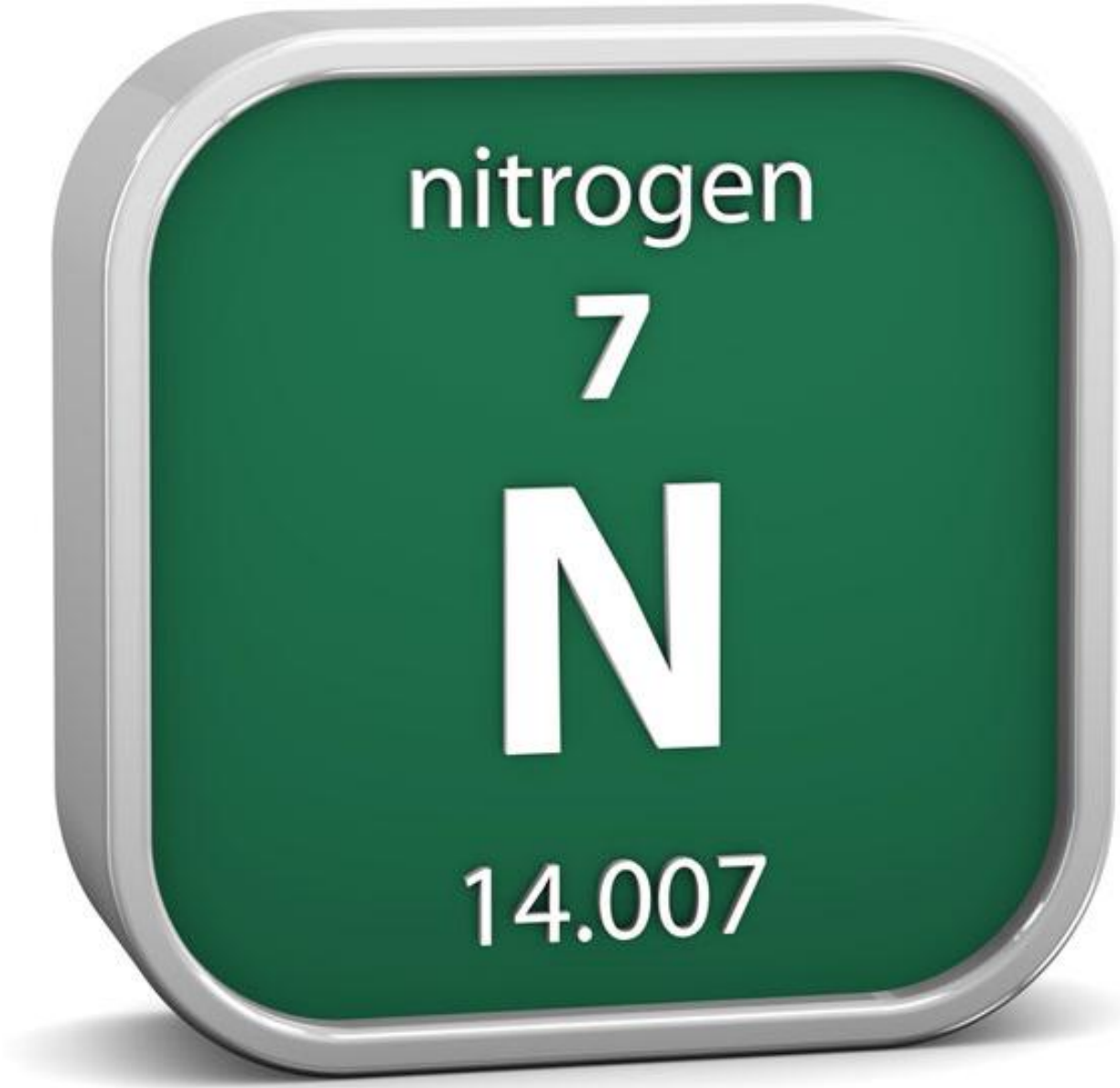
Evaluating nitrogen strategies

Kaidy Morgan
Hart Field-Site Group Inc.


Getting The
Crop In

- **Crop + variety choice**

- **Weed management**

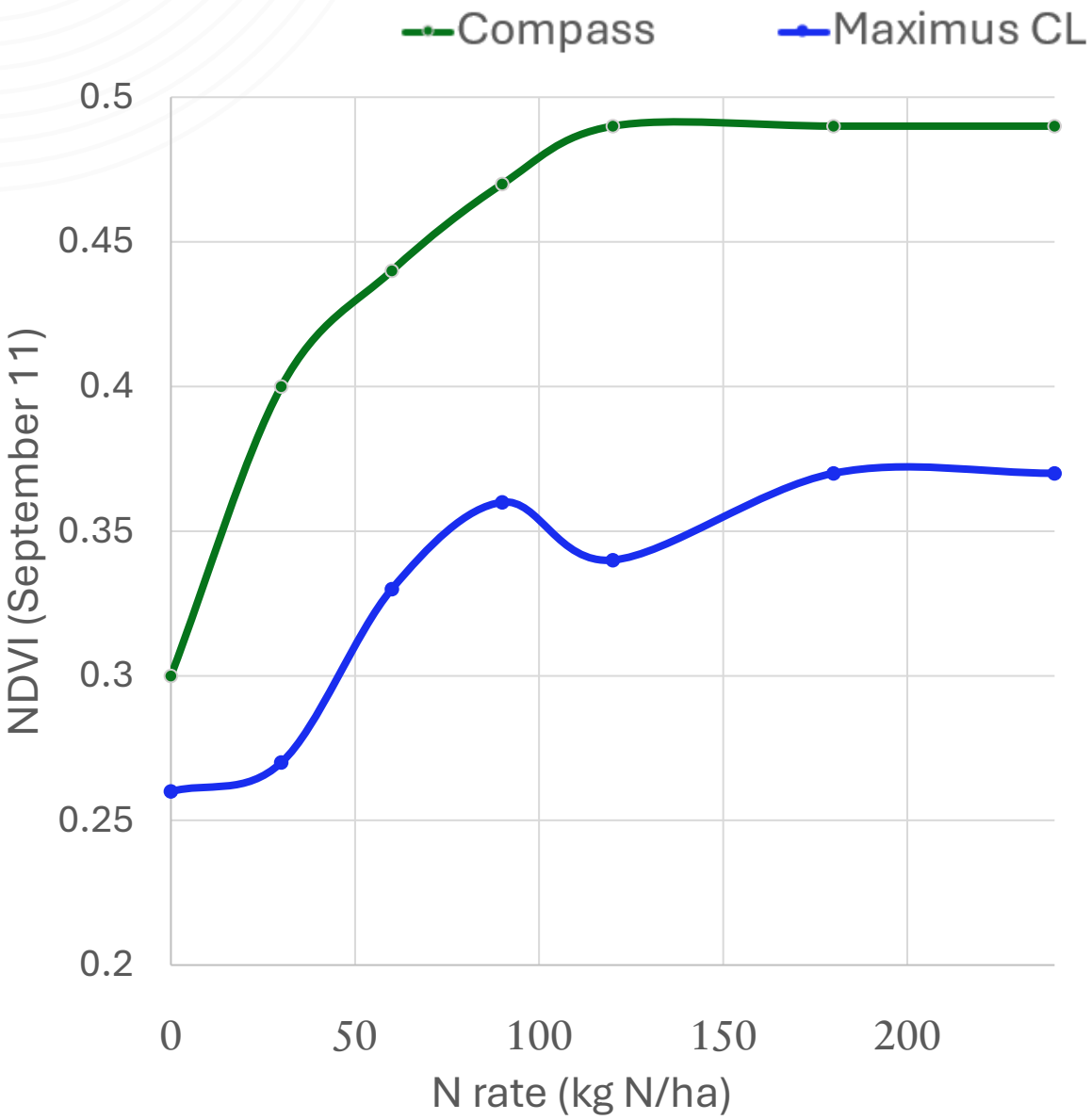

nitrogen
7
N
14.007

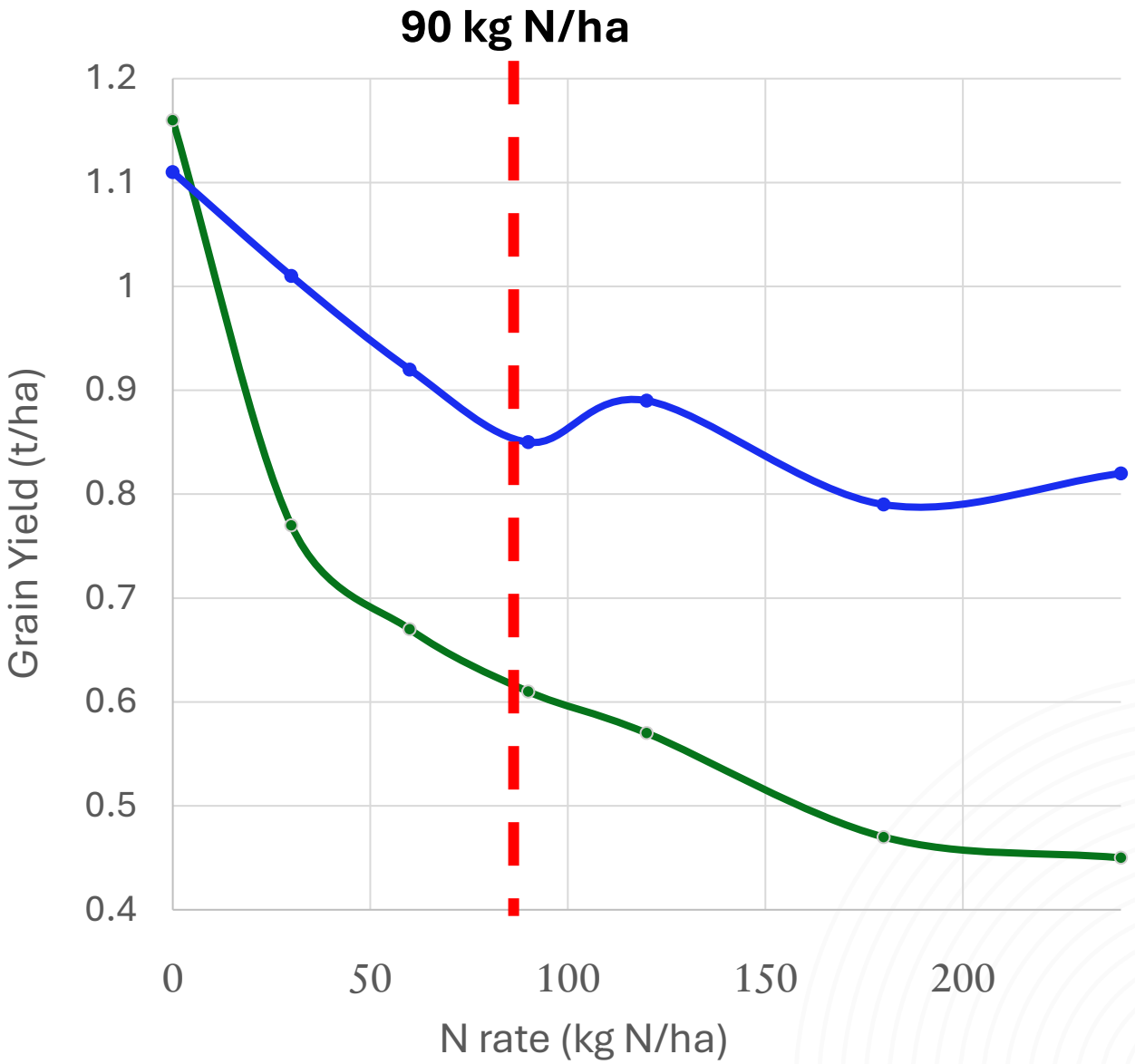

Which strategies tend to be **more** right **more** often?

NITROGEN RATE AND VARIETY CHOICE - 2024

- Wheat- Scepter and Calibre
- Barley- Compass and Maximus CL
- 0, 30, 60, 90, 120, 180, 240 kg N/ha

2024- BARLEY VARIETY CHOICE





NITROGEN CARRYOVER

NITROGEN CARRYOVER

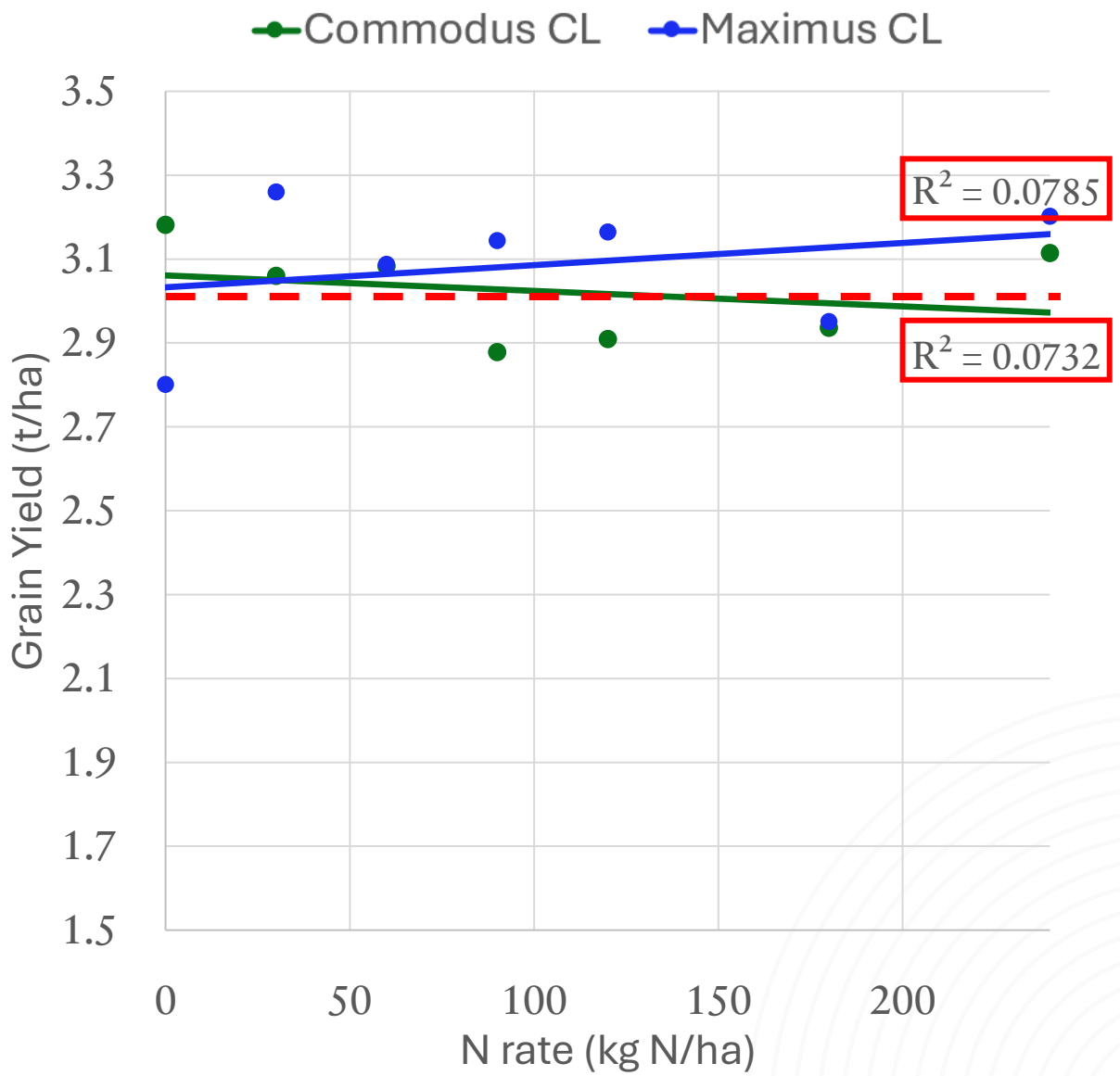
	Post-harvest N (kg/ha)
N rate (kg N/ha)	Maximus CL
0	40.6[a]
90	114.1[ab]
240	188.2[b]
P Value (≤0.05)	0.033

**Background soil + seeding N = 46 kg N/ha*

2025- BARLEY VARIETY CHOICE

- Barley- Maximus CL and Commodus CL
- 0, 30, 60, 90, 120, 180, 240 kg N/ha
- **120 kg soil N**

  ~ 3 t/ha



HART BEAT

HART 54 premier cropping field site
Incorporating RiskWiSe MINIMISE RISK & MAXIMISE REWARD in 2025
ISSUE 67
July 10, 2025

Soil type: Sandy clay loam

Average annual rainfall: 400 mm

Crop growth

Variety:	Scepter wheat
Sowing date:	May 23, 2025
Emergence:	June 18, 2025
Soil sampling date:	April 4, 2025
Starting soil N:	120.4 kg N/ha
Seeding fertiliser:	8 kg N/ha

The season so far

Annual rainfall to date:	93.2 mm
GSR to date:	86.4 mm
Current GSR decile:	1
Initial PAW (April 4)	0 mm
Current predicted PAW:	44 mm (21% full)
PAWC:	206 mm

Total nitrogen:

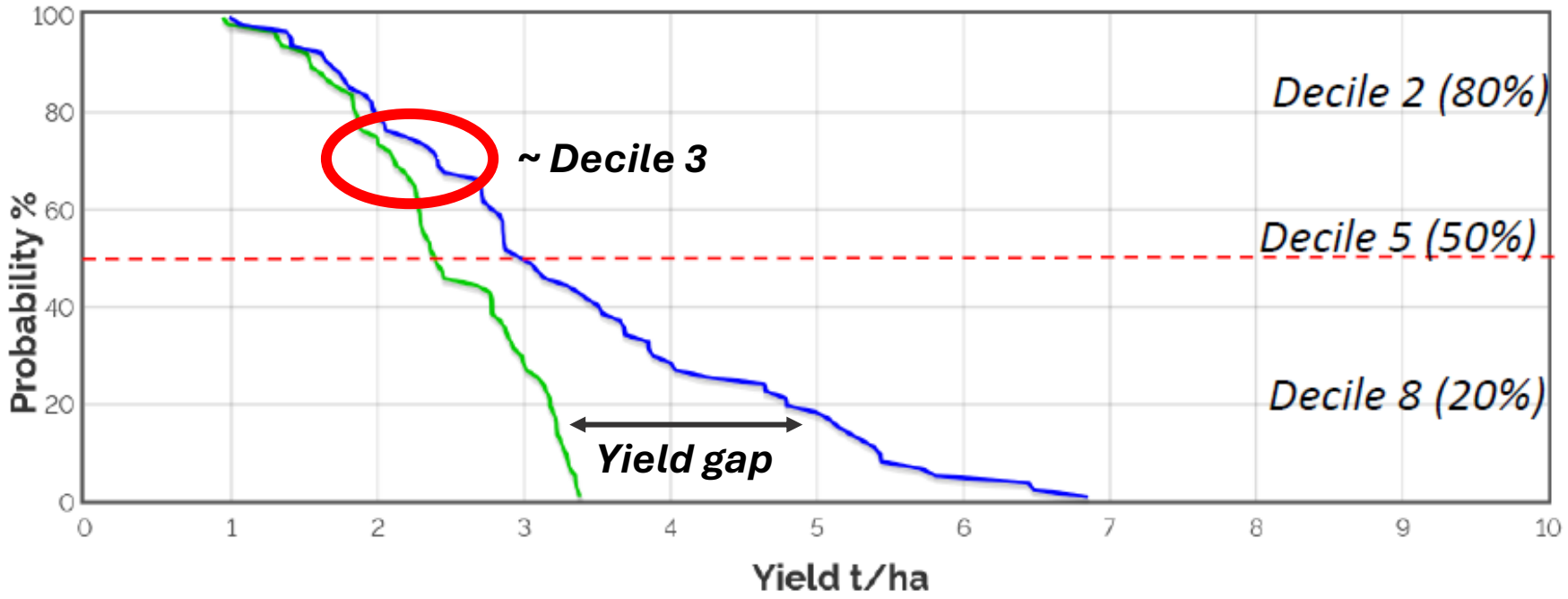
Starting Soil N (0 – 135 cm):

120.4 kg N/ha

Fertiliser at seeding:

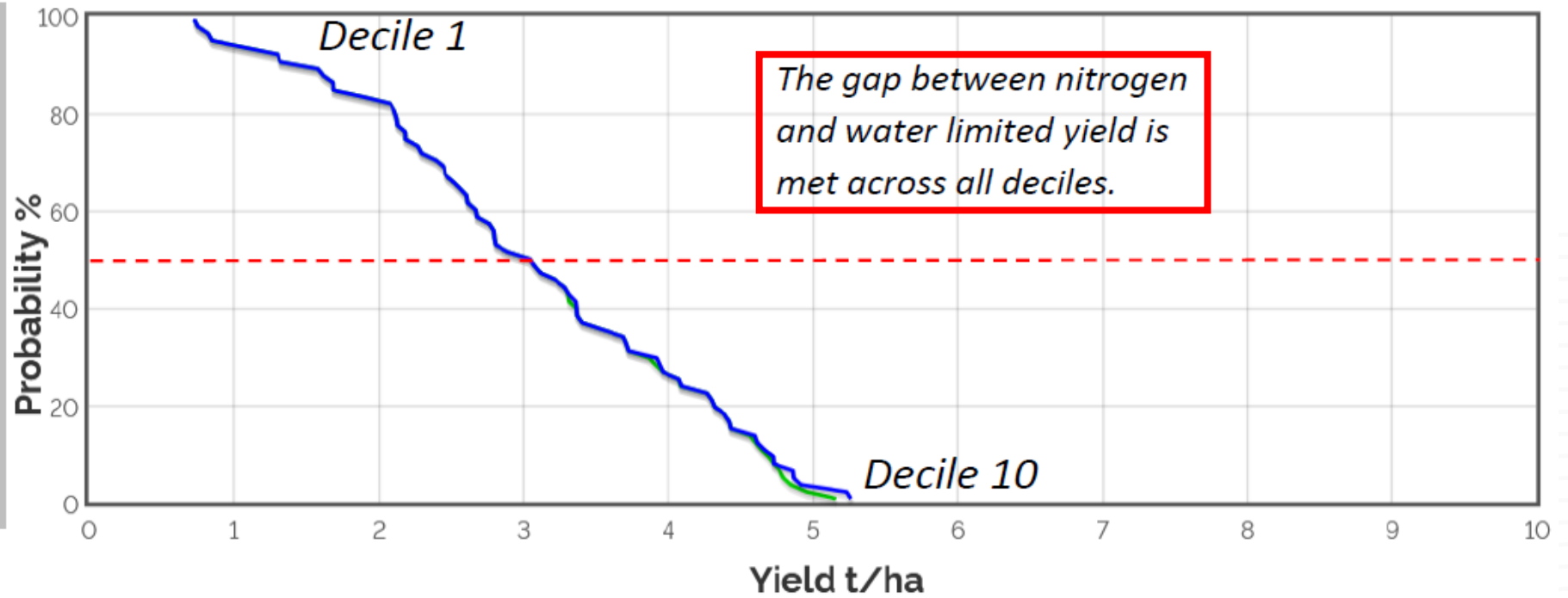
8 kg N/ha

(80 kg/ha MAP applied)



Yield Prophet® prediction

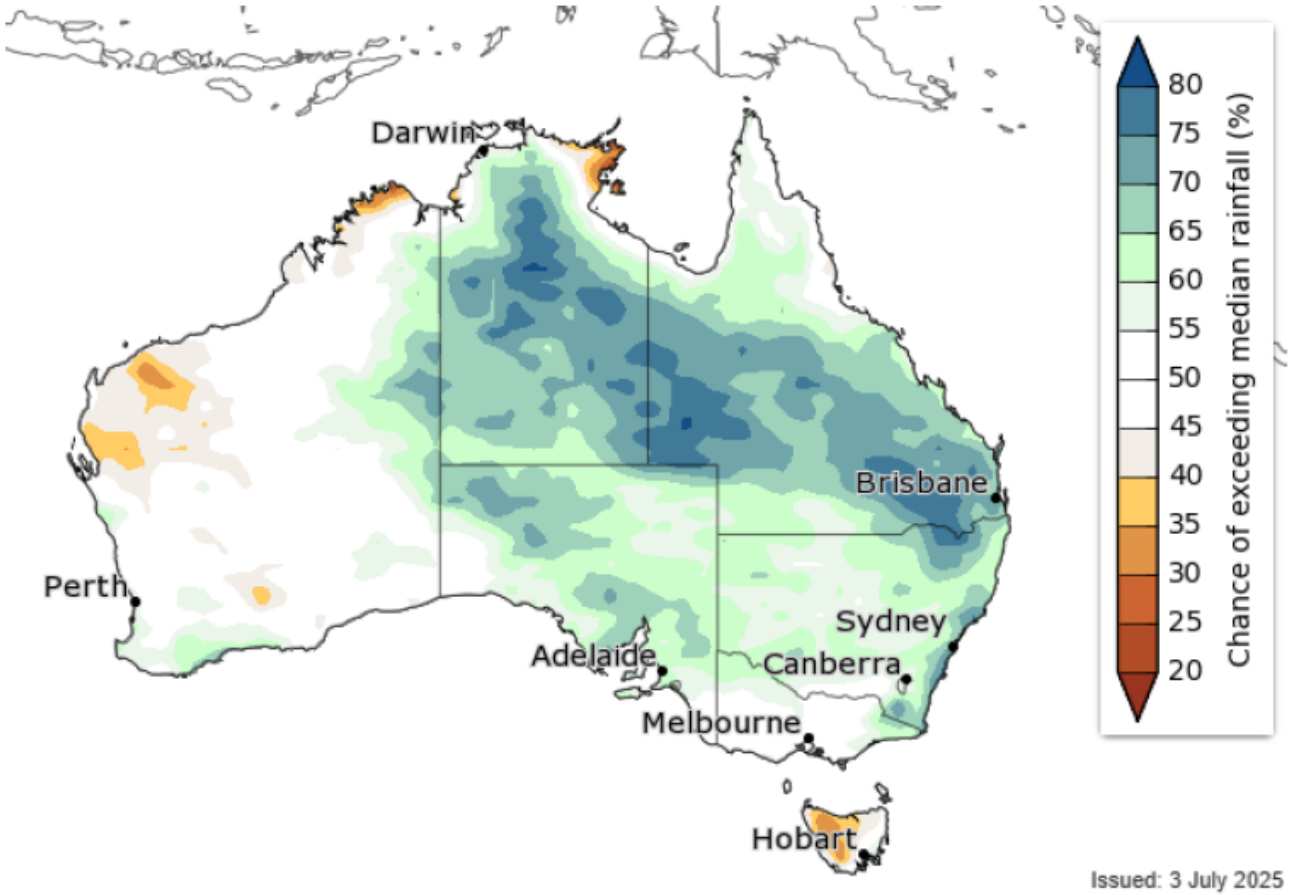
Based on 261 kg N/ha starting soil & seeding N. No in crop N applied.

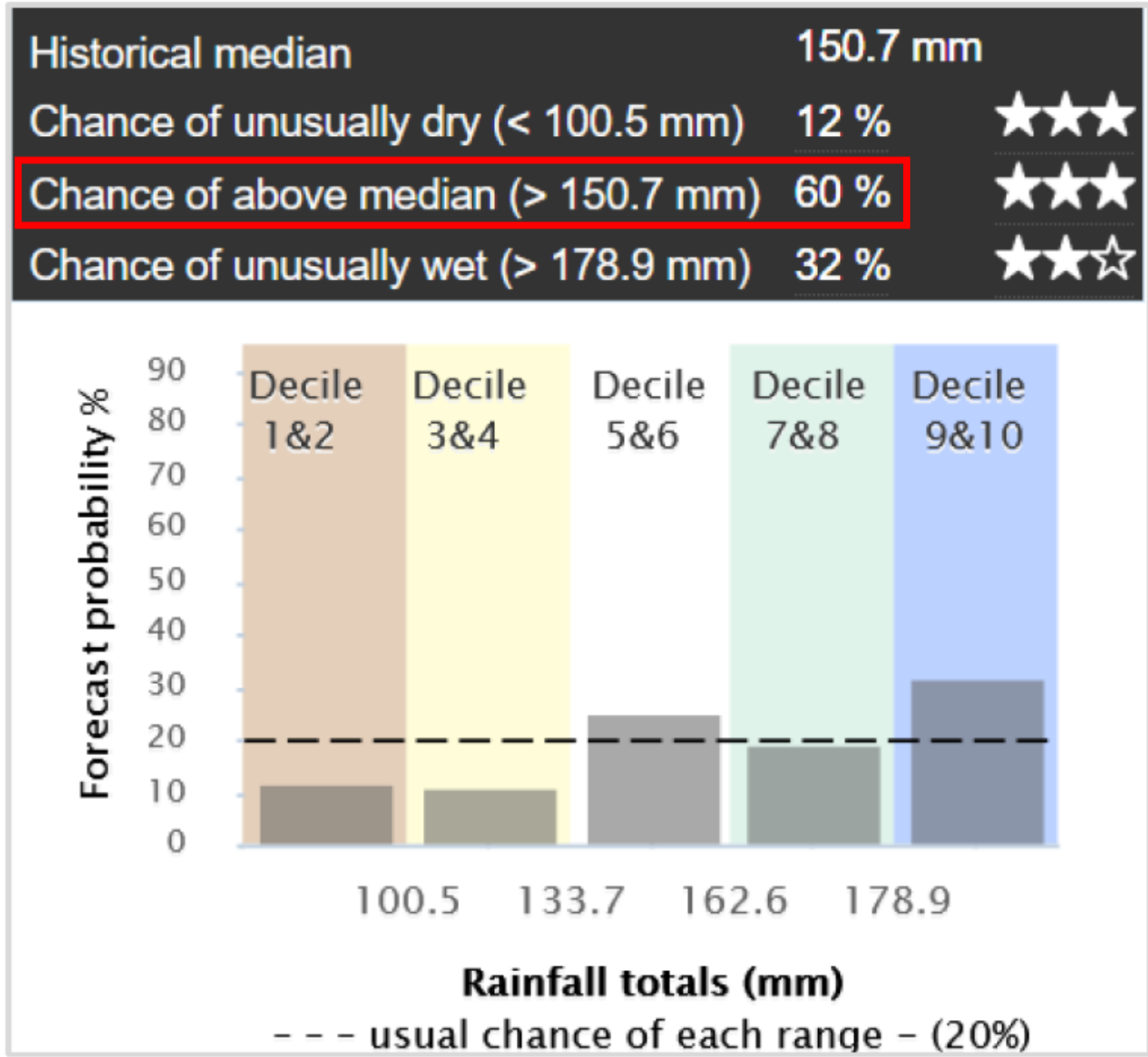


WHAT'S NEXT: Seek more information & consider the climate outlook

ENSO Outlook

The Bureau have predicted a neutral ENSO phase (neither El Niño or La Niña) until at least the end of August, with a high chance of lasting until the end of the year. **What does this mean?** A Neutral ENSO phase generally leads to a higher chance of close to average climatic conditions (rainfall and temperature). Despite neutral ENSO conditions, extreme events including droughts and floods may still occur.





Sourced from Bureau of Meteorology:

http://www.bom.gov.au/climate/outlooks/#/rainfall/media

Total nitrogen:

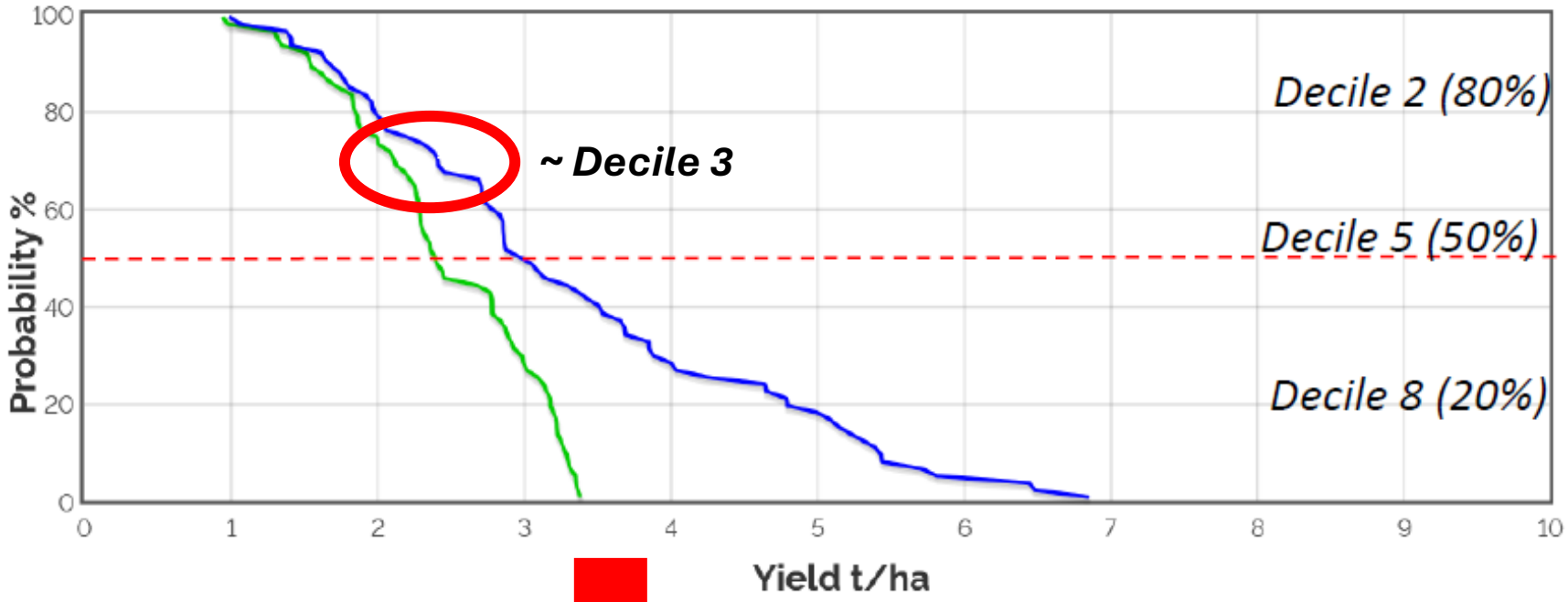
Starting Soil N (0 – 135 cm):

120.4 kg N/ha

Fertiliser at seeding:

8 kg N/ha

(80 kg/ha MAP applied)

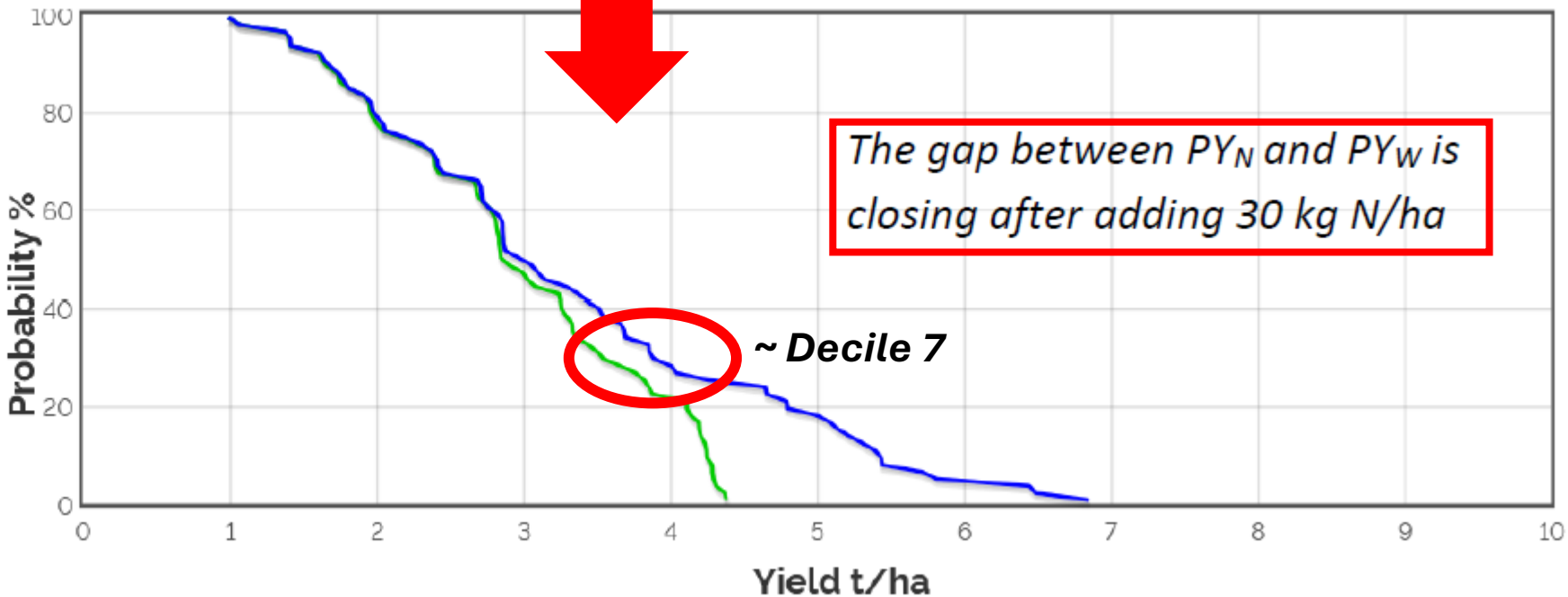


Total nitrogen:

Soil N = 120.4 kg N/ha

Seeding = 8 kg N/ha

+ 30 kg N/ha top dressed



Less analytical

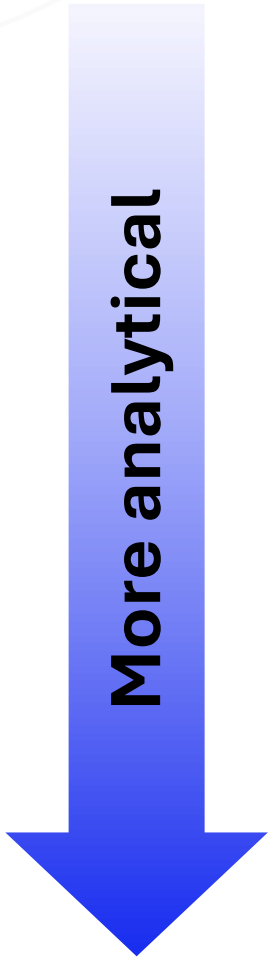

How do they perform?


Which strategies tend to be **more** right **more** often?

RISKWI$E: THE NATIONAL RISK MANAGEMENT INITIATIVE

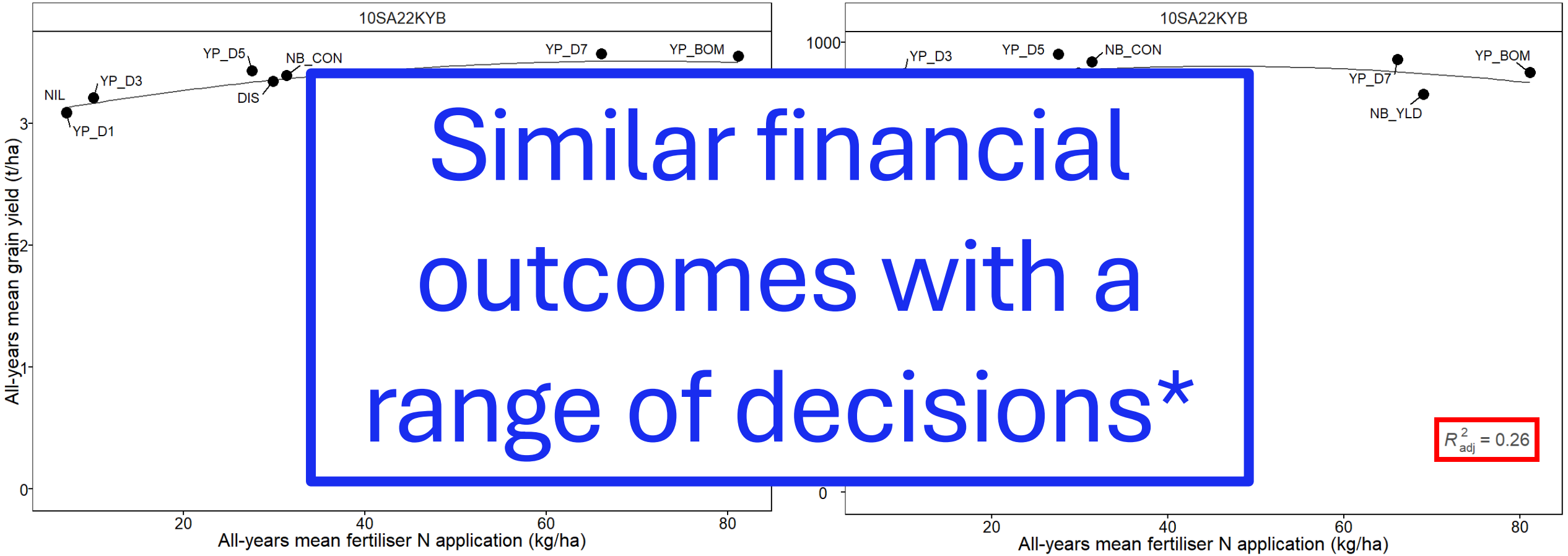
Nitrogen strategies trial at Kybunga

RISKWI$E: THE NATIONAL RISK MANAGEMENT INITIATIVE



DIS	District Practice

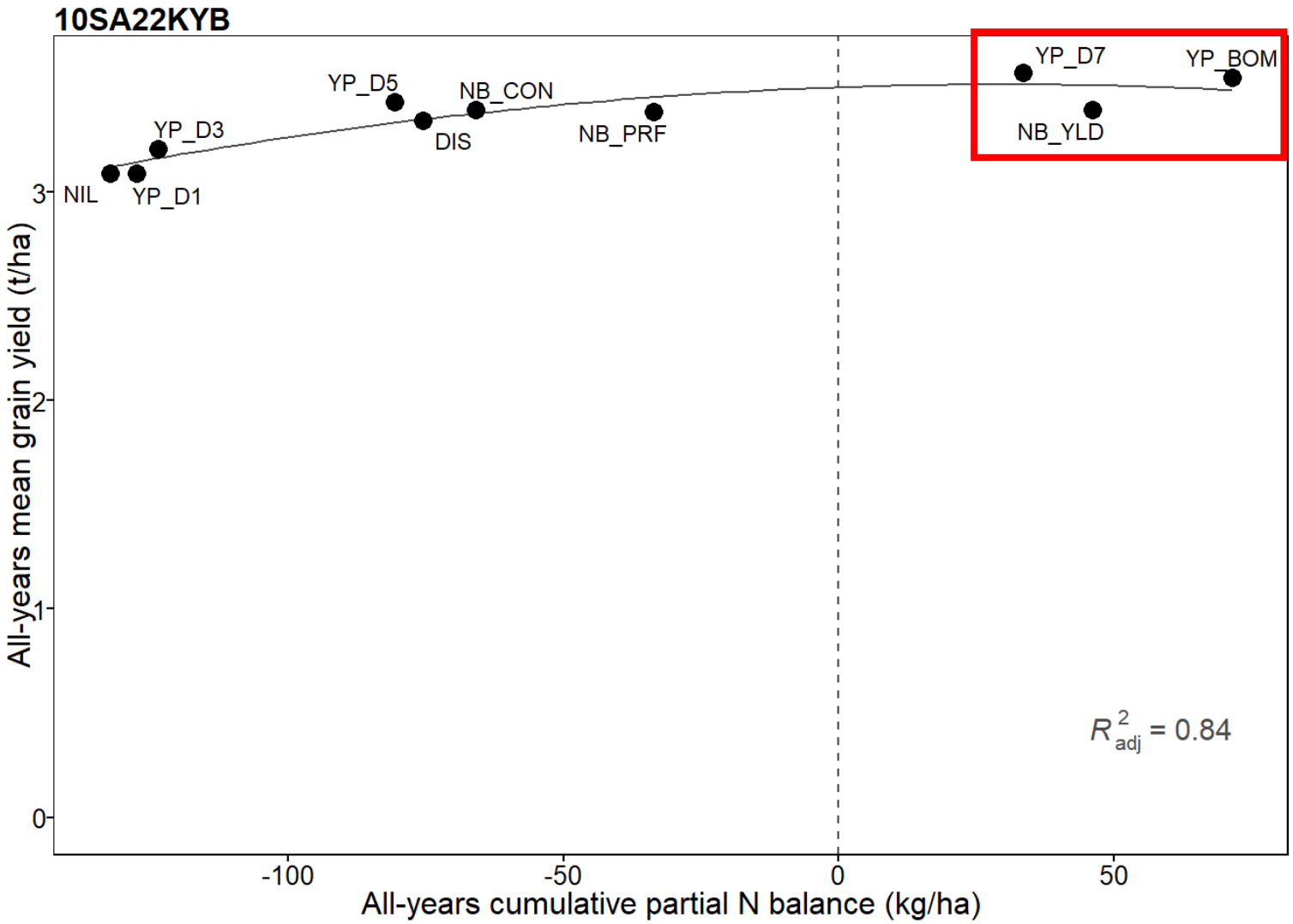
YIELD AND GROSS MARGIN



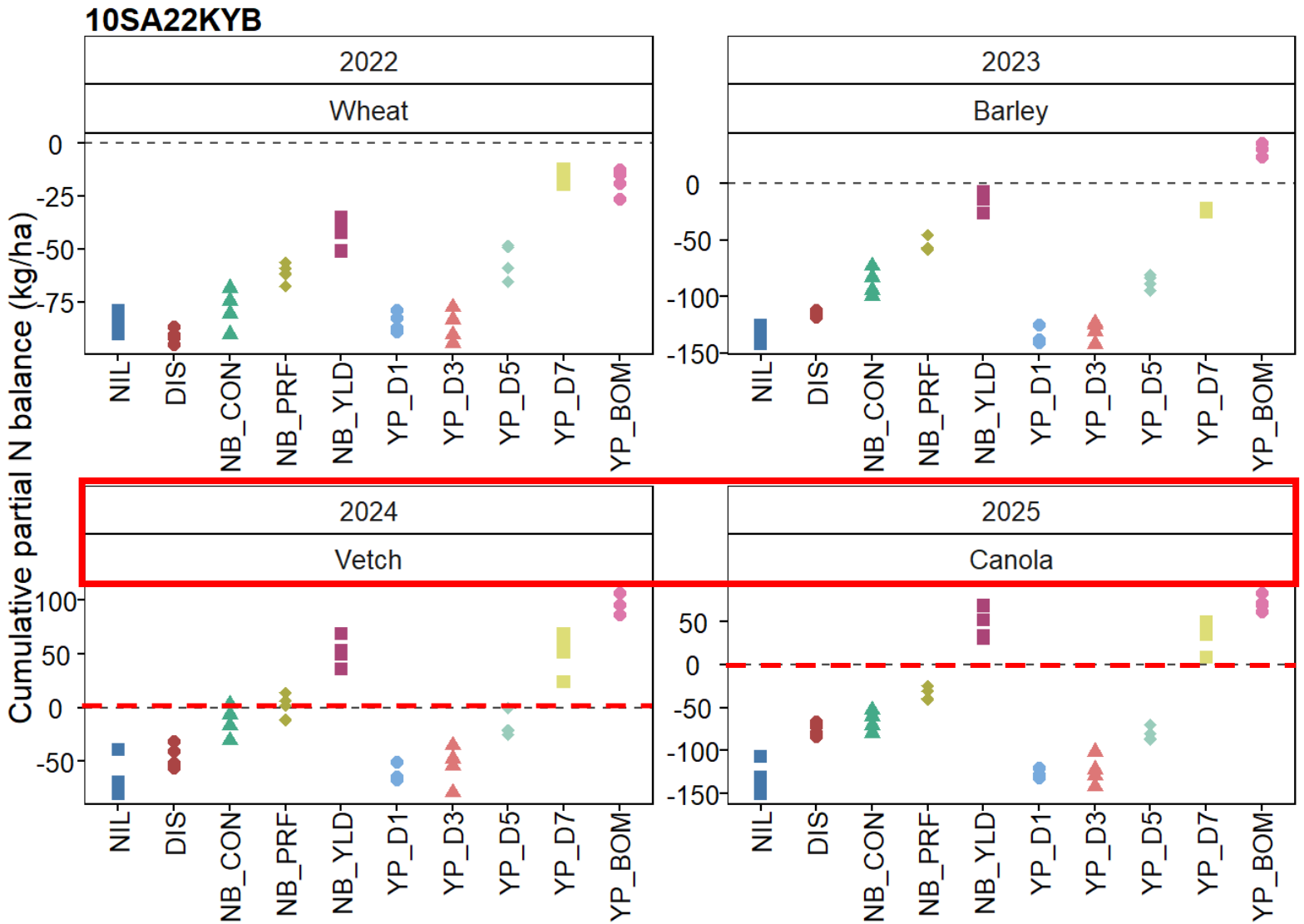
Similar financial outcomes with a range of decisions*

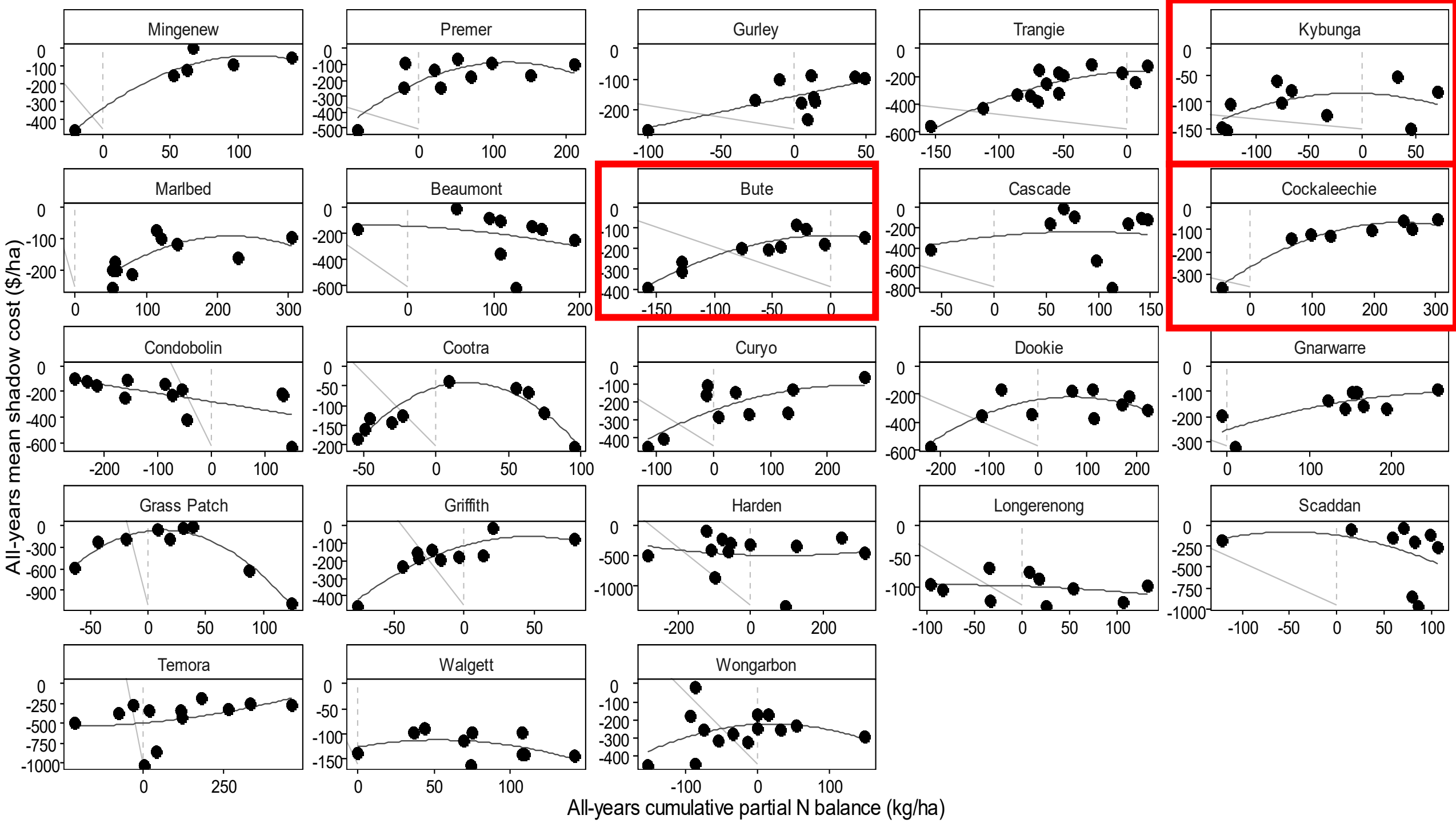
*When multiple seasons are considered

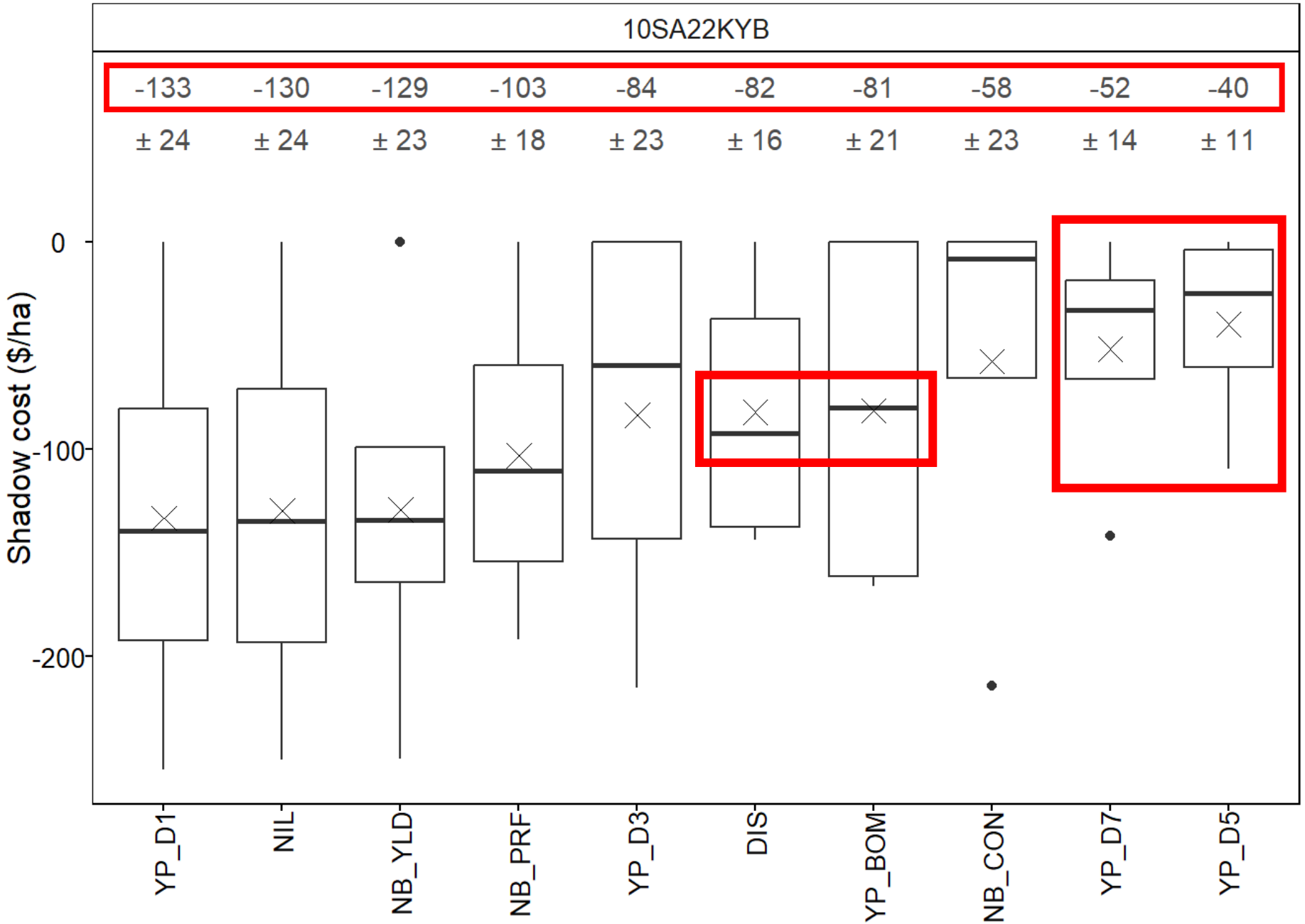
PARTIAL N BALANCE



PARTIAL N BALANCE




Mingenew
Premer
Gurley
Trangie
Kybunga
Marlbed
Beaumont
Bute
Cascade
Cockaleechie
Condobolin
Cootra
Curyo
Dookie
Gnarwarre
Grass Patch
Griffith
Harden
Longerenong
Scaddan
Temora
Walgett
Wongarbon
All-years mean shadow cost ($/ha)
All-years cumulative partial N balance (kg/ha)


10SA22KYB
-133 ± 24
-130 ± 24
-129 ± 23
-103 ± 18
-84 ± 23
-82 ± 16
-81 ± 21
-58 ± 23
-52 ± 14
-40 ± 11
Shadow cost ($/ha)
0
-100
-200
YP_D1
NIL
NB_YLD
NB_PRF
YP_D3
DIS
YP_BOM
NB_CON
YP_D7
YP_D5

FINAL TAKEAWAYS

Many decision-making systems can get N rates ‘right’ over the long term

GROWER | ADVISOR | EXTENSION GROUPS

AgGrow AGRONOMY + RESEARCH
amps
BFIG BUCKLEBOO FARM IMPROVEMENT GROUP
CWFS Central West Farming Systems Inc.
COOMANDOOK AGRICUTURE BUREAU
CORRIGIN Farm Improvement Group
EPAG RESEARCH
FACEY GROUP Shaping the Future
FarmLink change • adapt • prosper
FAR AUSTRALIA
goa GRAIN ORANA ALLIANCE
Holbrook Landcare Network
Irrigated Cropping Council
LIEBE Group Working together in Agriculture
Irrigation Research & Extension Committee
Mallee Sustainable Farming
MID NORTH HIGH RAINFALL ZONE
RiverinePlains
MURRAY PLAINS FARMERS
NSS NORTHERN SUSTAINABLE SOILS GROWER GROUP
MINGENEW-IRWIN GROUP
SEPWA
WEST MIDLANDS GROUP our knowledge hub
SOUTHERN GROWERS
STIRLINGS TO COAST FARMERS
UNFS Upper North Farming Systems
wantfa Pioneers and Leaders in Conservation Agriculture

RESEARCH PARTNERS

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THE UNIVERSITY OF QUEENSLAND AUSTRALIA
THE UNIVERSITY OF WESTERN AUSTRALIA
pinion ADVISORY
BARRY MUDGE CONSULTING
TRENGROVE CONSULTING
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ACTION RESEARCH GROUP LEADS

BCG SHARED SOLUTIONS
HART SA's premier cropping field site
GROWER GROUP ALLIANCE Together we grow
Queensland Government
Charles Sturt University
AIR EP Ag Innovation & Research Eyre Peninsula

PRINCIPAL PARTNER

GRDC GRAINS RESEARCH & DEVELOPMENT CORPORATION

NATIONAL PROJECT LEAD

CSIRO

RiskWi$e: The National Risk Management Initiative

HART

SA's premier cropping field site

THANK YOU

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