating is on a scale of 50 – 100. Thus:

Attribute score	Overall rating	Description
9 – 10	95 – 100	Exceptional
8 – 9	90 – 94	Outstanding
7 – 8	85 – 89	Very Good
6 – 7	80 – 84	Good
5 – 6	75 – 79	Fair
3 – 5	70 – 74	Exchange Minimum
1 – 3	<70	Defective

**Roast level.** Attribute scores and sensory assessment are based on a reading of the coffee at the indicated degree of roast. Readings may (but not always) be confirmed at a different degree of roast. Agtron Whole Bean M-Basic numbers are determined by Agtron M-Basic machine reading of the color of the roasted whole beans. Names assigned to degree of roast (light, medium, dark, etc.) are based on the Specialty Coffee Association of America nomenclature for the M-Basic or “Gourmet” Agtron Whole Bean M-Basic scale.



**Coffee Review Professional Services for RIRDC  
"The Effect of Cherry Maturity on Taste"**

Instaurator Reviews: February 2010

Name: Sample #13 Kawaha Prime Red Cherry Harvest date: 28/10/09

Origin/Area: Northern Rivers region, NSW, Australia

Process: Aqua-pulped

Green Evaluation: Class 3 Exchange Grade

Roast: Evaluated at a light roast (Agtron Whole Bean M-Basic 58).

**Attribute scores**

Sweetness 6

Balance 6

Body 5

Flavor 6

Aftertaste 5

**OVERALL RATING: 76****CUPPING Sensory assessment:**

Slight fruitiness at first; a solid coffee with some sweetness; very low acid as it cooled.

**Recommendation:**

N/A.

**Assessment Key**

**Attribute scores and ratings.** Attribute scores (Aroma, Acidity, etc.) are assigned on a scale of 1 – 10, reflecting a judgment that considers intensity, quality and appropriateness to origin. Overall rating is on a scale of 50 – 100. Thus:

Attribute score	Overall rating	Description
9 – 10	95 – 100	Exceptional
8 – 9	90 – 94	Outstanding
7 – 8	85 – 89	Very Good
6 – 7	80 – 84	Good
5 – 6	75 – 79	Fair
3 – 5	70 – 74	Exchange Minimum
1 – 3	<70	Defective

**Roast level.** Attribute scores and sensory assessment are based on a reading of the coffee at the indicated degree of roast. Readings may (but not always) be confirmed at a different degree of roast. Agtron Whole Bean M-Basic numbers are determined by Agtron M-Basic machine reading of the color of the roasted whole beans. Names assigned to degree of roast (light, medium, dark, etc.) are based on the Specialty Coffee Association of America nomenclature for the M-Basic or "Gourmet" Agtron Whole Bean M-Basic scale.



**Coffee Review Professional Services for RIRDC  
"The Effect of Cherry Maturity on Taste"**

Instaurator Reviews: February 2010

Name: Sample #14 Kawaha Prime Red Cherry Harvest date: 28/10/09

Origin/Area: Northern Rivers region, NSW, Australia

Process: 'Pulp-natural' 'honey' processed

Green Evaluation: Class 3 Exchange Grade

Roast: Evaluated at a light roast (Agtron Whole Bean M-Basic 58).

**Attribute scores**

Sweetness 6

Balance 6

Body 5

Flavor 6

Aftertaste 5

**OVERALL RATING: 70-68****CUPPING Sensory assessment:**

Slight tang at first; then became slightly sour; increasingly astringent as it cooled; no outstanding features.

**Recommendation:**

N/A.

**Assessment Key**

**Attribute scores and ratings.** Attribute scores (Aroma, Acidity, etc.) are assigned on a scale of 1 – 10, reflecting a judgment that considers intensity, quality and appropriateness to origin. Overall rating is on a scale of 50 – 100. Thus:

Attribute score	Overall rating	Description
9 – 10	95 – 100	Exceptional
8 – 9	90 – 94	Outstanding
7 – 8	85 – 89	Very Good
6 – 7	80 – 84	Good
5 – 6	75 – 79	Fair
3 – 5	70 – 74	Exchange Minimum
1 – 3	<70	Defective

**Roast level.** Attribute scores and sensory assessment are based on a reading of the coffee at the indicated degree of roast. Readings may (but not always) be confirmed at a different degree of roast. Agtron Whole Bean M-Basic numbers are determined by Agtron M-Basic machine reading of the color of the roasted whole beans. Names assigned to degree of roast (light, medium, dark, etc.) are based on the Specialty Coffee Association of America nomenclature for the M-Basic or "Gourmet" Agtron Whole Bean M-Basic scale.



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**Coffee Review Professional Services for RIRDC  
"The Effect of Cherry Maturity on Taste"**

Instaurator Reviews: February 2010

Name: Sample #15 Farrants Hill Prime Red Cherry Harvest date: 11/10/09

Origin/Area: Northern Rivers region, NSW, Australia

Process: Washed – Enzyme added; sun dried

Green Evaluation: Class 3 Exchange Grade

Roast: Evaluated at a light roast (Agtron Whole Bean M-Basic 58).

**Attribute scores**

Sweetness 6

Balance 6

Body 7

Flavor 6

Aftertaste 7

**OVERALL RATING: 79-81****CUPPING Sensory assessment:**

Good body; winy character; well-rounded; low acid with tanginess increasing as it cooled.

**Recommendation:**

N/A.

**Assessment Key**

**Attribute scores and ratings.** Attribute scores (Aroma, Acidity, etc.) are assigned on a scale of 1 – 10, reflecting a judgment that considers intensity, quality and appropriateness to origin. Overall rating is on a scale of 50 – 100. Thus:

Attribute score	Overall rating	Description
9 – 10	95 – 100	Exceptional
8 – 9	90 – 94	Outstanding
7 – 8	85 – 89	Very Good
6 – 7	80 – 84	Good
5 – 6	75 – 79	Fair
3 – 5	70 – 74	Exchange Minimum
1 – 3	<70	Defective

**Roast level.** Attribute scores and sensory assessment are based on a reading of the coffee at the indicated degree of roast. Readings may (but not always) be confirmed at a different degree of roast. Agtron Whole Bean M-Basic numbers are determined by Agtron M-Basic machine reading of the color of the roasted whole beans. Names assigned to degree of roast (light, medium, dark, etc.) are based on the Specialty Coffee Association of America nomenclature for the M-Basic or "Gourmet" Agtron Whole Bean M-Basic scale.



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## Coffee Review Professional Services for RIRDC "The Effect of Cherry Maturity on Taste"

Instaurator Reviews: February 2010

Name: Sample #16 Farrants Naturals Harvest date: 11/10/09

Origin/Area: Northern Rivers region, NSW, Australia

Process: Washed – Raisin tree-dried/sun-dried

Green Evaluation: Class 3 Exchange Grade

Roast: Evaluated at a light roast (Agtron Whole Bean M-Basic 58).

### Attribute scores

Sweetness 2

Balance 3

Body 2

Flavor 2

Aftertaste 3

**OVERALL RATING: 69**

### CUPPING Sensory assessment:

Dry aroma – papery; low body, low acid, slight tanginess as it cooled.

### Recommendation:

N/A.

### Assessment Key

**Attribute scores and ratings.** Attribute scores (Aroma, Acidity, etc.) are assigned on a scale of 1 – 10, reflecting a judgment that considers intensity, quality and appropriateness to origin. Overall rating is on a scale of 50 – 100. Thus:

Attribute score	Overall rating	Description
9 – 10	95 – 100	Exceptional
8 – 9	90 – 94	Outstanding
7 – 8	85 – 89	Very Good
6 – 7	80 – 84	Good
5 – 6	75 – 79	Fair
3 – 5	70 – 74	Exchange Minimum
1 – 3	<70	Defective

**Roast level.** Attribute scores and sensory assessment are based on a reading of the coffee at the indicated degree of roast. Readings may (but not always) be confirmed at a different degree of roast. Agtron Whole Bean M-Basic numbers are determined by Agtron M-Basic machine reading of the color of the roasted whole beans. Names assigned to degree of roast (light, medium, dark, etc.) are based on the Specialty Coffee Association of America nomenclature for the M-Basic or "Gourmet" Agtron Whole Bean M-Basic scale.



## Coffee Review Professional Services for RIRDC "The Effect of Cherry Maturity on Taste"

Instaurator Reviews: February 2010

Name: Sample #17 Farrants Hill Prime Red Cherry Harvest date: 11/10/09

Origin/Area: Northern Rivers region, NSW, Australia

Process: Washed – water-soak fermented

Green Evaluation: Class 2 Premium Grade

Roast: Evaluated at a light roast (Agtron Whole Bean M-Basic 58).

### Attribute scores

Sweetness 6

Balance 7

Body 7

Flavor 7

Aftertaste 6

**OVERALL RATING: 80**

### CUPPING Sensory assessment:

Big bold body; slight sour tang at first; dark mature cherry like powerful flavour; with some earthiness, unusual.

### Recommendation:

N/A.

### Assessment Key

**Attribute scores and ratings.** Attribute scores (Aroma, Acidity, etc.) are assigned on a scale of 1 – 10, reflecting a judgment that considers intensity, quality and appropriateness to origin. Overall rating is on a scale of 50 – 100. Thus:

Attribute score	Overall rating	Description
9 – 10	95 – 100	Exceptional
8 – 9	90 – 94	Outstanding
7 – 8	85 – 89	Very Good
6 – 7	80 – 84	Good
5 – 6	75 – 79	Fair
3 – 5	70 – 74	Exchange Minimum
1 – 3	<70	Defective

**Roast level.** Attribute scores and sensory assessment are based on a reading of the coffee at the indicated degree of roast. Readings may (but not always) be confirmed at a different degree of roast. Agtron Whole Bean M-Basic numbers are determined by Agtron M-Basic machine reading of the color of the roasted whole beans. Names assigned to degree of roast (light, medium, dark, etc.) are based on the Specialty Coffee Association of America nomenclature for the M-Basic or "Gourmet" Agtron Whole Bean M-Basic scale.



## Coffee Review Professional Services for RIRDC "The Effect of Cherry Maturity on Taste"

Instaurator Reviews: February 2010

Name: Sample #18 MTC Naturals Harvest date: 20/11/09

Origin/Area: Northern Rivers region, NSW, Australia

Process: Raisins tree-dried/sun-dried

Green Evaluation: Class 2 Premium Grade

Roast: Evaluated at a light roast (Agtron Whole Bean M-Basic 58).

### Attribute scores

Sweetness 2

Balance 3

Body 2

Flavor 2

Aftertaste 2

**OVERALL RATING: 70-68**

### CUPPING Sensory assessment:

Papery flavour, thin-bodied, lacking complexity and depth, very low acidity.

### Recommendation:

N/A.

### Assessment Key

**Attribute scores and ratings.** Attribute scores (Aroma, Acidity, etc.) are assigned on a scale of 1 – 10, reflecting a judgment that considers intensity, quality and appropriateness to origin. Overall rating is on a scale of 50 – 100. Thus:

Attribute score	Overall rating	Description
9 – 10	95 – 100	Exceptional
8 – 9	90 – 94	Outstanding
7 – 8	85 – 89	Very Good
6 – 7	80 – 84	Good
5 – 6	75 – 79	Fair
3 – 5	70 – 74	Exchange Minimum
1 – 3	<70	Defective

**Roast level.** Attribute scores and sensory assessment are based on a reading of the coffee at the indicated degree of roast. Readings may (but not always) be confirmed at a different degree of roast. Agtron Whole Bean M-Basic numbers are determined by Agtron M-Basic machine reading of the color of the roasted whole beans. Names assigned to degree of roast (light, medium, dark, etc.) are based on the Specialty Coffee Association of America nomenclature for the M-Basic or "Gourmet" Agtron Whole Bean M-Basic scale.



## Coffee Review Professional Services for RIRDC "The Effect of Cherry Maturity on Taste"

Instaurator Reviews: February 2010

Name: Sample #19 Kahawa Naturals Harvest date: 28/10/09

Origin/Area: Northern Rivers region, NSW, Australia

Process: Raisins tree-dried/sun-dried

Green Evaluation: Class 3 Exchange Grade

Roast: Evaluated at a light roast (Agtron Whole Bean M-Basic 58).

### Attribute scores

Sweetness 2

Balance 3

Body 2

Flavor 2

Aftertaste 2

**OVERALL RATING: 72**

### CUPPING Sensory assessment:

Clean flavour, light-bodied, pleasant but plain, low acidity.

### Recommendation:

N/A.

### Assessment Key

**Attribute scores and ratings.** Attribute scores (Aroma, Acidity, etc.) are assigned on a scale of 1 – 10, reflecting a judgment that considers intensity, quality and appropriateness to origin. Overall rating is on a scale of 50 – 100. Thus:

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## Appendix 2 – Testing the correlation between cherry maturity and taste – Farrants Hill Coffee 2008

Ranking: < 70 = unacceptable without blending  
70 - 79 = exchange grade  
80 - 89 = specialty grade  
> 90 = Cup of excellence grade

### Sample A - Immature green and overripe raisin (naturals)

6th pick CR K7

Taken from section of bulk sample

Not from bulk sample sent for testing

grades 16, 17 and 18+

Hand sorted – removing chips, spears and ears, blotchy bean, discoloured, etc.

375g

#### *Comments – Sample A Score 86*

Nice sweetness, good body, good smoothness. Very good integrity (i.e. stable as it cooled). Good floral notes / great tropical fruit; body increased as it cooled; would be interesting as an espresso/ slight rose-water flavour; low acidity.

### Sample B - Overripe raisin (naturals).

Tree dried from September and October (5<sup>th</sup> and 6<sup>th</sup> pick) – combined.

Hand sorted – grades 16 and 18+

270g

#### *Comments – Sample B Score 81.5*

*High acidity and tangy; slight lemon; acidity declined as it cooled and a slight astringency appeared; great body low sweetness; more suitable as a plunger/drip coffee.*

### Sample C - Past prime purple

Grade 18, 17 and 16

Mix of September and October pick

Hand sorted

500g

#### *Comments – Sample C Score 73*

*Dullness as it cooled; Plain not complex; uninteresting; boring*

### Sample D - Coloured

Grade 18, 17 and 16

Mix of 2 harvests (September and October)

hand sorted

530g

#### *Comments – Sample D Score 77*

High acidity; Tangy, tart and sour; unbalanced

**Sample E - Prime**

Final pick (October)

Grade 18, 17 and 16

270g

**Comments – Sample E Score 69**

*Very tangy but sour similar D*

**Sample F - Prime**

September pick

Grade 18

360g

**Comments – Sample F Score 74.5**

*Low acidity; pleasant tang as it cooled; low sweetness; good body; smooth inconsistent between cups; acidity increased slightly as it cooled.*

**Sample G - Immature green**

Final pick (October)

Grades 18, 17 and 16

150g

**Comment – Sample G Score 67.5**

*Dirty baggy; mild fruitiness coming through and slight cocoa; tainted slight ferment diesel oil flavour unpleasant*

**Sample H - Bulk**

September (5<sup>th</sup> pick)

Grades 18, 17 and 16

435g

**Comment – Sample H Score 72**

*Low acid at start; borderline sour good body no fruit acidity increased as it cooled like grapefruit very tart*

**Sample I - Prime**

September pick

Grades 18, 17 and 16

**Comment- Sample I Score 72**

*High acidity; good body low sweetness smooth but ordinary; inconsistent dull as it cooled*

**Sample J - Prime**

September pick

Grade 18 only

**Comment – Sample J Score 75**

*Dirty baggy similar to G high acidity; earthy possible espresso potential*

**Sample K - Bulk**

Final pick (October)

(minus green and overripe naturals)

Sample A removed from this sample)

This sample became moist, absorbed moisture during storage and was sundried for 3 days before sample was taken – sample time same time as other samples a.m. 15/12/08.

***Comment – Sample K Score 76***

*Low acidity good body slight fruitiness good smoothness; slight astringency & sourness improved as it cooled*

***General Notes: low acidity is desirable for espresso based coffees.***

# References

Instaurator, (2008). *The Espresso Quest*. Loowedge Publishing

Wintgens, J.N., (2004). *Coffee: Growing, Processing, Sustainable Production*. Wiley-VCH

# The Effect of Coffee Cherry Maturity on Taste

by David Peasley

Publication No. 10/079

Exciting new flavour profiles are emerging from the Australian subtropical coffee industry as alternative processing methods are starting to unlock the potential for this traditional 'plunger' style coffee to produce the flavour complexities and extra body required to suit the rapidly expanding 'espresso' market.

The move to investigate new processing techniques began in 1997 during a visit by Dr Ernesto Illy to the production region in the hinterland behind Byron Bay. Dr Illy, Italy's world renowned coffee 'espresso guru' demonstrated that the whole coffee cherry which had been naturally dried had the characteristics required to target the espresso market.

Since then, leading producers have used professional tasters to guide the development of harvesting and processing systems to deliver the distinctive flavour profile of coffee from this unique region for both the plunger and espresso markets.

This one year project attempted to demonstrate the effect of each of the five maturity stages of cherry had on final taste when processed and tasted separately.

Results from taste tests confirmed that the prime red stage of coffee cherry maturity produced the highest and most consistent taste scores for the five flavour attributes, sweetness, balance, body, flavour and aftertaste.

RIRDC is a partnership between government and industry to invest in R&D for more productive and sustainable rural industries. We invest in new and emerging rural industries, a suite of established rural industries and national rural issues.

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Cover photo: Coffee beans at the prime red stage of coffee cherry maturity

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