



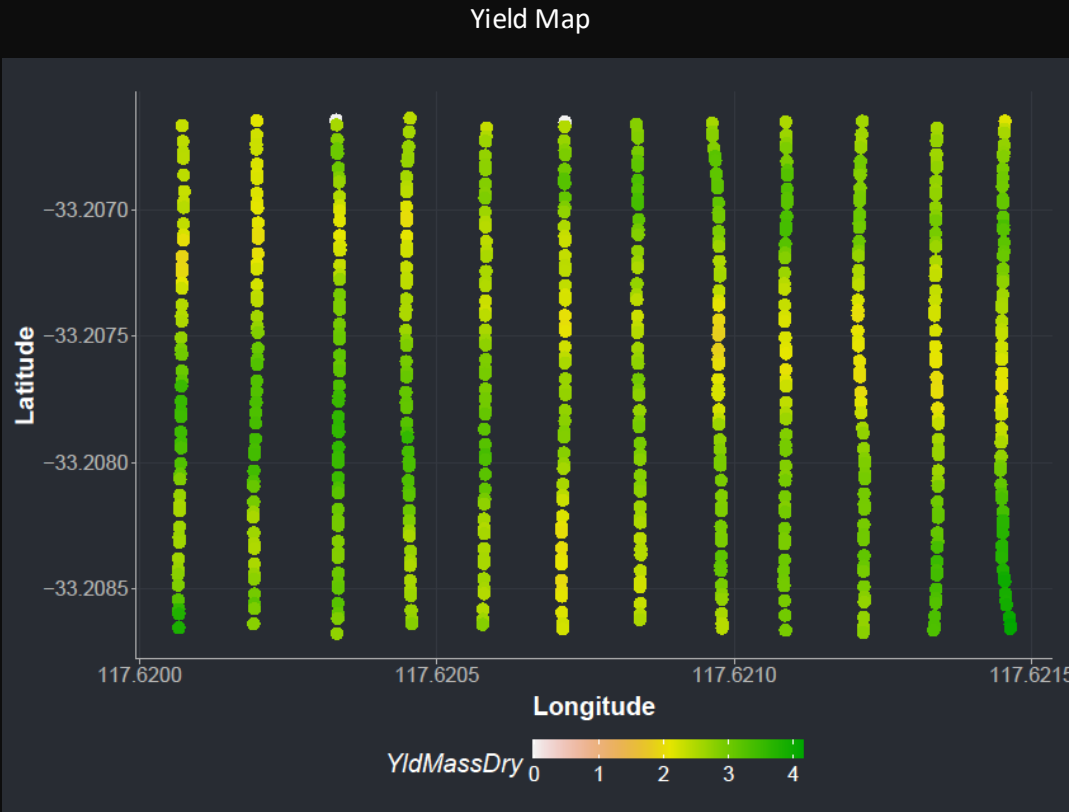
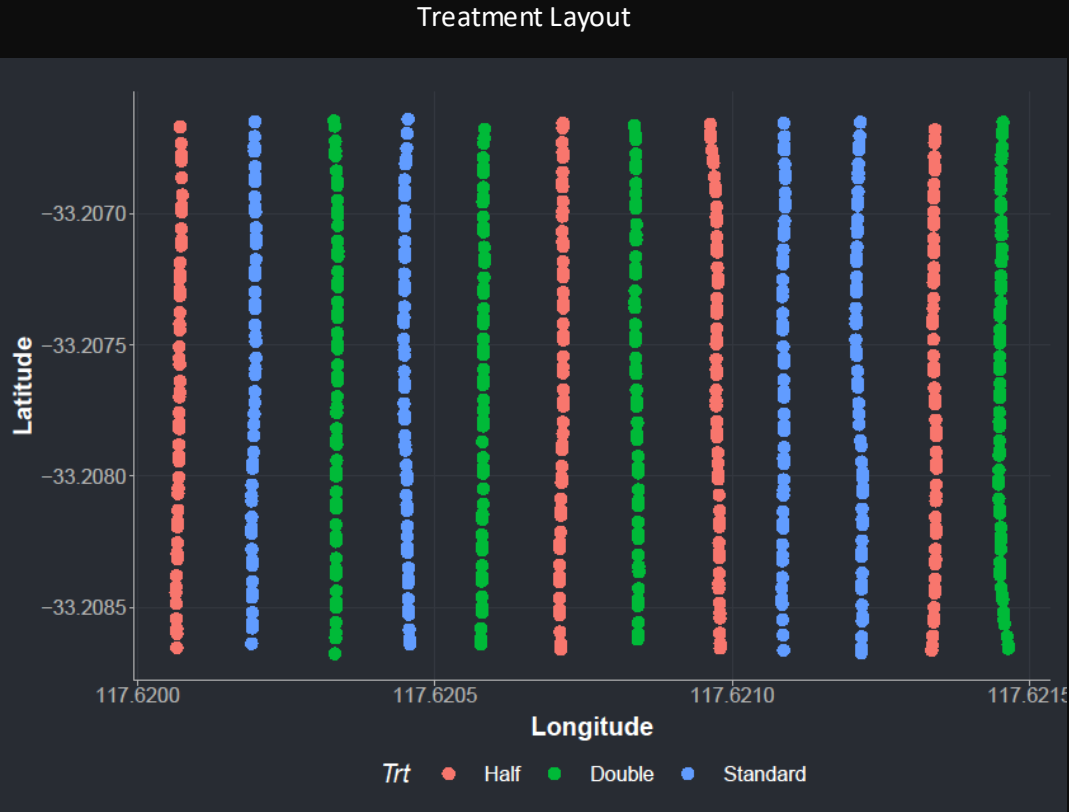
AAGI
Analytics for
the Australian
Grains Industry

Analytics Innovations in On-farm Experiments

Dr. Zhanglong Cao
30/05/2024



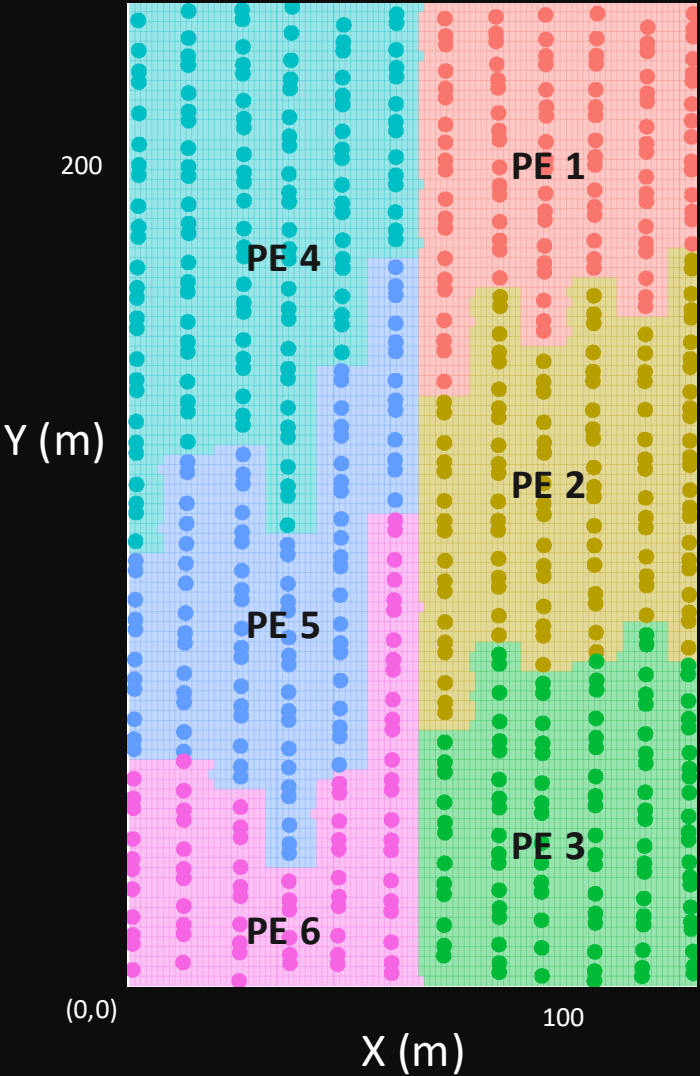
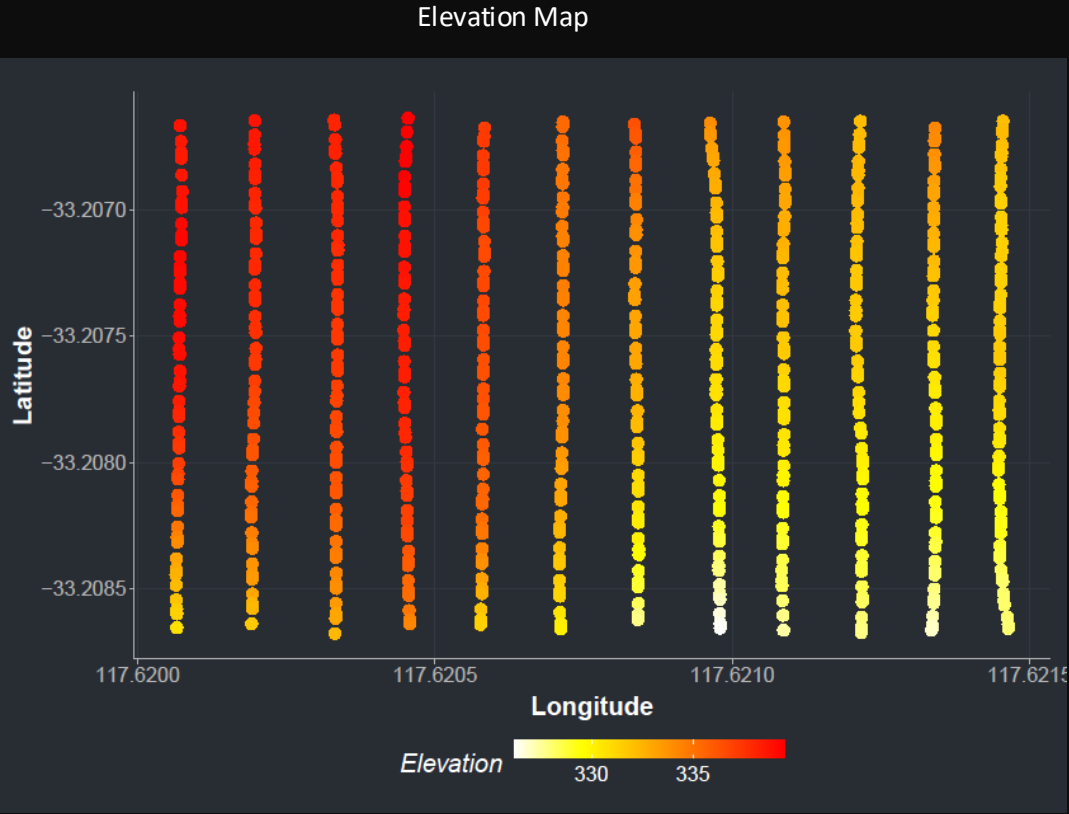
Project 1: CRO2111-001SAX Winter Wheat Agronomy for Grain Growers in the Western Region



Wagin trial: phosphorous treatment allocation using a randomised complete block design with four replicates.

Treatment	Half	Standard	Double
P-rate (kg/ha)	4.5	8.1	16.2
Cost (\$/ha)	16	29	59

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PE: pseudo-environment

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Best treatments in terms of high *yield*.

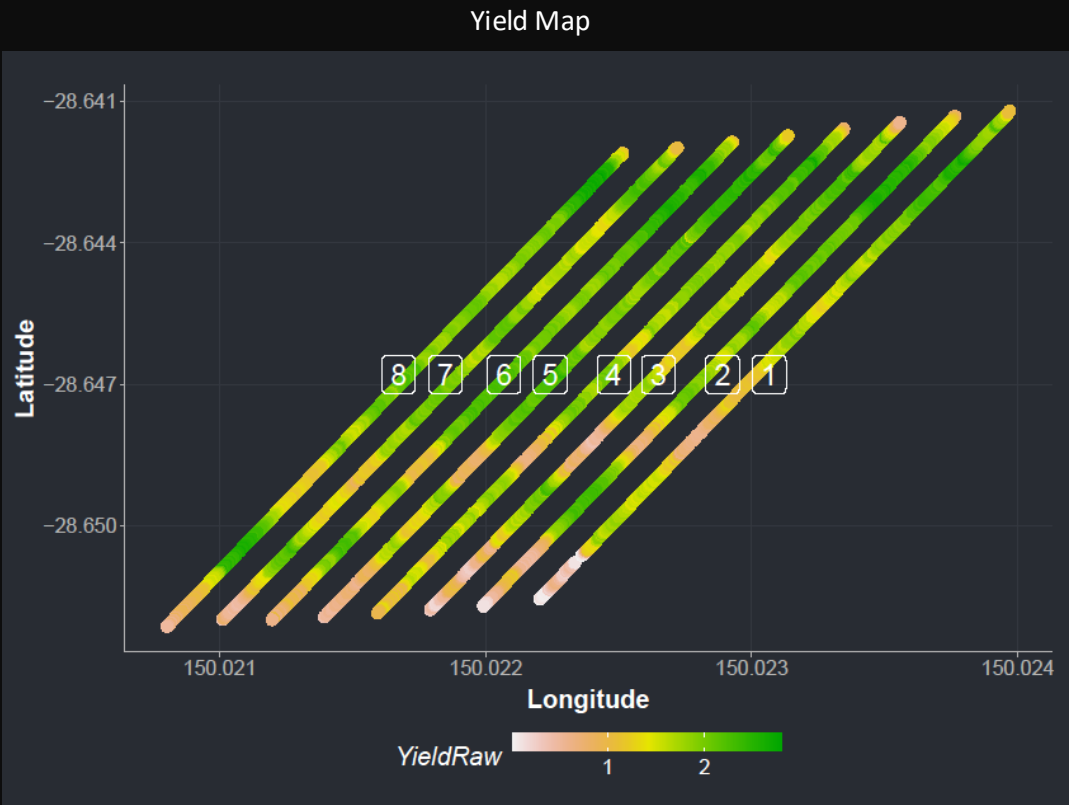
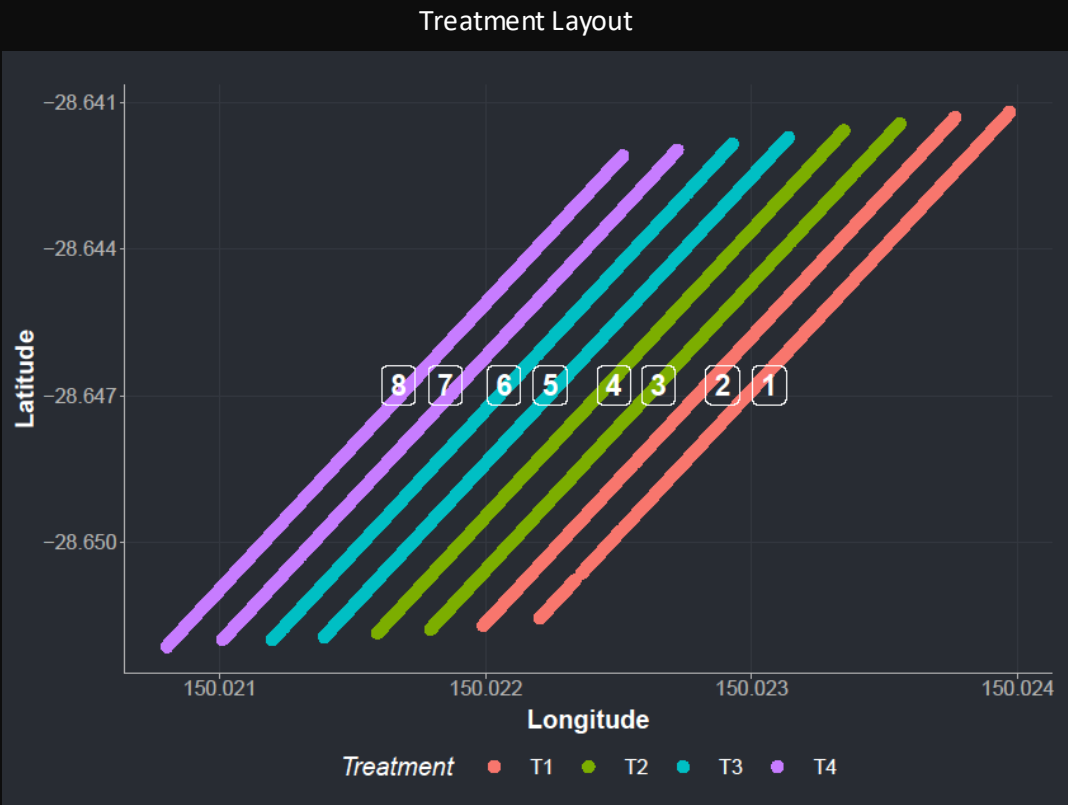


Best treatments in terms of high *profit*.



Half Double Standard

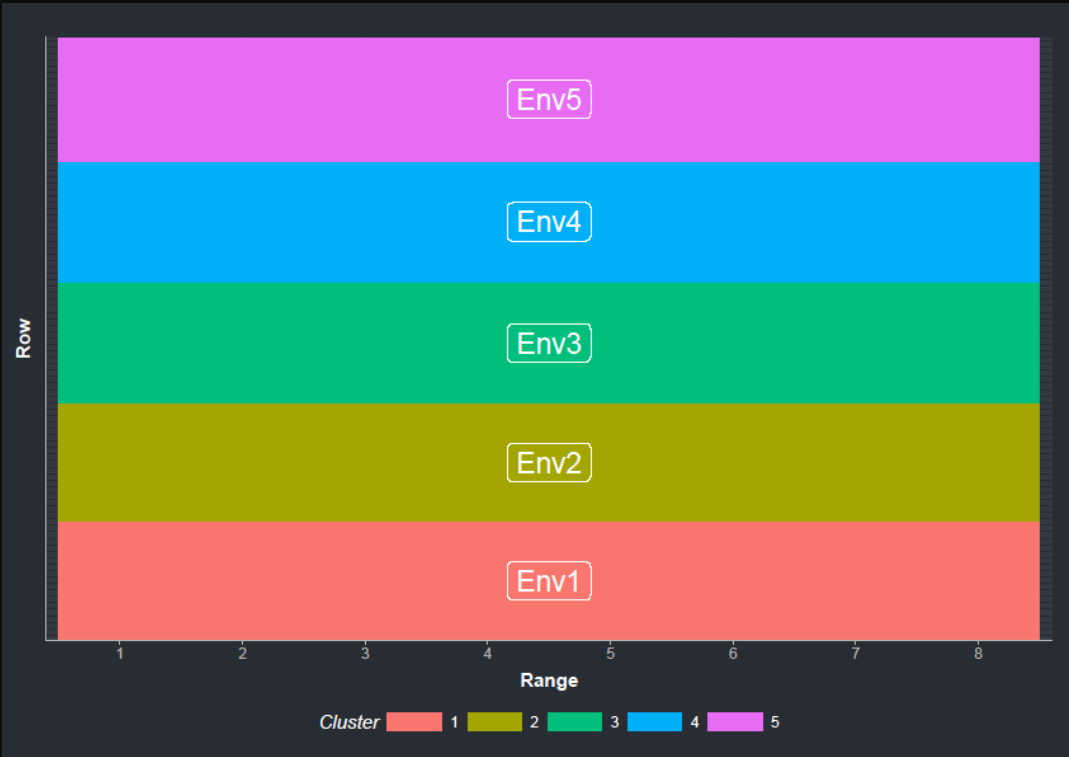
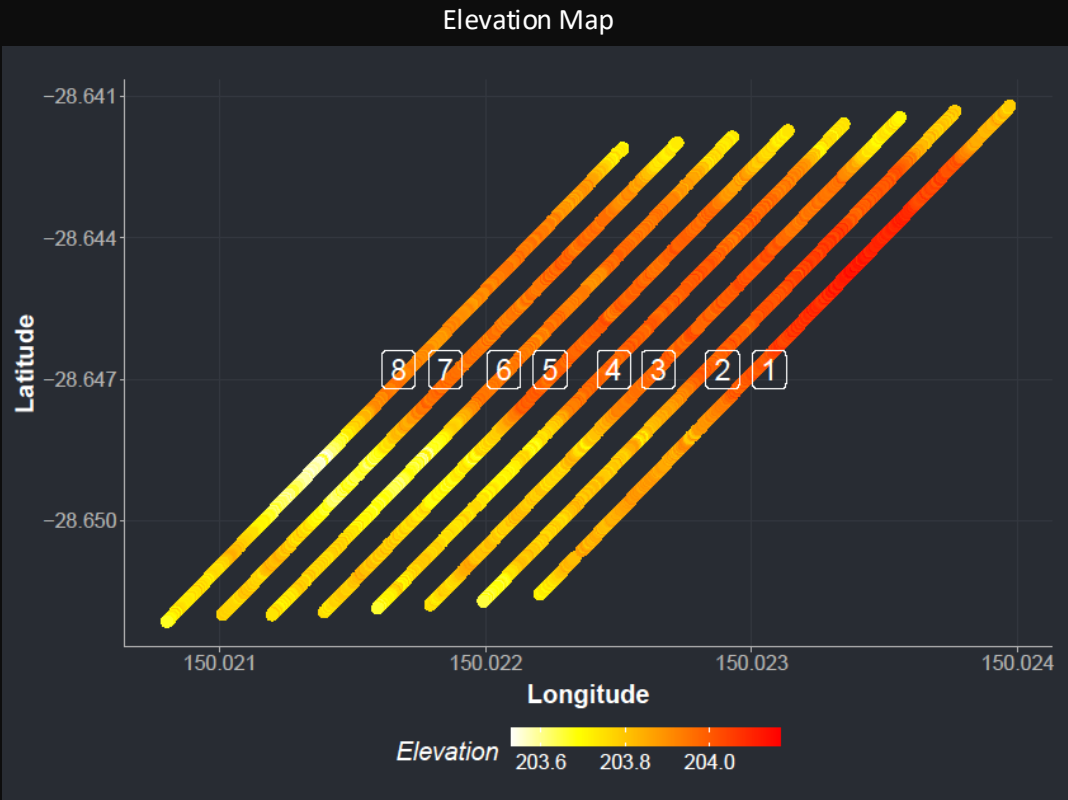
Project 2: DJP2304-004RTX Epidemiology, Economic Thresholds and Management of Ascochyta Blight and Botrytis Diseases in Lentil and Faba Beans



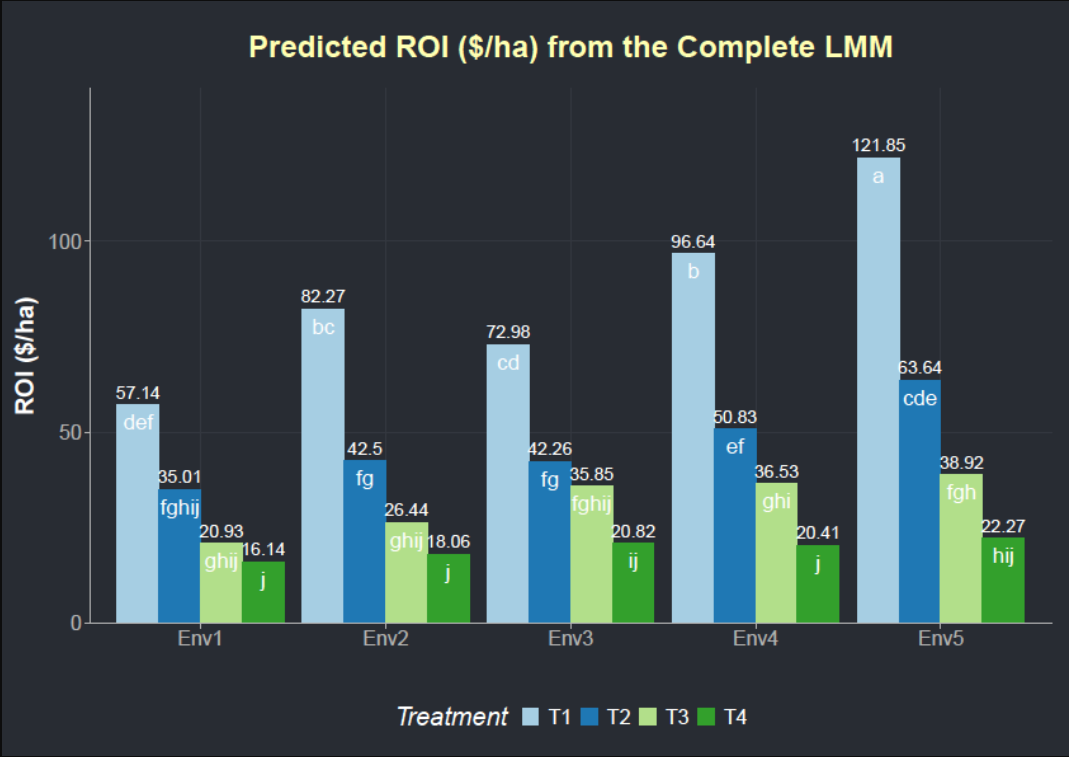
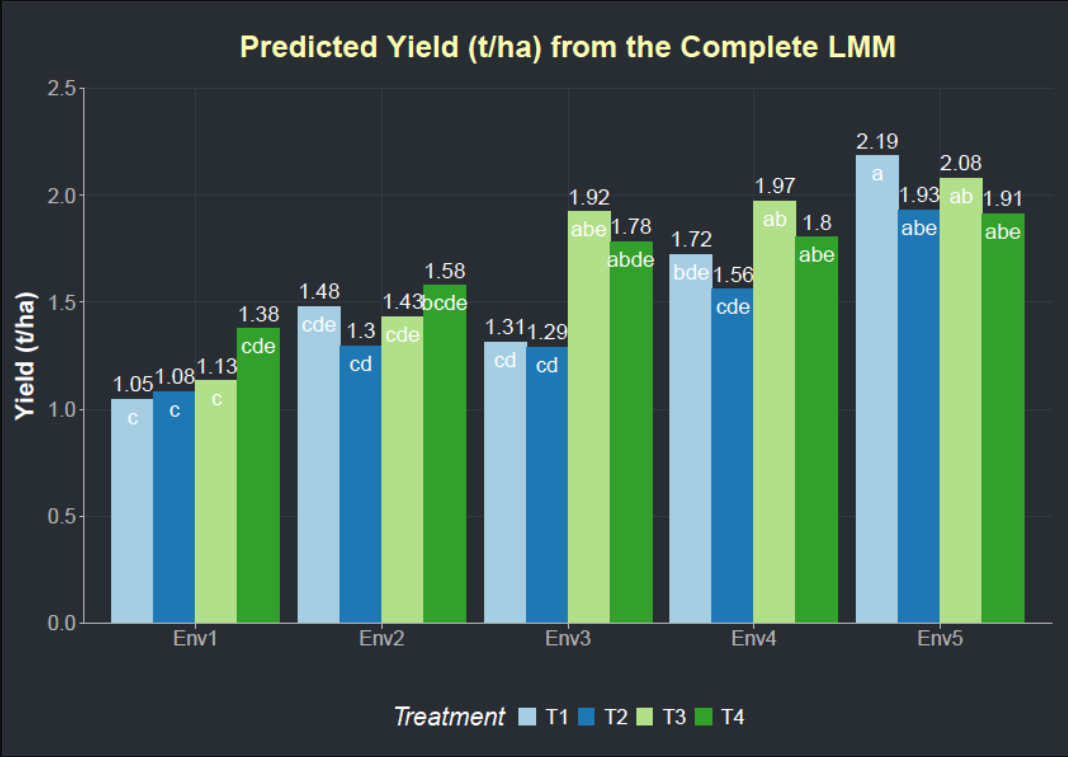
Willaroo trial: to assess the impact and effectiveness of fungicide on the Beans-Faber variety.

Treatment Details		Cost \$/ha
T1	Control no fungicide, costs associated with herbicide application only	\$8.00
T2	Tebuconazole rust control + herbicide	\$13.43
T3	Tebuconazole and Mencozeb choc spot control + herbicide	\$23.43
T4	Late application of Veritas choc spot control	\$37.00

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Publications

1. Rakshit, S., et al. "Novel approach to the analysis of spatially-varying treatment effects in on-farm experiments." Field crops research 255 (2020): 107783.
2. Cao, Z., et al. "Bayesian inference of spatially correlated random parameters for on-farm experiment." Field Crops Research 281 (2022): 108477.
3. Stefanova, K. T., et al. "Statistical analysis of comparative experiments based on large strip on-farm trials." Field Crops Research 297 (2023): 108945.
4. Cao, Z., et al. "Optimal design for on-farm strip trials--systematic or randomised?." feedback received.

Acknowledgements



CRO2111-001SAX



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Thank you

