

Challenges identifying fertilizer responses in infertile coarse textured soils of the CDZ – a field perspective

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Background

Low soil fertility widespread through survey of CDZ surface soils

61% sites low in P

48% sites low in K

35% sites low in S

18% sites low in P, K and S

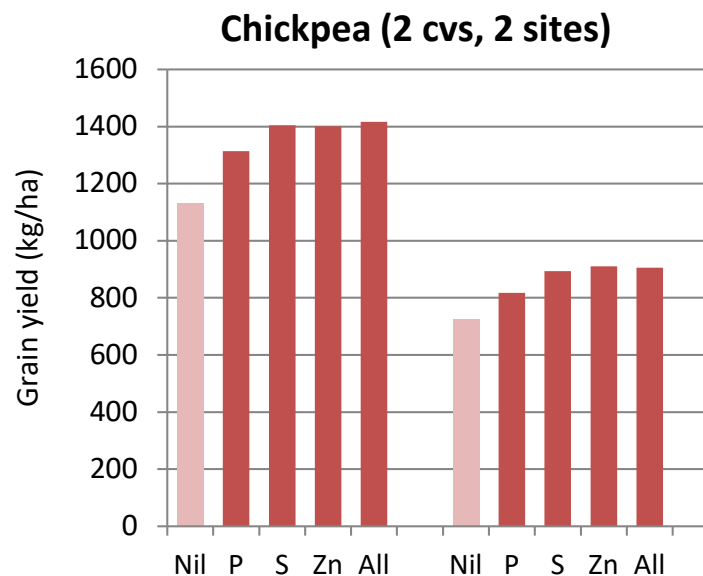
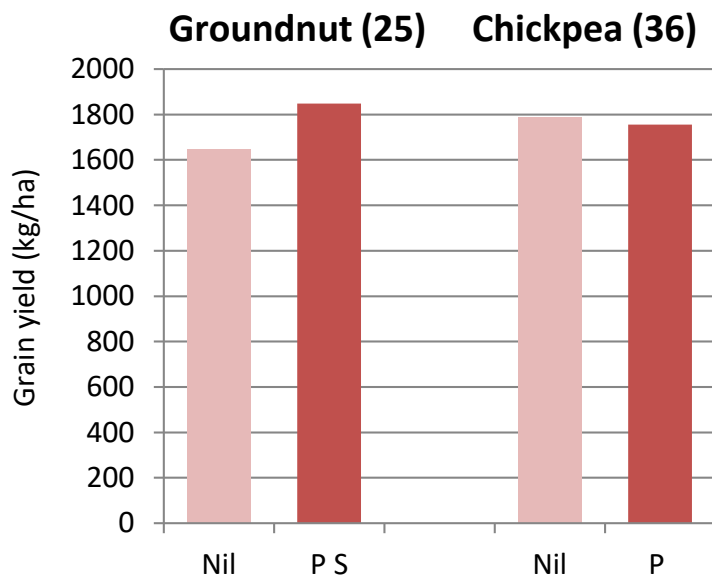


First trial season (2014–15)

61 single element, unreplicated, +/- P or S fertiliser trials

Broadcast surface placement, incorporation and farmover trial

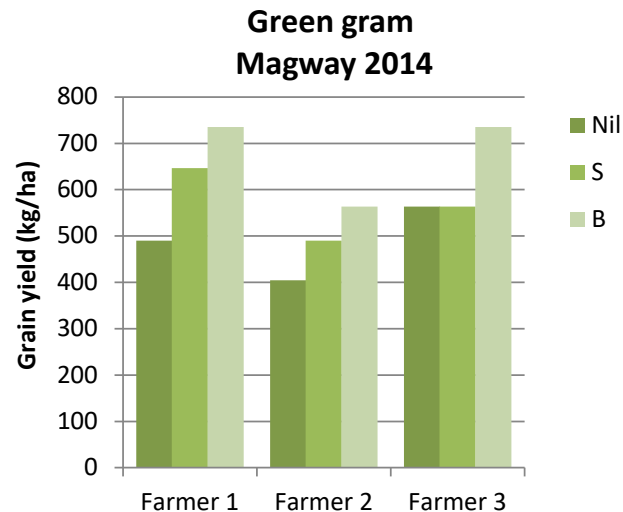
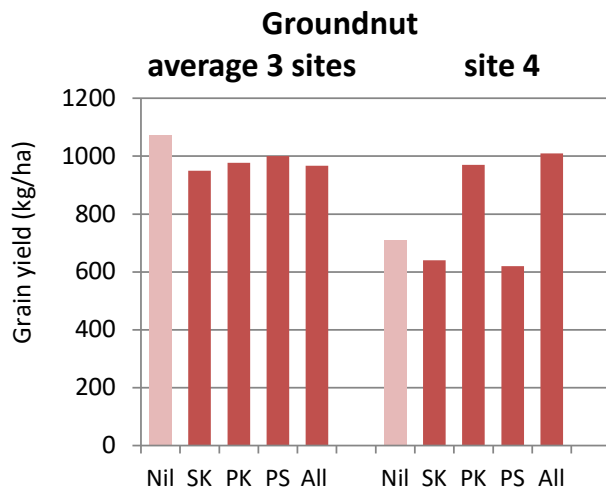
2 more comprehensive trials on chickpea in northern CDZ



Second trial season (2015–16)

Soil survey data used to identify low, medium and high P, K and S sites, and identify critical soil test values

Farmover, replicated, omission trials with basal controls (incl. B) conducted at 21 locations

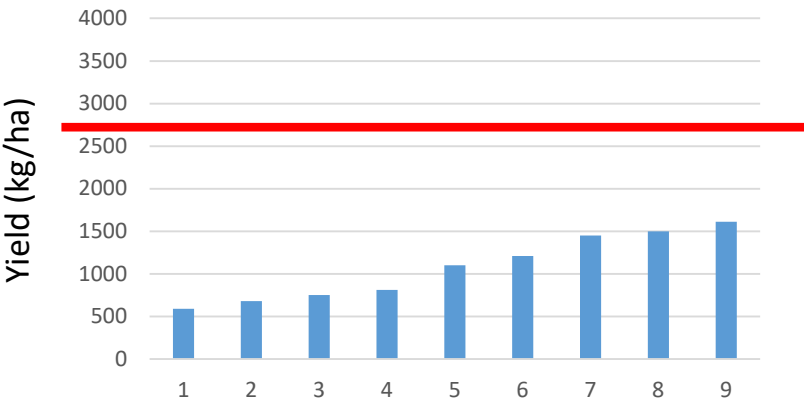


P applied at 20 kg/ha;
K at 50 kg/ha;
S at 20 kg/ha as gypsum
AND elemental S

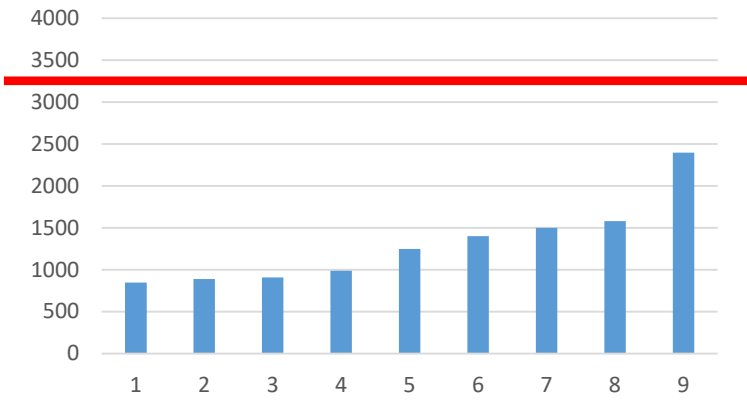
Summary of some groundnut and green gram trials in omission

Groundnut 14 sites
Chickpea 8 sites
Green gram 1 site
Black gram 2 sites

Second trial season



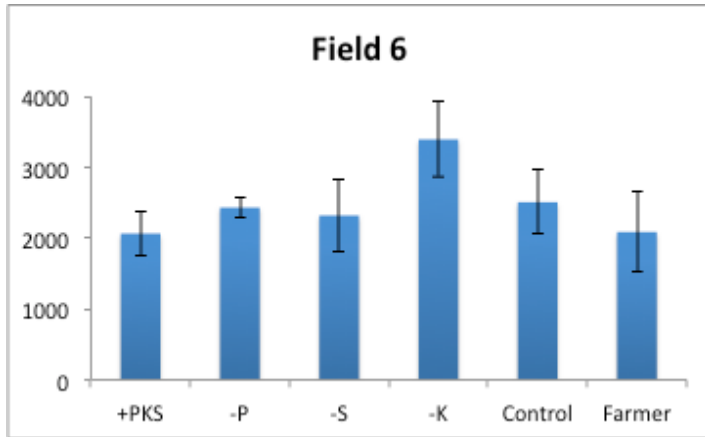
Average groundnut yield at 9 sites



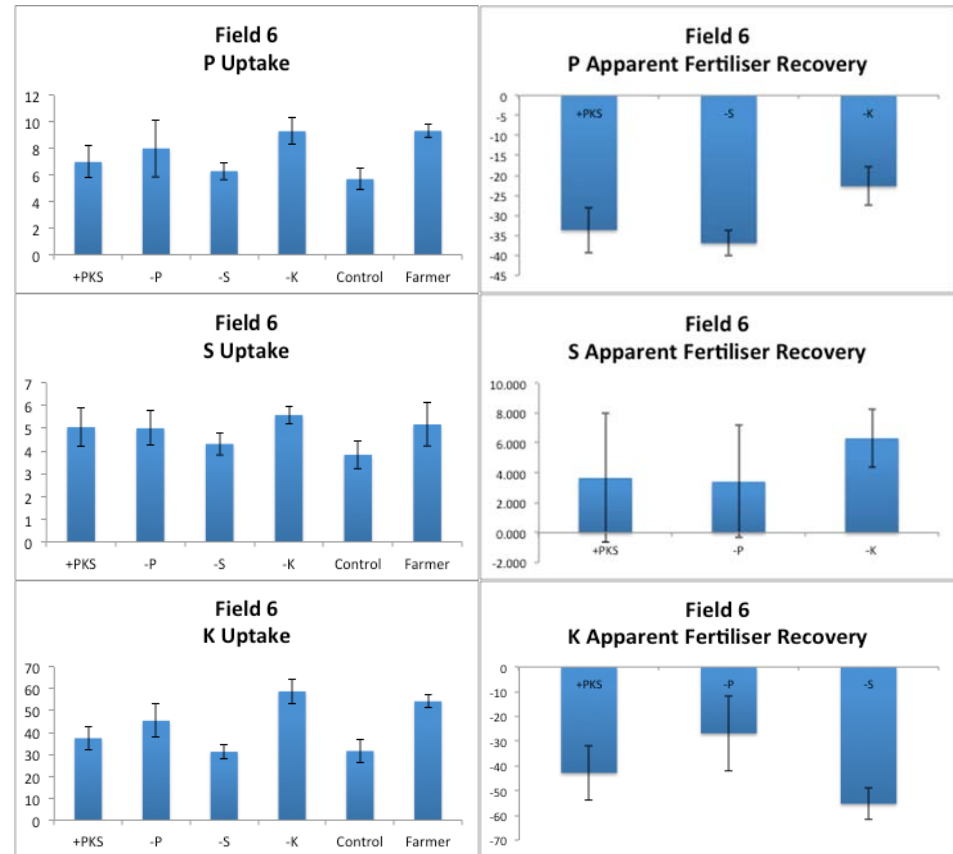
Average chickpea yield at 9 sites



Second trial season (2015–16)



Example of groundnut yield at Magway in CDZ

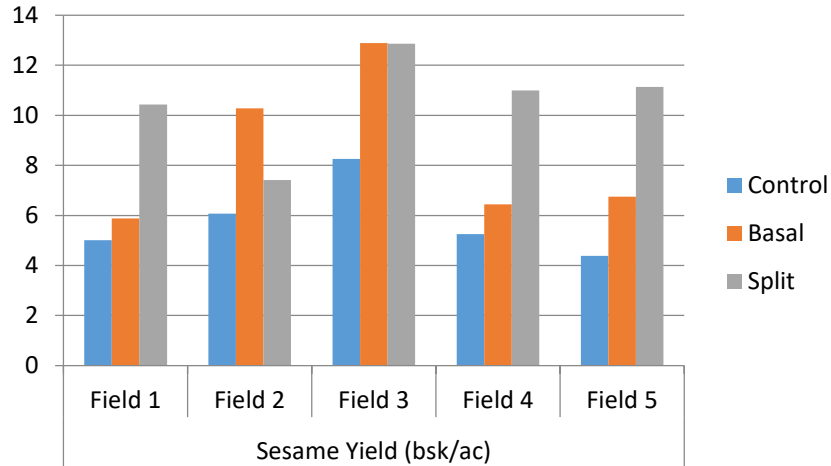


Zero or apparently negative fertiliser recovery observed in most trials from 45 DAS biomass cuts

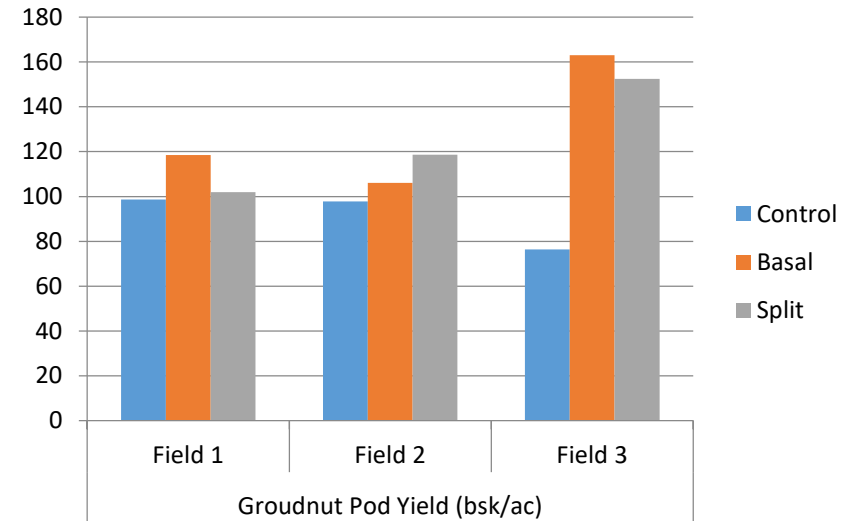


Benchmarking trials (2017–18)

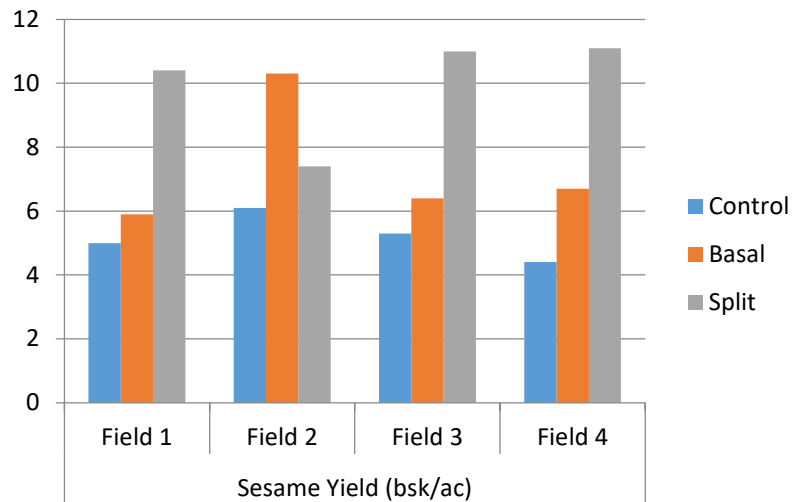
Nat Kan



Ma Kyi Kan



Phoe Lay Lone



New guidelines encouraging split application, particularly of S (and N in sesame) resulted in yield increases across most benchmarking sites

Source of challenges

- Contact farmers with higher soil fertility
- Multiple nutrient deficiency requiring basal fertiliser
- Agronomic challenges with farmer management
- Fertiliser loss beyond root zone
- Timing and movement of applied fertilisers not ideal
- Low organic matter limiting yield potential



Thanks

Questions?



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