Wheat Quality Australia

Independently classified Australian wheat

2016-2017

Annual Report

Wheat Quality Australia (WQA) was established in 2010 as an independent company, jointly funded by the Grains Research and Development Corporation (GRDC) and Grain Trade Australia Ltd (GTA), to manage a market driven wheat classification system in Australia.

WQA plays a vital role in maintaining Australia's competitiveness in the global wheat market. Its number one responsibility is the maintenance of the Wheat Variety Master List, which identifies wheat varieties that meet Australian wheat class quality standards in line with market needs. This is achieved by determining the quality requirements of the markets and assessing varietal performance against those requirements.

Wheat Quality Australia operates with a Board, Wheat Classification Council and a Variety Classification Panel.

The Board provides the overall governance and leadership to meet the following broad objectives.

- Provide a strategic and operational framework to enable wheat variety classification by reference to the common classes of Australian wheat and their quality attributes.

- Ensure that market place requirements are recognised as the key drivers for ongoing quality improvements in the Australian wheat industry.

- Ensure that the quality attributes of Australian wheat are quantified and recognised by growers, handlers, marketers and end users.

- Formulate and develop strategies to manage emerging quality issues that impact on wheat quality.

The Council is responsible for establishing and maintaining a wheat variety classification system in Australia that is based on the requirements of the markets for Australian wheat. This includes defining the common classes of Australian wheat and their quality attributes, as well as identifying improvements in the strategic and operational framework of the classification system.

The Panel is responsible for assessing quality data of new varieties against the technical requirements of the classes of Australian wheat according to the policies and procedures set out by the Council in the Wheat Classification Guidelines.

1) Operations

A) PREPARATION AND RELEASE OF THE MASTER LIST

The 2016 Master List was publicly released on 1 September 2016 and included 8 new varieties – Coolah, Lillaroi, Arrow, Kittyhawk, Reliant, Scepter, Cutlass and Suntime. These new releases include Australian Prime Hard and Hard varieties across all available zones. Cutlass, has an APW in all zones. This year's Master List also sees Lillaroi offered as a new Durum variety in the South Eastern and Northern zones.

In addition the review of old varieties process conducted in 2015/16 resulted in 38 varieties being identified on the 2016 Master List for removal in 2018, with 12 more being reviewed and awarded a changed classification, 11 of which are effective with the publication of the 2018 Master List, and one (upgrade of EGA Gregory) effective with the release of the 2016 Master List.

B) BOARD

There were 9 meetings of the Board during 2016/17 of which one was the Annual General Meeting and 6 were by teleconference.

Members of the Board were as follows:

• Donald Plowman (Chair)

• Malcolm Finlayson (GTA appointment)

C) COUNCIL

There were 2 meetings of the Council and one joint meeting between the Board, Council and Panel, plus the Joint Planning Day attended by the Board, Council and Panel.

The council was appointed for a two year term from July 2015, the current council's term expired on June 30th 2017.

Council members during 2016/17 were:

• Donald Plowman (Chair)

• John Arrigo

• Paul Atwood

• Stephen Ball

• Darryl Borlase

• Terry Enright

• Di Miskelly

• Gerard Paganoni (shared role w Chris R)

• Chris Reichstein (shared role w Gerard P)

• Tress Walmsley

• Jonathan Wilson

• Hugh Robertson (WQA EO)

Each Council member also serves on one or more of the sub committees as follows:

Strategic Sub-Committee	Technical Sub-Committee	Operations Sub-Committee
Don Plowman (Chair)	Hugh Robertson (Chair)	Hugh Robertson (Chair)
John Arrigo	Paul Atwood	Chris Reichstein
Steve Ball	Di Miskelly	Di Miskelly
Darryl Borlase	Tress Walmsley	Jonathan Wilson
Terry Enright	Russell Eastwood	
Tress Walmsley		

D) PANEL

Panel members were appointed in January 2016 for a two year term as determined by the revised Terms of Reference for the Panel. The members during 2016/17 were:

• Hugh Robertson – WQA Executive Officer and Panel Convenor

• Tim Dewan

• Dr Michael Southan

• Tremayne Watts

• Dr Richard Williams

• Denis Hawke

The Panel held 4 meetings during the year and considered 84 applications. All decisions regarding applications were reported to applicants within 48 hours of the Panel Meetings via the Panel Reports Cards.

In addition Panel members provided advice to the Council and Board on the review of Old Varieties still being delivered at more than 0.1%.

Panel members also contributed to the Review of Controls sub-committee, the APH Technical Committee and the AEGIC-WQA Working Group.

Review meetings were conducted with Dow Seeds, Edstar and AGT in 2016/17 to discuss their submissions, clarify questions and provide advice on future applications. LRPB was postponed due to scheduling conflicts and Intergrain was cancelled due to uncertainty around the proposed AGT merger.

E) JOINT PLANNING DAY

The annual Joint Planning Day was held in March 2017.

The purpose of the Planning Day included:

- To provide strategic advice to the Board on any changes to the key objectives, structure of the Board, Council and Panel and opportunities to enhance delivery to industry.

- To discuss and agree on activities to be undertaken during the 2016/17 period as described in the draft Annual Operating Plan and the draft Communications Strategy.

- To provide an update on the Market Driven Classification System, and plan activities for refining the system and populating and updating each of the templates.

- To review the project priorities, in particular those relating to the hard classes of Australian Wheat.

Collaboration with AEGIC

AEGIC became a member of the Wheat Classification Council in 2015 to enhance the flow of information between WQA and AEGIC and to address specific market signals which should be reflected in the classification system.

In addition to their contribution to Council business, there have been two joint meetings between WQA and AEGIC, one at the Joint Planning Day in October 2016, a second in March 2017. AEGIC also attended the Joint Planning day in March 2017 making a presentation on the customer preference studies conducted in the South East Asian market and on the market share economic model. Both presentations were well received.

In addition to the development of Template 3 of the Market Driven Classification System the joint meetings considered the broader AEGIC programs and how best to utilise information from previously conducted market intelligence projects undertaken by a number of organisations over the past 5-10 years.

Funding and structure

2016/17 was the third year of a four-year agreement between GRDC, GTA and WQA to fund the operations of WQA. Under this agreement GRDC is providing funds to support WQA activities and GTA members are providing substantial in-kind contribution by way of support for the Council and Board. WQA received advice from the GRDC that it would no longer fund WQA beyond December 2017. Grain Corp has coordinated the Laboratory Proficiency Program, at their cost, for the past two seasons.

Fees for classification advice were reviewed and increased again as part of an approach by WQA to develop a more sustainable funding model in which fees more accurately reflect direct costs in the classification process.

The Members of Wheat Quality Australia requested the Board to identify operating efficiencies and opportunities for closer collaboration with AEGIC by the transfer of WQA activities to AEGIC. After consideration the Members agreed not to pursue this option, but to look at alternative arrangements to achieve the same outcomes.

Options for a more sustainable funding model will be pursued by WQA with WQA Members and the broader industry during the 2016/17 period.

2) Operations Projects

REVIEW OF OLD VARIETIES

The WQA Classification Guidelines (clause 6.3 h) specifies that variety classification is for a period of 10 years, after which a variety is to be reviewed.

Following an extensive program of review and consultation over the previous three seasons, the scale of the Old Varieties review process was diminished in 2016/17, although the process and rigour applied in previous reviews remained the same.

During 2016/17, 16 varieties more than 10 years old were identified for review, 3 of these were in the category of representing less than 0.1% of receivals. After extensive consultation with the breeders, grain producers and bulk handlers/marketers 1 (LRPB Guardian) will be listed on the September 2016 Master List for removal in 2018 and 2 varieties were still seen as important to retain and were reclassified for a further five years. Those varieties retained are Barham, and Bullaring.

Nine were more than 10 years old and represented greater than 0.1% of receivals and a further 4 feed varieties were identified for review. These were extensively reviewed by the Wheat Variety Classification Panel and recommendations were made to the Council and the Board. This review process resulted in the following recommendations:

1. 9 varieties meet the quality attributes of the classification originally awarded and retain their classification for a further five years;

2. 4 feed varieties should be referred to their owners to determine if they require listing (as feed only).

As at June 30th none of the owners of the feed varieties, SW Flamenco, GBA Shenton, GBA Hunter, Amarok, had indicated they wished to continue listing on the Master List.

COMMUNICATIONS AND INDUSTRY ENGAGEMENT

Fuller Communications were engaged to refresh the communications strategy and to provide communications support to WQA. Key elements of the communications program for the year were:

- preparation and implementation of a comprehensive Communications Strategy;

- engagement with the media around the release of the Master List, review of old varieties and general information about WQA; and

- progressive population of the new WQA website.

Regular meetings and discussions were held with the two Members of WQA, GRDC and GTA, during the year. In addition, the Chair and EO were invited to attend a GTA Board meeting to outline the WQA programs and quarterly reports were provided to GRDC.

The following interactions occurred with stakeholders:

- formal meetings were held between WQA and the Board of Grain Producers Australia;

- correspondence occurred with state based grains industry groups in recognition of the importance of producer support for the review of "old varieties" on the Master List;

- multiple submissions were made to the Australian Grains Industry Discussion Group; and

- several rounds of consultation with wheat breeders on the revision of the Wheat Classification Guidelines and the review of controls undertaken.

REVIEW OF CONTROLS

A significant review of the controls framework was conducted in 2016/17 with a sub committee meeting twice to review the existing controls across the hard classes in all four zones. Following a number of review cycles with the breeders, recommendations were made to the October 2016 Joint Council Panel Meeting, including the removal of a number of superseded controls, the introduction of a number of new controls and changing the ratings scale for a number of quality traits.

The Joint meeting accepted the recommendation for the introduction of the new controls, and for phasing out of old controls but did not support the grouping of traits into "critical" and "important", that is, giving different weightings to different traits.

The review of controls process will be an ongoing focus for WQA in 2017/18.

DATABASE

All breeder submissions for the last two years have been loaded into the database along with panel outcomes, allowing for a more secure and efficient storage of classification data.

This project represents a significant improvement for WQA in the way classification data is managed and it is forecast to provide significant benefits to the classification system by way of efficiency improvements in both the classification of new varieties and in the storage and access to data for review and communication.

It is expected that in 2017/18 direct breeder submissions to the classification database will be enabled, completing the final step in removing the reliance on email, MS Excel and paper copies.

3) Strategic Projects

I) MARKET DRIVEN CLASSIFICATION SYSTEM

Over recent decades the value of the Australian wheat crop has been enhanced by breeding varieties with specific quality characteristics, by on-farm production measures and by segregation of the crop, all to meet end user requirements.

The lead times between market signals being received and breeders releasing a new variety are significant. For example, the minimum time for a new quality trait to be incorporated into germplasm at the pre-breeding stage around 15 years. The time for wheat breeders to incorporate these traits into new varieties and release for growing is around 8-10 years.

There are a number of sources of market intelligence that can be used to inform breeding programs and other industry sectors. These include:

- Signals from the wide range of end users collected by marketers, traders and producers of Australian wheat.

- Market analysis papers produced by AEGIC and other research organisations.

- Research commissioned by the GRDC.

- Collaborative arrangements between state grains industry bodies and government based research and grains industry development agencies

WQA continued to work within the framework for a Market Driven Classification System developed around three templates:

1. Template 1 – What is the current state of the crop?

Tim Dewan (a Variety Classification Panel member) has updated the crop report historical data to include the 2015 season and to add the GrainCorp data to the analysis. Completion of the data set through inclusion of crop report data from WA remains an ongoing task.

2. Template 2 – What classes do we send where today?

This template requires the current wheat consignments to particular markets to be broken down into the Classes of wheat used to make up each consignment.

This template has completed for five markets, Indonesia, Japan, Saudi Arabia, South Korea and Vietnam for a two year period 2013/14 and 2014/15.

During 2016/17 the Template 2 data set was not updated due to the focus on Template 3 and this remains a gap in the Market Driven Classification system.

3. Template 3 – What are the current and future trends?

This template would provide the 5-10 year perspective on market requirements by market, volume and quality or end user functionality to be described. AEGIC has presented information they have collected on several of the key markets and will continue to provide this level of market information to inform the Market Driven Classification System.

The structure and data requirements for Template 3 have seen significant progress in 2016/17 with a series of presentations to the WQA Council and a number of cycles of feedback from both the Council and the management of WQA given to AEGIC to assist in the development.

With increasing data being generated for this system, attention during 2017/18 will continue to focus on the implications of this information to the classification system, in particular the appropriateness of the classes and controls to respond to key market requirements in the 5-10 year timeframe.

II) LABORATORY PROFICIENCY AND METHODS

The WQA Lab Proficiency Program has been generously supported by Grain Corp via the provision of grain and flour samples for ring testing and statistical analysis of results.

Round 10 of the Lab Proficiency Program commenced in August 2016 and results were provided to participating laboratories in February 2017. This round showed a small decrease in both the number of tests for which there were outliers and in the number of outliers in total compared to previous rounds.

John Oliver was commissioned to conduct a review of the Lab Proficiency program in 2012 and delivered his report in 2013 containing 50 recommendations.

During 2016/17 a workshop for Lab methods and proficiency was held to discuss progress against the Oliver Review recommendations. The workshop was facilitated by WQA with technical support provided by John Oliver.

The focus of additional testing in Round 10 was baking tests with changes to the scoring templates and the methods trialled. The scoring changes were generally successful, with some need for additional training identified. Changes to the methods for Rapid and Sponge and Dough Bake testing were not viewed as successful and further work is planned for Round 11.

Over the last three years all 50 of the Oliver report recommendations have been addressed, with improvements in test methods and reporting methodologies demonstrated for many quality traits.

The Panel also considered the outcomes from Round 10 and attended the April 2017 Lab Workshop.

III) RESEARCH PRIORITIES

A significant review of the Classification system was carried out in 2011 by John Oliver and the report had served as the "template" for many of the change activities of WQA in the subsequent 5 years. The vast majority of the recommendations have been addressed and the environment has evolved since.

Following the review of strategic research priorities conducted in 2015/16, a number of projects have been defined as targets for action WQA. These projects are largely focussed on the hard classes of wheat, which represent the vast bulk of Australian Wheat production.

- **Elite Baking Class**
  On the basis of market feedback there would appear to be a strong case for the establishment of an elite baking class. Results for Indonesia indicated the following:

- Australian APH and AH classes of wheat were less preferred for baking over the US HRS class and Canada's CWRS class

- The estimated growth in the Indonesian baking end use was 3.2 million tonnes (28%) by 2025

- Increases in baking uses in other countries over the next 10 years estimated at Vietnam (35%), China (32%), Malaysia (15%), Philippines (10%) and Thailand (27%)

- The quality attributes for baking and noodle end use were different

- Imports of wheat from Ukraine, Argentina and the US increased at the expense of imports of Australian wheat

  In the APH and AH classes there are varieties that meet the quality requirements for baking, however, these varieties are co-mingled with varieties more suitable for noodles – the major end use for these two classes. In addition, to receive the APH Classification varieties must

meet the requirements for noodle colour and colour stability and for starch viscosity. These traits may not necessarily be correlated with the traits required for elite baking performance, which has likely led to the discarding of elite baking germplasm on the basis of it's inferior noodle performance.

Should a baking class be established and a market opportunity realised, then the breeding companies and grain producers would respond in the medium term.

The market opportunities for baking products in SE Asia appears substantial and could be increasingly met from a quantity perspective if an elite baking class of wheat could be grown outside Queensland and NSW, the current APH Zones. This grain could be marketed as a new product (grade) developed for a specific market.

WQA is exploring the development of an Elite Baking Class, with AEGIC providing market intelligence to the Council.

• High Protein Noodle (YAN and High Pro WSN)

Market share for YAN (ramen) in Japan appears to have collapsed in recent seasons with no clear feedback to WQA on quality issues. Current YAN requirements do not include any sensory or texture testing. Minimum requirements for APH and AH in different Zones are not aligned and no clear market signal is currently being received to align to a particular standard.

High protein WSN (especially hand stretched) in China appears to be command a very large premium for which there is no current specific test or class, although there is at present market access issues which make specific quality targets in China difficult to access.

Current APH requirements dictate that varieties must meet the minimum standard for both baking and noodle performance. It is unusual for a variety to demonstrate elite performance for both baking and noodle, as a result classes and therefore grades shipped tend to be sold as flexible multi-purpose grades rather than elite in a particular application. In a market which is highly price sensitive, competitive and where differentiation is critical to premiums, the value of this approach is under close scrutiny.

• Udon Noodle (Low protein WSN)

Current classification requirements are more intensive and time consuming than for any other class. These requirements have remained constant for many years and there is no clear pathway for development of the class supported by clear market feedback. In particular the minimum colour standards for both ANW and APWN are under review and lack a clear market signal.

• APW Requirements

APW is the largest grade by traded value in Australia, usually followed by ASW, which is similar in volume but traded at a discount. Wheat breeding companies are largely no longer breeding specifically for either the APW or ASW classes. Whilst APW lines continue to be released, these lines are essentially 'failed AH' lines as the original breeding target would have been AH or even APH.

Breeders target AH and APH classes since growers, when investing in a new variety, are generally looking for a variety of the highest paying class.

Growers are generally unwilling to plant APW varieties as they do not wish to forgo the possibility of delivering into the highest protein class where a significant premium could be paid. The vast majority of APW traded each season consists of APH and AH varieties that do not meet the receival requirements for these grades (usually below the protein specification).

A project to review the requirements of APW has been initiated to ensure that the value is maximised in balancing yield and quality, largely through ensuring the number of requirements is optimised.

• Zones

The scientific validity of the zones needs to be constantly reviewed. The National APH project provides the opportunity to do this on a set of high protein wheat samples and varieties, however there is likely to be a requirement for ongoing work to demonstrate how best to manage the wide variation in environments across the Australian Wheat belt.

• Dough Balance

WQA Classification requirements for milling classes are based on farinograph and extensograph measurements of dough rheology. Hard and Prime Hard classes in particular have minimum requirements for dough strength. There is currently no maximum for dough strength, however it is a requirement that AH and APH demonstrate strong and balanced dough properties. Very strong doughs must also demonstrate adequate extensibility and not demonstrate excessive stability. There remains an inadequate description of the requirements for dough balance and insufficient direction from markets as to the optimum for each class, however the identification of marginal controls for APH dough balance in the 2016 Classification Guidelines has significantly improved the direction to breeders. The dough balance requirements for the hard classes will be reviewed again following the completion of a project being undertaken by AEGIC.

WQA Outcomes and Achievements for 2016/17

- **Competitor Wheat Benchmarking**
  In addition to up to date and forward looking feedback on market requirements, WQA needs to understand the quality and value positioning of competitor wheat to identify, and where possible quantify any deficiencies in the current Australian Crop, or opportunities for new or changed classes to meet gaps in the supply market.

  WQA will continue to engage with industry stakeholders to ensure that the classification system remains robust and relevant.

4) WQA Technical and Support Projects

A) LATE MATURITY ALPHA-AMYLASE (LMA)

This area remains a significant area of concern for WQA and for our stakeholders. The LMA project progress during 2016/17 in addressing this issue included:

- WQA conducted a market assessment program aimed at identifying and qualifying additional LMA phenotyping capacity on behalf of the breeders. The LMA Steering Committee has identified capacity to improve the current testing protocol for increased throughput and lower cost without sacrificing accuracy is a key selection criteria.

- An EOI was issued to 5 potential providers in May 2016.

- A Request for Proposal process was conducted in first quarter of 2016/17, with one preferred candidate identified.

- A second candidate was also progressed to a validation program in 2016-18, following concern from breeders around the risk of failure leaving a gap in the classification system, the GRDC has approved funding to support the validation of a second provider.

The first validation nursery (winter 2016) is in production at the time of writing.

B) APH

The National APH project has delivered the third and final full season of results. A draft final report from the biometricians at the University of Wollongong was provided to the steering committee in June 2017, with the analysis showing again that there is significant variation in the quality performance due to factors other than variety (environment and GxE). A recommendation from the APH Steering committee along with further analysis of the data was provided to the WQA Council for their August 17 meeting.

Further engagement with broader stakeholders on the implications of any proposed changes to the APH class will then be required before any roll out planning.