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Understanding grain quality preferences in SE Asian markets

Using choice modelling to understand our markets

Chris Carter

Roslyn Jettner, Larisa Cato, Ken Quail, Jordan Louviere

Contributed presentation at the 60th AARES Annual Conference,
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University of
South Australia

AEGIC is an initiative of the Western Australian state government and the Grains Research and Development Corporation.



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What is functionality vs quality?

Quality	
Contract specifications	Wheat/flour functionality attributes
Protein	Dough extensibility
Price	Noodle Colour
Falling number	Ash content
Moisture content	Dough strength
Hectolitre weight	Loaf volume

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QUALITY IN THE VALUE CHAIN



Wheat breeder



Wheat grower



Exporter



Flour Mill



Processors



Consumer

Aims:

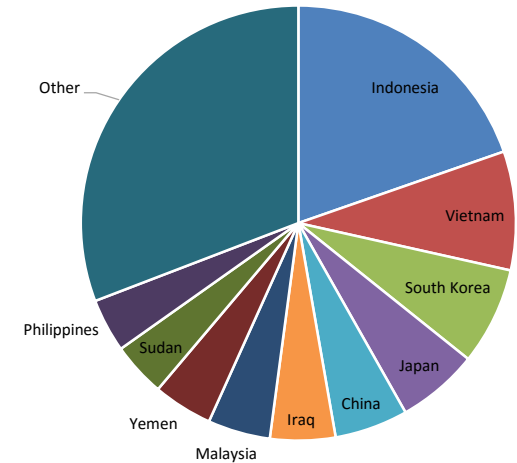
To inform wheat breeders of the value attributed to quality traits by our major markets

To inform wheat varietal guidelines to meet future market requirements

SE ASIA – IMPORTANT MARKETS



TOP 10 EXPORT COUNTRIES
Five-year average (2009-2013 CY)



Quality & Functionality requirements of 3 wheat markets in SEA



Method: 3 Part Process

Executive interviews

Best Worst Scaling

Discrete Choice Experiments

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Part 1 – Executive Interviews



Part 2 – Best Worst Scaling



Best/worst survey design

Spreadsheet based survey tool



	Procurement	Technical
Total Attributes	31	25
Sets	30	31
Attributes per set	5	6

Economic Attributes (2)

Wheat Quality Attributes (7)

Flour Quality Attributes (12)

Wet noodle end-product Attributes (6)
or

Bread end-product attributes (5)

Technical support Attributes (3 or 4)

Example

Wheat selected for: Pandesal and Sandwich bread

Set 1 of 31

Most Important

Least Important

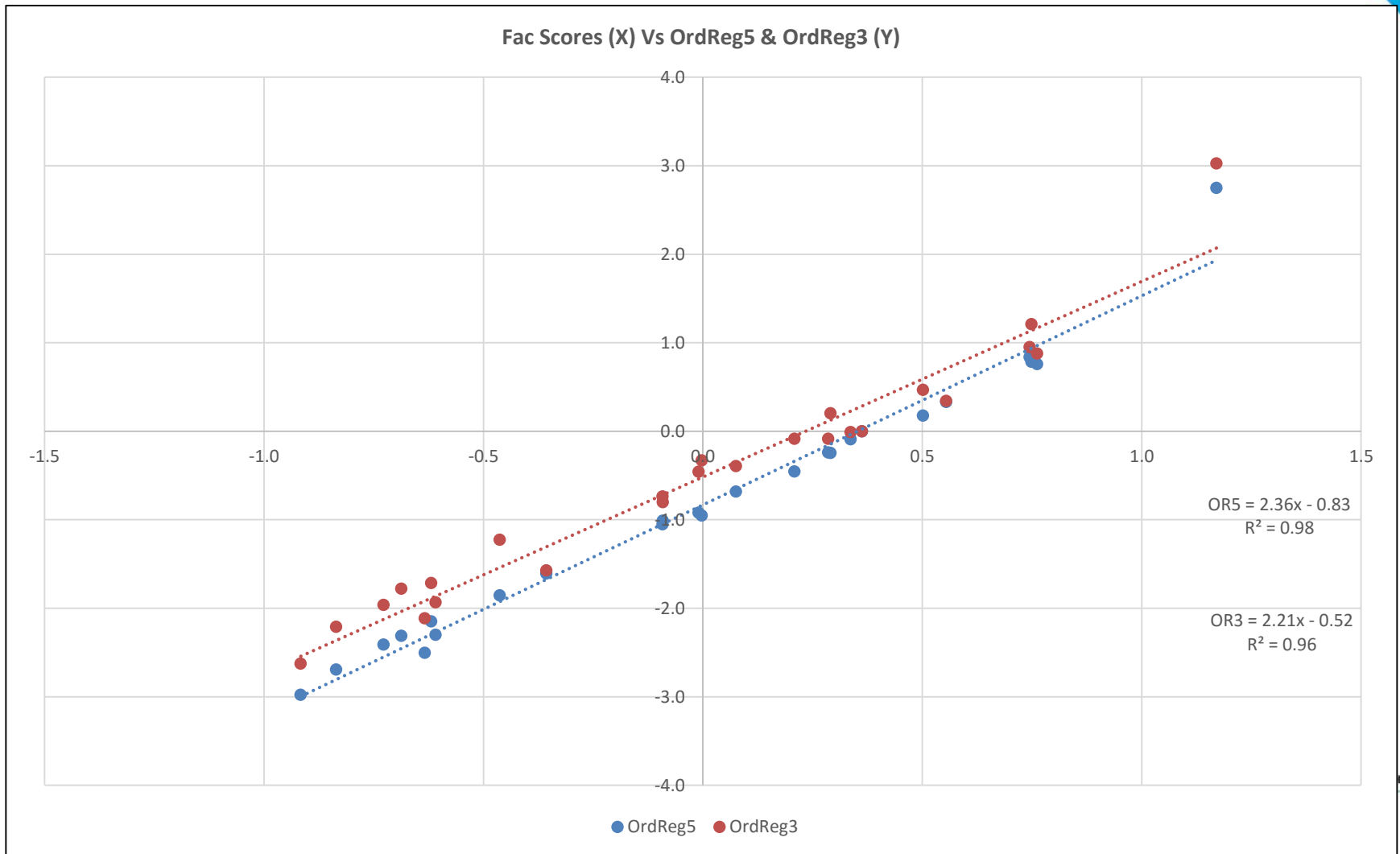
- | | | |
|-----------------------|---|-----------------------|
| <input type="radio"/> | Dough stability time | <input type="radio"/> |
| <input type="radio"/> | Wheat ash | <input type="radio"/> |
| <input type="radio"/> | Quality inspection service and chemical/mycotoxin testing | <input type="radio"/> |
| <input type="radio"/> | Country of origin | <input type="radio"/> |
| <input type="radio"/> | Wet gluten content | <input type="radio"/> |
| <input type="radio"/> | Flour ash | <input type="radio"/> |

Submit

Go to Set 1 - Next Most and Least Important

Ranking: Factor scores

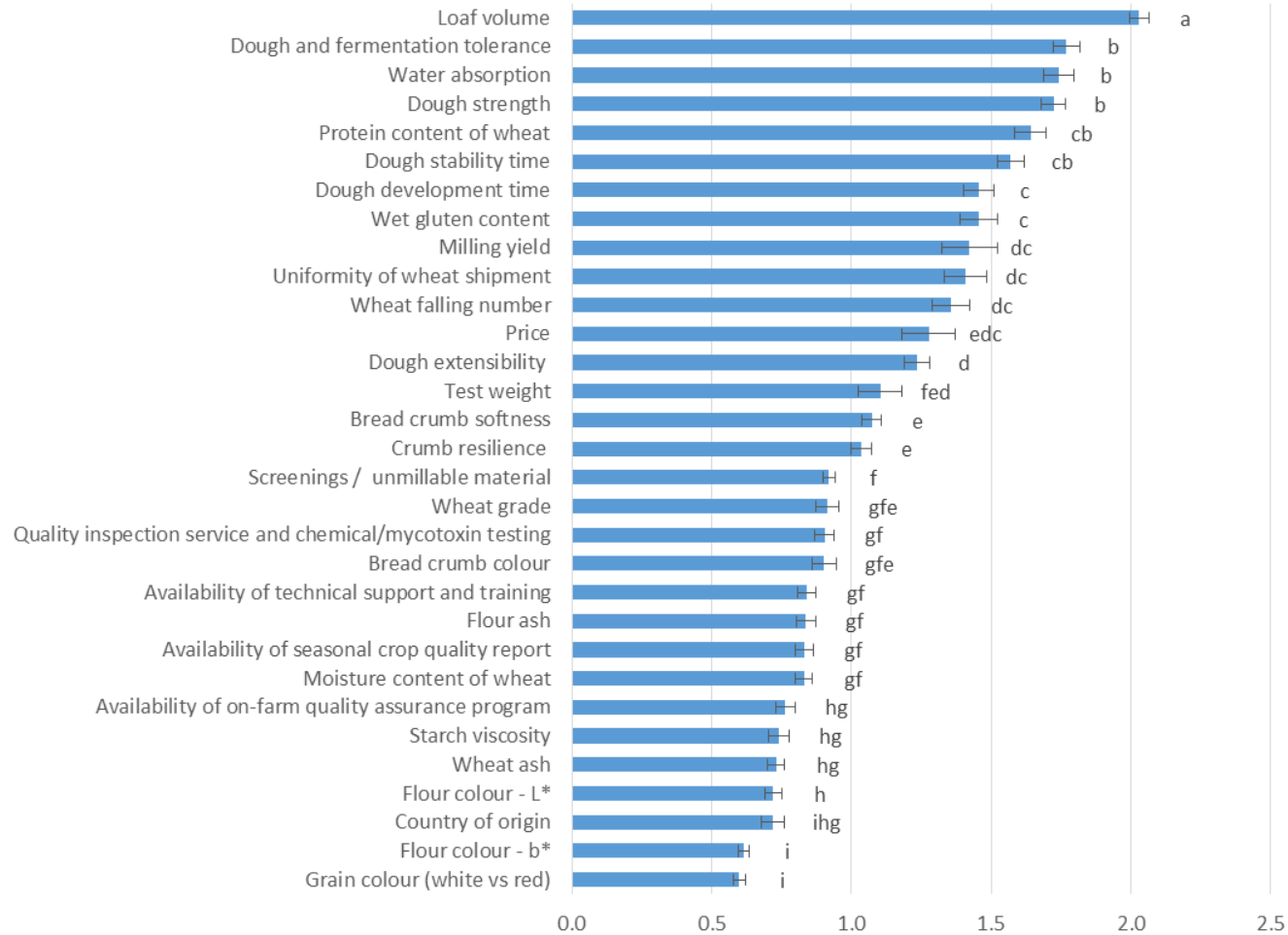
- High R^2 with the Ordinal Regression model ~ 0.98



Rankings of Attributes.

Preliminary Results

Malaysia: Bread: Technical



Stage 3 of Study

Discrete choice experiments



Experiment design

25 sets

3 Parcels in each set

6 attributes

5 levels for each attribute

2 countries completed

Discrete Choice Experiments

Example

Wheat selected for SANDWICH BREAD and PANDESAL

Set 1

Wheat and Flour Characteristics	Parcel A	Parcel B	Parcel C
Dough resistance to extension	800 BU	500 BU	400 BU
Water absorption	60%	62%	68%
Wet gluten	40%	31%	28%
Milling Yield	-2%	-1%	2%
Dough development time	4 min	13 min	16 min
Price (FOB \$USD)	\$273	\$264	\$237
I would MOST prefer	Parcel A <input type="radio"/>	Parcel B <input type="radio"/>	Parcel C <input type="radio"/>
I would LEAST Prefer	Parcel A <input type="radio"/>	Parcel B <input type="radio"/>	Parcel C <input type="radio"/>

Submit

Go to Set 2

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What we've learned so far

Preliminary results

- Functionality traits ranked as high in all surveys
- Significant differences in purchaser and technical preferences
 - Potential for technical support and promotion of Australian grain quality
- Significant clustering of responses, not aligned to companies, little difference between countries

Process

- Good buy in to process
- Don't do more than two surveys a day

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Thankyou!

chris.carter@aegic.org.au

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