



Which variety should I grow?

Getting the most out of the new long-term yield analysis from NVT


Alison Kelly, Alison Smith, Brian Cullis

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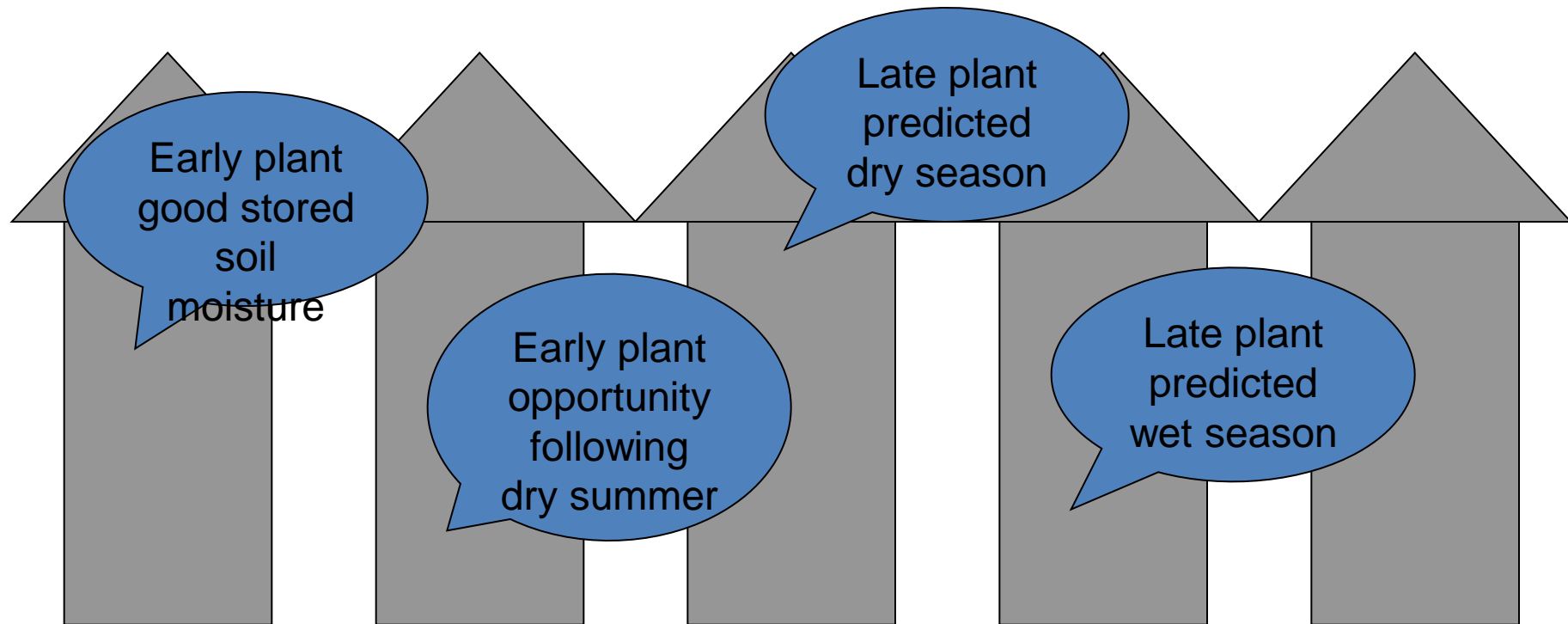
SAGI



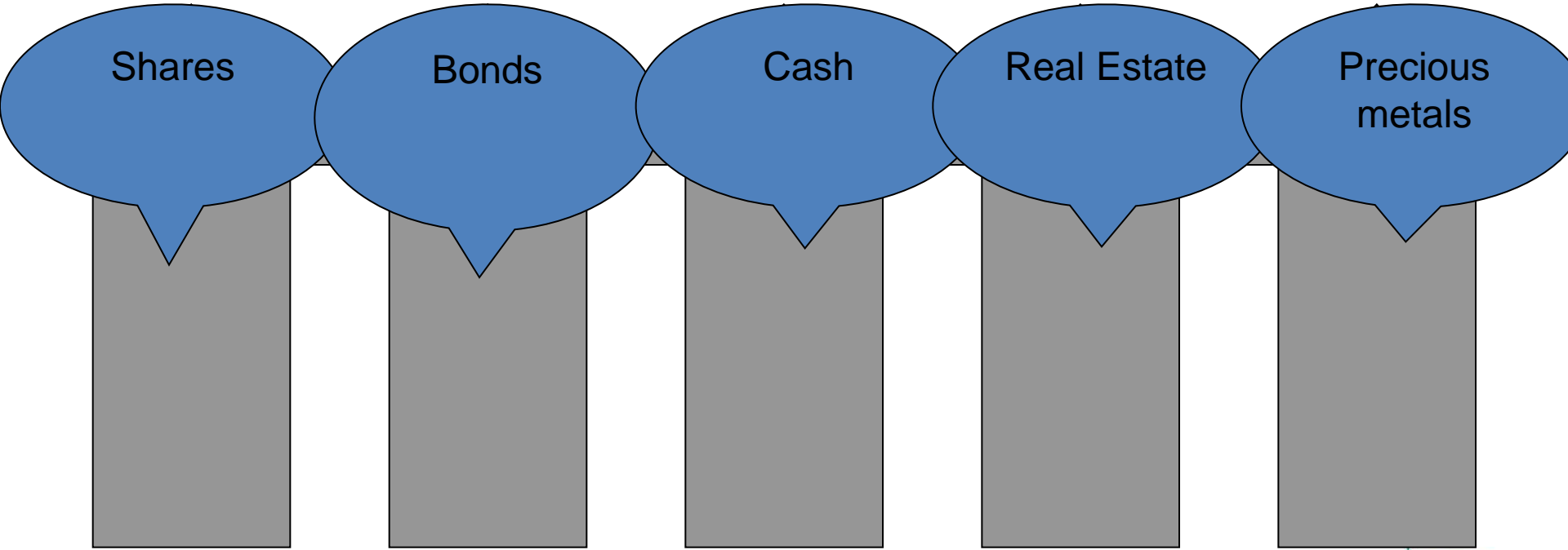
The image shows a large, grey, corrugated metal grain silo with the word 'GRAINMASTER' printed on its side. The silo is supported by a yellow metal frame and has a conical bottom. It is located in front of a large, grey, corrugated metal barn with a gabled roof. The sky is overcast and grey. The ground is dry and dusty. A semi-transparent grey box with text is overlaid on the center of the image.

**or... How many
seed silos do I
need?**

Varietal choice



... it's a bit like hedging bets with an investment portfolio

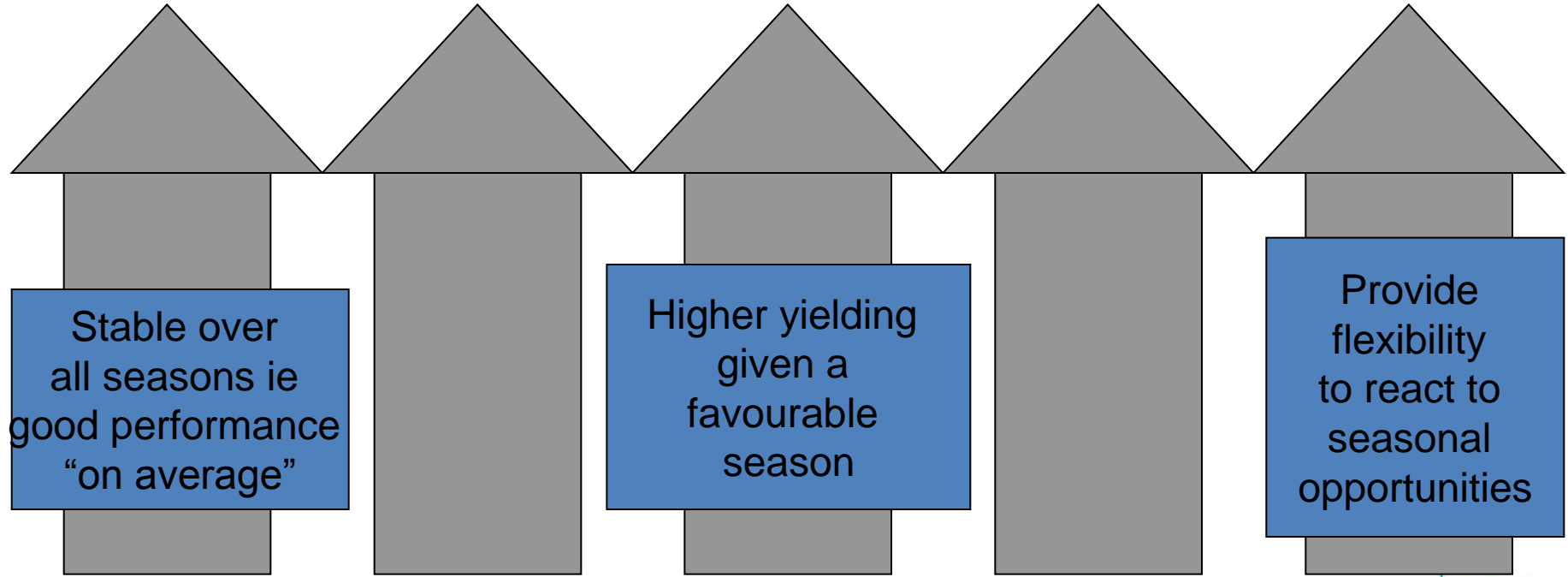


... it's about diversification and managing risk vs return

Why do financial advisors recommend a diverse investment portfolio ???



... but you need to understand the performance potential of your stocks



Key messages











- Individual trial results from NVT provide only a snapshot in time and may lead to unsuitable varietal choice
- Combining data across trials (and years) enhances the chance of selecting the appropriate varieties
- The current long-term analysis based on geographic region averages over “dissimilar” trials
- A new method of analysis will provide the most accurate prediction of relative yield performance of varieties



NVT data 2008-2012

**This years long-term analysis
of main season wheat trials
involved 383 varieties by 577 trials**








NVT data – Agzone 2

	A total of 64 trials in Agzone 2				
	2008....	2009.....	2010....	2011....	2012....
Variety	Buntine	Goomalling	Kulin	Wongan Hills	Buntine
ARRINO	3.74	2.90	0.46	2.18	1.98
AXE 	2.44				
BINNU 	4.03	2.88	0.35	
BULLARING 		2.48	0.47		
CALINGIRI 	4.35	2.15	0.47	2.17	2.08
CARNAMAH 	4.04	2.37	0.35	2.19	2.10
COBRA 			0.27	2.38	
CORACK 			0.48	2.51	2.53
CORRELL 	3.42	2.21			
EGA_BONNIE_ROCK 	3.28	2.62	0.47	2.59	2.21
EMU_ROCK 			0.48	2.14	2.14



Current long-term yield analysis








Regional mean for WA Agzone 2 over 64 sites

Variety	Yield (kg/ha)	% Site mean
MACE 	2.83	>110%
CORACK 	2.83	105-110%
WESTONIA	2.72	100-105%
WYALKATCHEM	2.72	<100%
COBRA 	2.71	
EMU ROCK 	2.68	
MAGENTA 	2.67	
EGA BONNIE ROCK 	2.64	
YITPI 	2.51	



What information is changing?

Environment Group (EG) means for WA Agzone 2 over 64 sites

Variety	Regional mean	EG12.06	EG12.01	EG12.15	EG12.11	EG12.18
MACE 	2.83	1.84	2.44	3.56	3.25	3.36
CORACK 	2.83	1.85	2.41	3.68		
WESTONIA	2.72	1.72	2.33	3.53	3.12	3.14
WYALKATCHEM	2.72	1.70	2.35	3.44	3.09	3.23
COBRA 	2.71	1.53		3.77		
EMU ROCK 	2.68	1.79	2.35	3.33		
MAGENTA 	2.67	1.62	2.31	3.58	3.00	3.19
EGA BONNIE ROCK 	2.64	1.65	2.24	3.41	3.03	3.04
YITPI 	2.51	1.57	2.25	2.94	2.77	2.96

What are Environment Groups

A collection of trials that rank varietal performance in a **similar** way



Number of trials in 5 Environment Groups for Agzone 2

Year	EG12.06	EG12.01	EG12.15	EG12.11	EG12.18
2008					6
2009			2	8	
2010	12				
2011			6		
2012		9	1		
Total	12	9	9	8	6

Number of trials in 9 Environment Groups for Agzone 2

Year	12.06	12.01	12.15	12.11	12.18	12.02	12.04	12.13	12.09
2008					6				
2009			2	8		4			
2010	12								
2011			6				4	4	
2012		9	1						3
Total	12	9	9	8	6	4	4	4	3



Number of trials in 9 Environment Groups for Agzone 2

Year	Beverley	Buntine	12.15	12.11	12.18	12.02	12.04	12.13	12.09
2008	Coorow	Corrigin			6				
2009	Cunderdin	Kulin	2	8		4			
2010	Miling	Wagin							
2011	Wongan Hills		6	Eneabba			4		
2012		9	1		2012				3
Total	12	9	9	8	6	4	4	4	3

Number of trials in 9 Environment Groups for Agzone 2

Year	12.06	12.01	12.15	12.11	12.18	12.02	12.04	12.13	12.09
2008	Badgingarra Buntine Goomalling Eneabba Miling Wubin				6				
2009			2	8	Beverley Kulin Wagin Wickepin				
2010									
2011			6	2011			4	4	
2012		9	1						3
Total	12	9	9	8	6	4	4	Corrigin Cunderdin Narembeen Wongan Hills	

Combining information across trials

- The current long-term analysis reporting by geographic region averages over “dissimilar” trials
- Decision making can be improved by averaging over similar trials
- But how do we measure similarity?

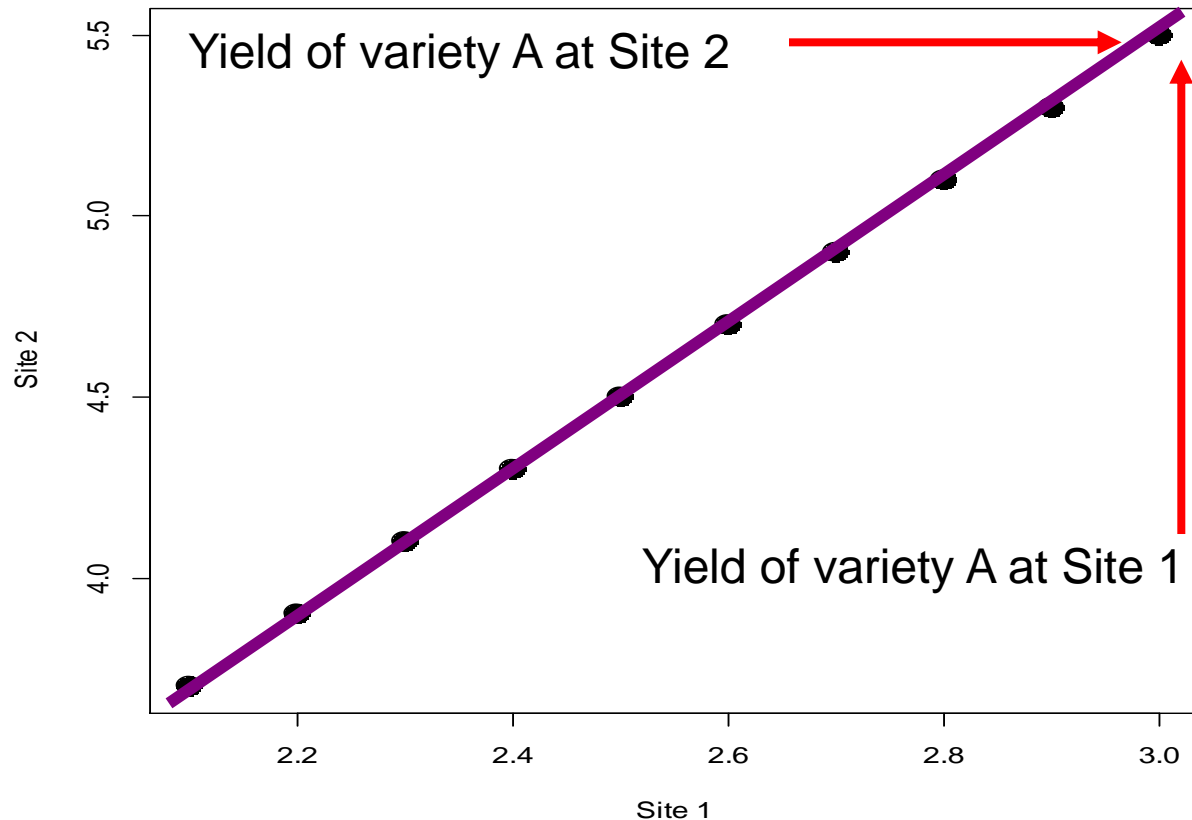


Combining information across trials

Similarity is measured in terms of the agreement in ranking of varieties between each pair of trials



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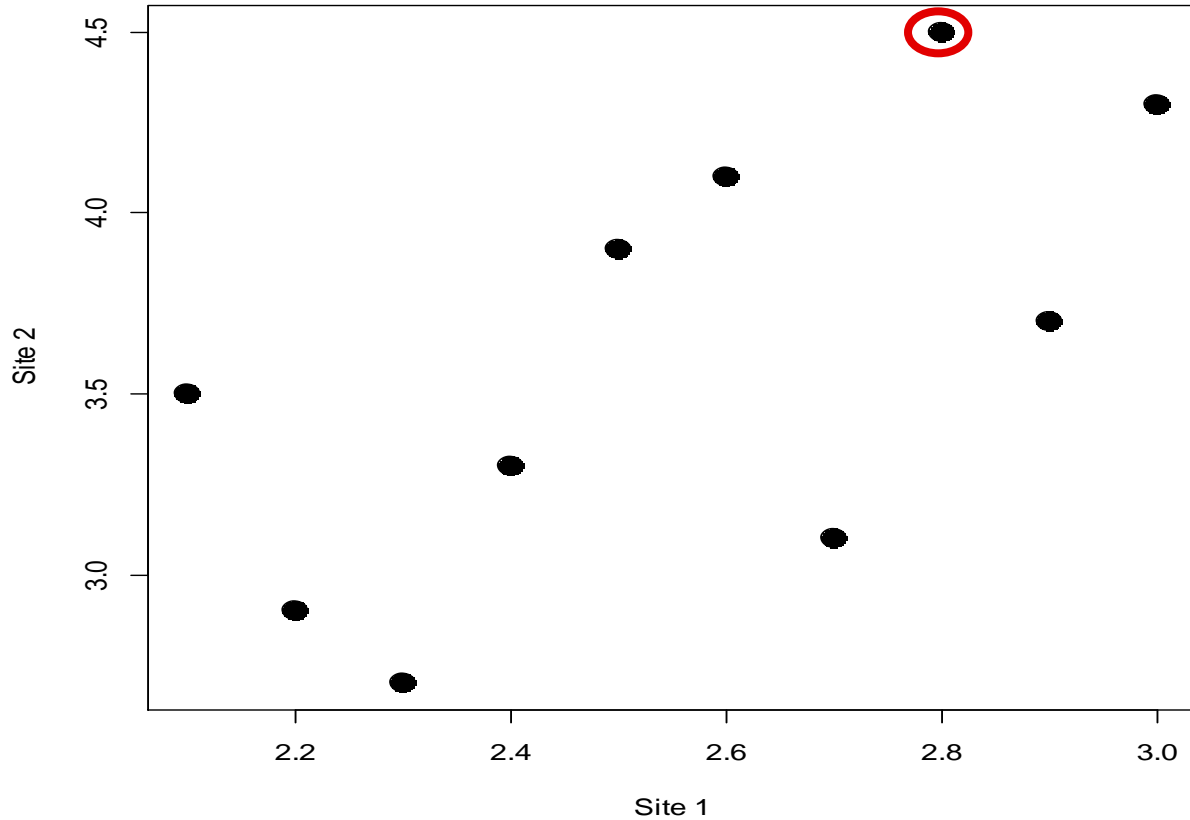


Perfect agreement in ranking of varieties at each site

correlation = 1

No variety by trial interaction

Similarity is measured in terms of the agreement in ranking of varieties between each pair of trials



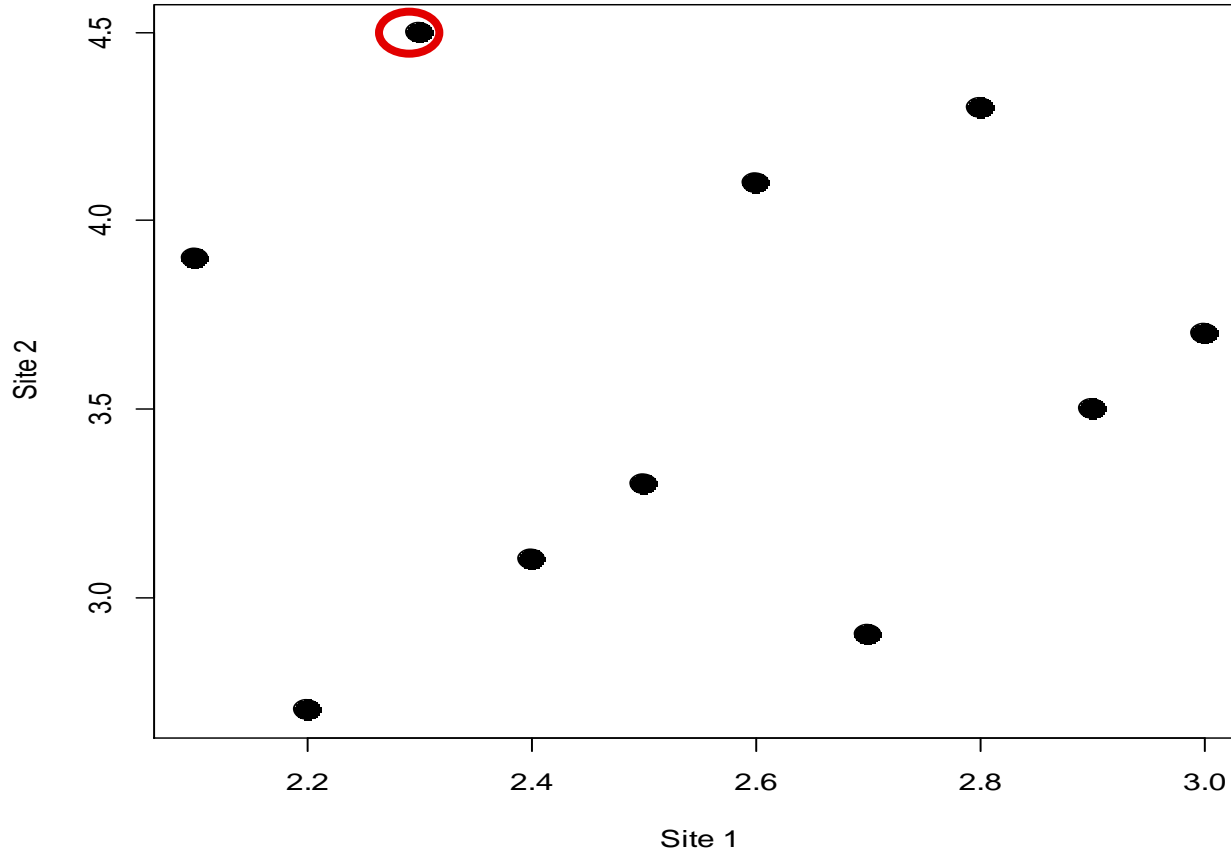
Reasonable agreement in ranking of varieties at each site

correlation = 0.6

Little variety by trial interaction



Similarity is measured in terms of the agreement in ranking of varieties between each pair of trials



No agreement in ranking of varieties at each site

correlation = 0

Strong variety by trial interaction



Similarity is measured in terms of the agreement in ranking of varieties between each pair of trials

Agreement in
ranking of varieties
at each site

Correlation

Variety by trial
interaction

strong

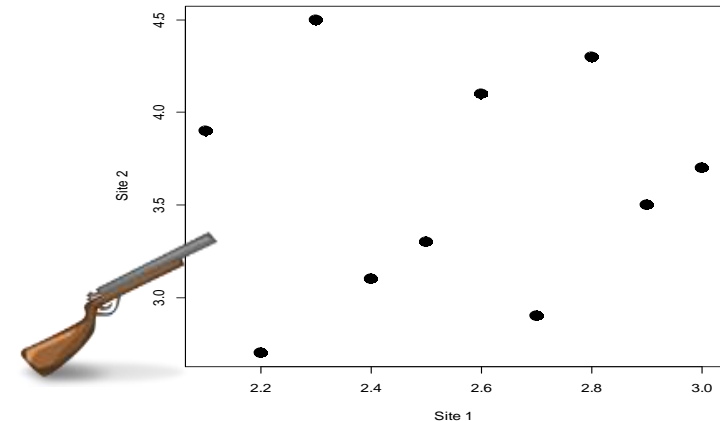
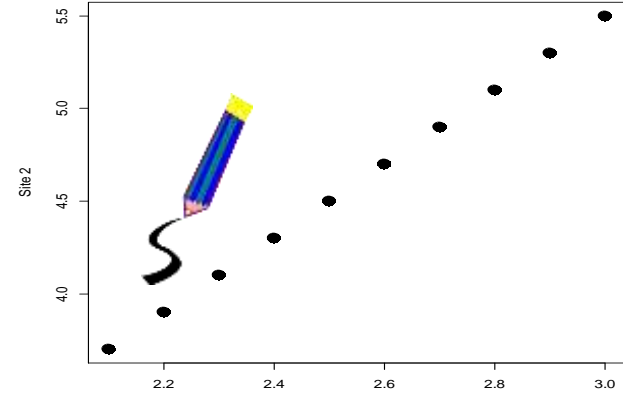
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No VxT

little

0

Strong
VxT

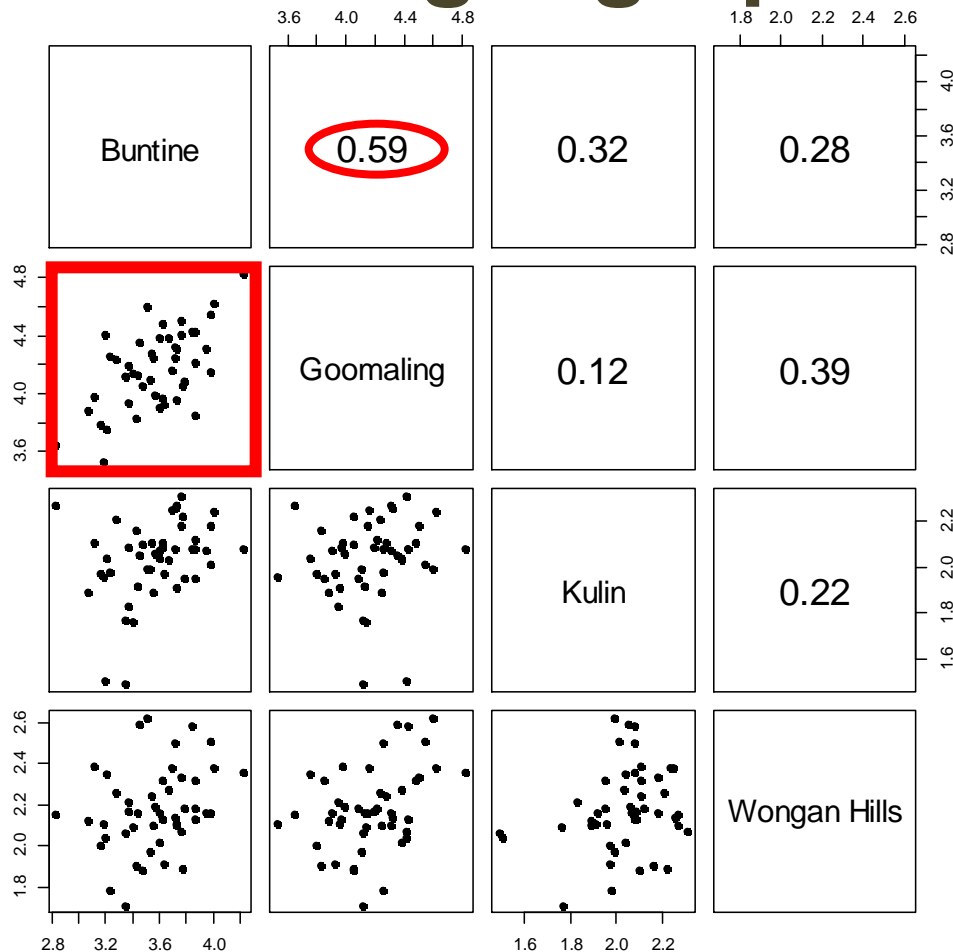


VxT interaction within a geographic region

Agreement in
variety ranks for
4 trials in Agzone 2
in 2011

Plot of variety yield
for each trial

Correlation = 0.59

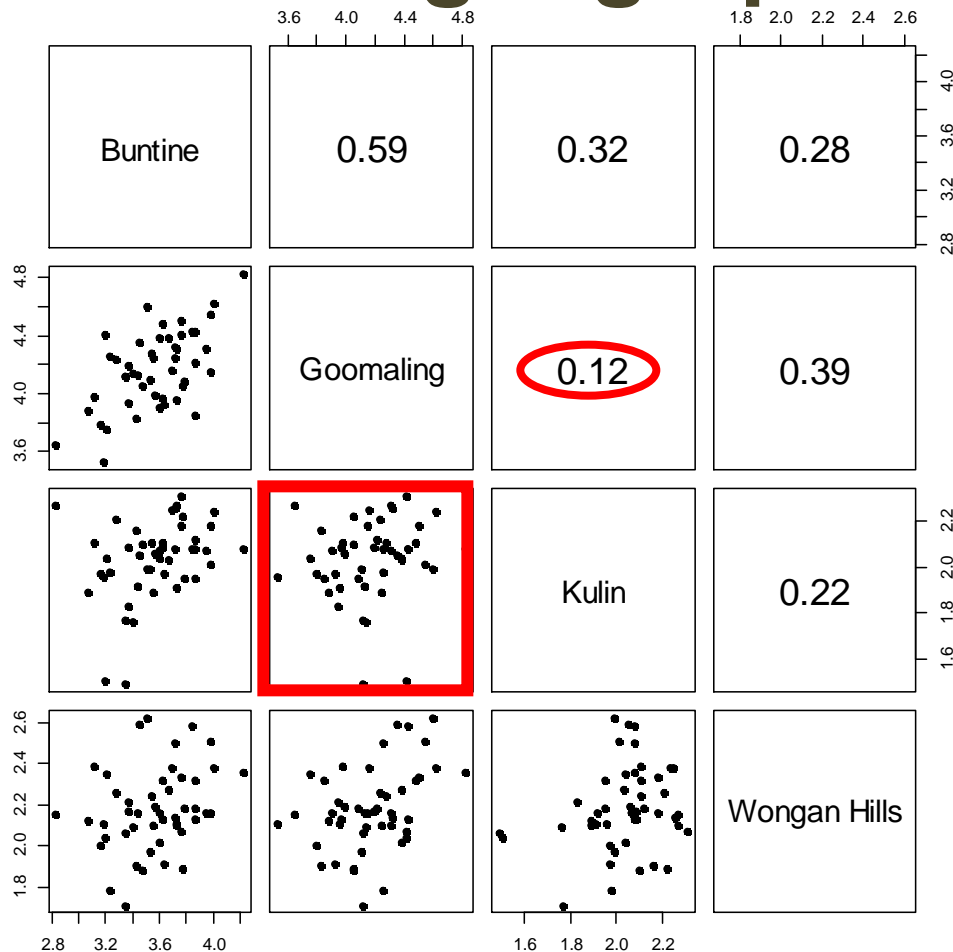


VxT interaction within a geographic region

Agreement in
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Plot of variety yield
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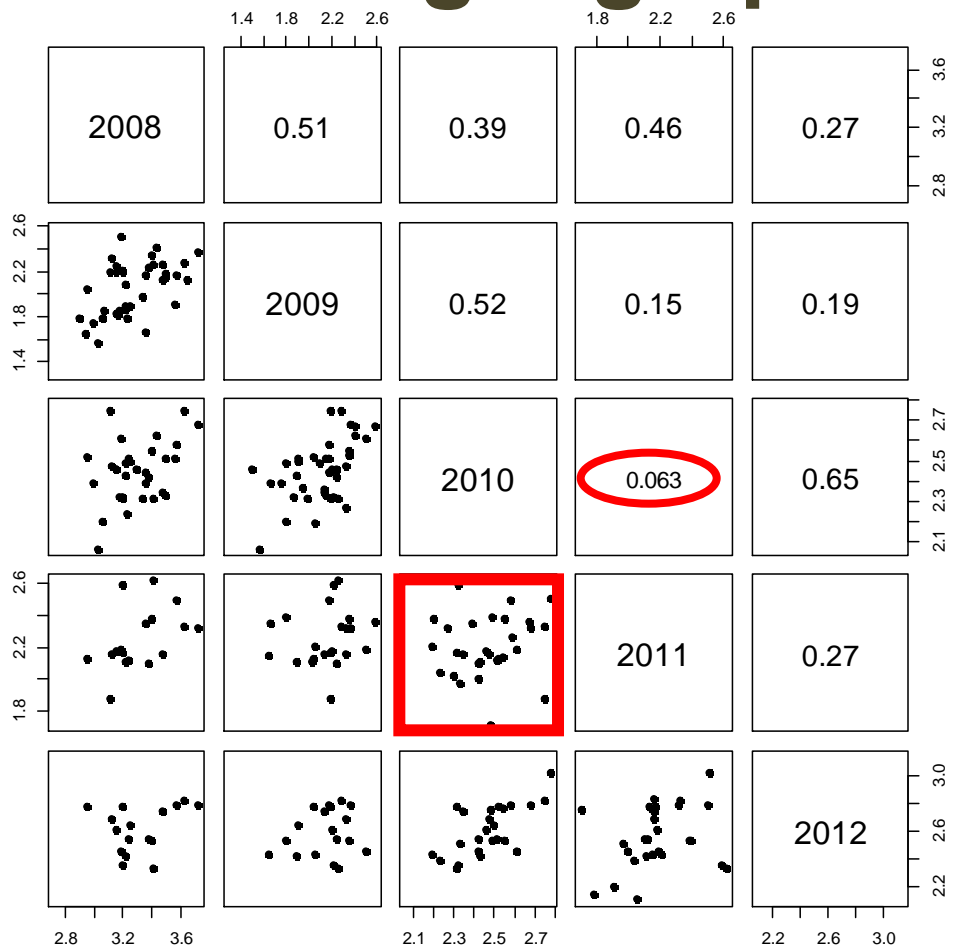
Correlation = 0.12



VxT interaction within a geographic region

Agreement in
variety ranks for
5 years at Wongan
Hills in Agzone 2

Correlation = 0.06



The new long-term yield analysis

- Decision making can be improved by averaging over **similar** trials
- **"Similarity"** does not align with current geographic regions
- **Environment Groups (EGs)** are formed from averages across similar trials



A wide-angle photograph of a golden wheat field under a clear sky. A narrow path or furrow runs through the center of the field, leading the eye towards a range of blue mountains in the distance. The wheat is ripe and yellow, with some green stalks still visible. The background shows rolling hills and scattered trees.

Questions?



Department of
Agriculture and Food



GRDC Grains Research &
Development Corporation
Your GRDC working with you

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Contact: Alison Kelly
Principal Biometrician
DAFF Queensland
alison.kelly@daff.qld.gov.au

