

Wheat quality preferences in Vietnam and Thailand

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Key messages

- Australian wheat is well regarded in both Vietnam and Thailand markets for its quality and suitability for instant and fresh noodles and this may be strengthened by an improved understanding of noodle texture attributes.
- At present, Australian wheat producers have less opportunity to meet demand from Thailand for the quality of wheat preferred for production of sandwich bread.
- Gluten quality and quantity is very important for both Vietnamese Instant noodles and bread products.

Background

South East Asian (SEA) is the largest regional market, by volume, for Australian wheat. Vietnam is the second largest importer of Australian wheat averaging 1.5mmt per year over the past five years (2012-2016) and Thailand is Australia's tenth largest market. Over the past 5 years, Australian wheat imported by both Vietnam and Thailand has totalled more than 10.5mmt valued at A\$3.2 billion.

SEA markets are critical to supporting demand and prices for Australian wheat and therefore, extremely important for Australian producers. In these markets, Australia is experiencing an increase in competition from cheaper wheat supplied from the Ukraine, Russia and Argentina as well as strong competition from North American wheat based on functional performance for baking applications. To maximise competitive in demand and value it is essential to develop an improved understanding of the preferred wheat quality attributes and their target levels.

An improved understanding of the wheat quality preferences of the Vietnam and Thailand markets, complemented by action by the Australian industry to align production with market requirements will translate to an improved value proposition for both Australian wheat producers and users of Australian wheat. Improved competitiveness will strengthen the value returned to growers.

Aims

To identify the quality attributes and their preferred levels most valued by flour millers in Vietnam and Thailand for noodle and bread products that can enhance the demand and value of Australian wheat.

Method

Wheat technical and purchasing staff from eighteen flour milling companies in Vietnam and Thailand participated in the research project aimed at identifying their preferences and target levels of wheat quality characteristics for Instant or fresh noodles and breads. The products studied in Vietnam included Instant noodles and Vietnamese bread/baguettes (Bahn Mi) and products studies in Thailand included fresh noodles (Bamee) and sandwich bread.

The project applied choice analysis methodology to collect objective information on the wheat preferences of grain end-users.

The comparative importance of 31 wheat quality, functional and technical service attributes for the selection of wheat for SEA style noodle and bread products was ranked from most to least importance by mill technicians and wheat purchasers from each company using a best-worst scaling (BWS) survey method (Louviere et al., 2013).

Results

For wheat purchasers, perhaps unsurprisingly, price and wheat protein content, overwhelmingly dominate their selection of wheat to buy for fresh noodles and breads in Thailand. Of more interest, and somewhat enlightening, were the learnings in Vietnam that gluten quality and quantity were ranked as more important than price.

Vietnam – Instant noodles

Noodle texture, gluten and protein properties and dough extensibility were the quality attributes of most importance when selecting wheat for instant noodles in Vietnam. Noodle colour brightness and colour stability were ranked by other SEA markets as very important when selecting wheat for fresh noodles. However, noodle colour brightness and colour stability and the associated

attributes of flour and grain colour were not rated as high as for instant noodles in the Vietnam study. This may be partly due to the preservation of colour stability by the immediate frying at high temperatures of the instant noodles. However, it is important to note that the flour millers understand and value the advantages that white wheat compared with red wheat provide for instant noodles. Australian wheat has the advantage over alternate origin wheats for both noodle brightness and colour stability and is the preferred wheat for both fresh and instant noodles. It is imperative that these advantages be maintained within Australia's wheat classification process to ensure the value of Australian wheat for noodles can be differentiated and remain attractive to markets.

Texture attributes and targets for the Instant noodles in Vietnam need to be better understood by the Australian industry, along with standardised objective assessment methods, to ensure Australian wheat can consistently meet the textural firmness required for Instant noodles.

For wheat purchasers, similar attributes of noodle texture and characteristics contributing to texture were rated as most important, although with a different ranking with gluten properties being rated as the most important attributes. Price was also rated as important.

Vietnam – Bahn Mi

The largest segment, by volume, of the bakery industry in Vietnam is Banh Mi, a Vietnamese-style baguette that is lighter and airier compared with a typical French-style baguette. The quality of Banh Mi is influenced by both wheat and flour quality and functional properties. Bread volume and dough rheological characteristics that contribute to bread volume were most valued by mill technicians when selecting wheat for Banh Mi.

Similarly, purchasers ranked gluten strength as the most important attribute when selecting wheat for Banh Mi despite this attribute not specified on sales contracts.

Thailand – Fresh Noodles

Thailand Bamee noodles belong to the family of yellow alkaline noodles (YAN), typically made with flour, water and alkaline salts. Bamee noodles are often sold in the market place 3 to 5 days after manufacturing. Colour, colour stability and mouthfeel (texture) are important quality traits. The ideal texture or eating quality is a firm bite, elastic and smooth mouthfeel. For mill technicians, wheat protein content and noodle texture attributes were ranked as the most important attributes along with noodle colour stability and brightness.

For wheat purchasers, price was overwhelmingly the most important factor for the selection of wheat for Bamee. Somewhat similar with technician's, wheat protein, noodle colour and texture attributes all achieved a high importance index score.

Thailand – sandwich bread

Sandwich bread is the highest valued segment for wheat flour use in Thailand with white loaf bread dominating this segment. Wheat protein content and water absorption were ranked by mill technicians as the most important attributes along with dough & fermentation tolerance and dough stability time. Achieving the ideal loaf volume is the single most important objective.

In Thailand, protein is considered more important than wet gluten content as was the result from the Philippines and Malaysian study (results from studies conducted by AEGIC in the Philippines and Malaysia). Loaf volume was not included in this study but is described by project co-operators as the primary driver of bread quality.

Consistent with wheat purchasers from all South-East Asian countries studied, price and wheat protein content were overwhelmingly the most important attributes when selecting wheat for sandwich bread. Dough strength (Rmax), milling yield, water absorption, wet gluten content, and uniformity of shipment were recognised as important quality characteristics.

Conclusion

This study documents and reinforces the advantages of Australian wheat for Vietnamese instant noodles and Thai fresh Bamee noodles.

Results from this study of quality preferences and specifications for the preferred and acceptable levels of key wheat quality and functional characteristics for Vietnamese instant noodles and Thai fresh Bamee noodles and breads can inform Australia's wheat variety classification process of quality requirements for wheat classes. User target levels can guide the selection of benchmark varieties for current wheat classes and quality parameters for amended or new classes. Moreover, identifying target levels and value attributed by users can improve the efficiency and effectiveness of investment decisions regarding wheat quality research by highlighting attributes of most value.

Australian wheat industry can ultimately benefit from this study through better targeted wheat breeding and more effective varietal classification to ensure Australian wheat better meets end-user needs. Wheat producers can then aim to produce a high-quality product with the characteristics that meet the requirements of end-users. Market value-share in key SEA markets will then be more confidently defended or increased in the face of greater price and functionality-based competition.

References

Louviere J., Lings I., Islam T., Gudergan S., Flynn T., (2013) *An Introduction to the application of (case 1) best-worst scaling in marketing research* International Journal of Research in Marketing Vol 30, pp 292-303

Key words

Wheat, quality, noodles, bread, protein content, wet gluten content.

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