

Nitrogen use-efficiency

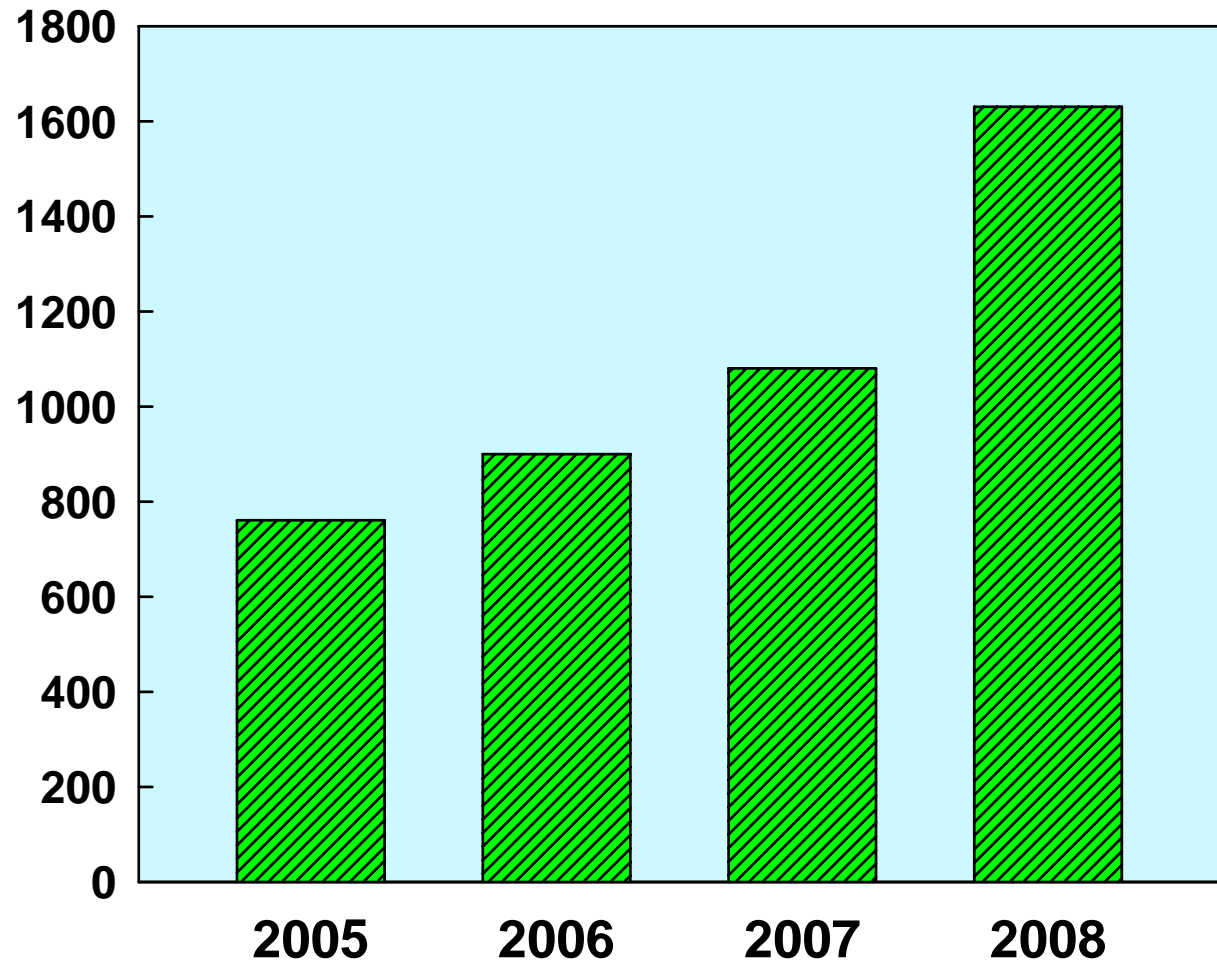
Optimising Nitrogen use in irrigated cotton systems

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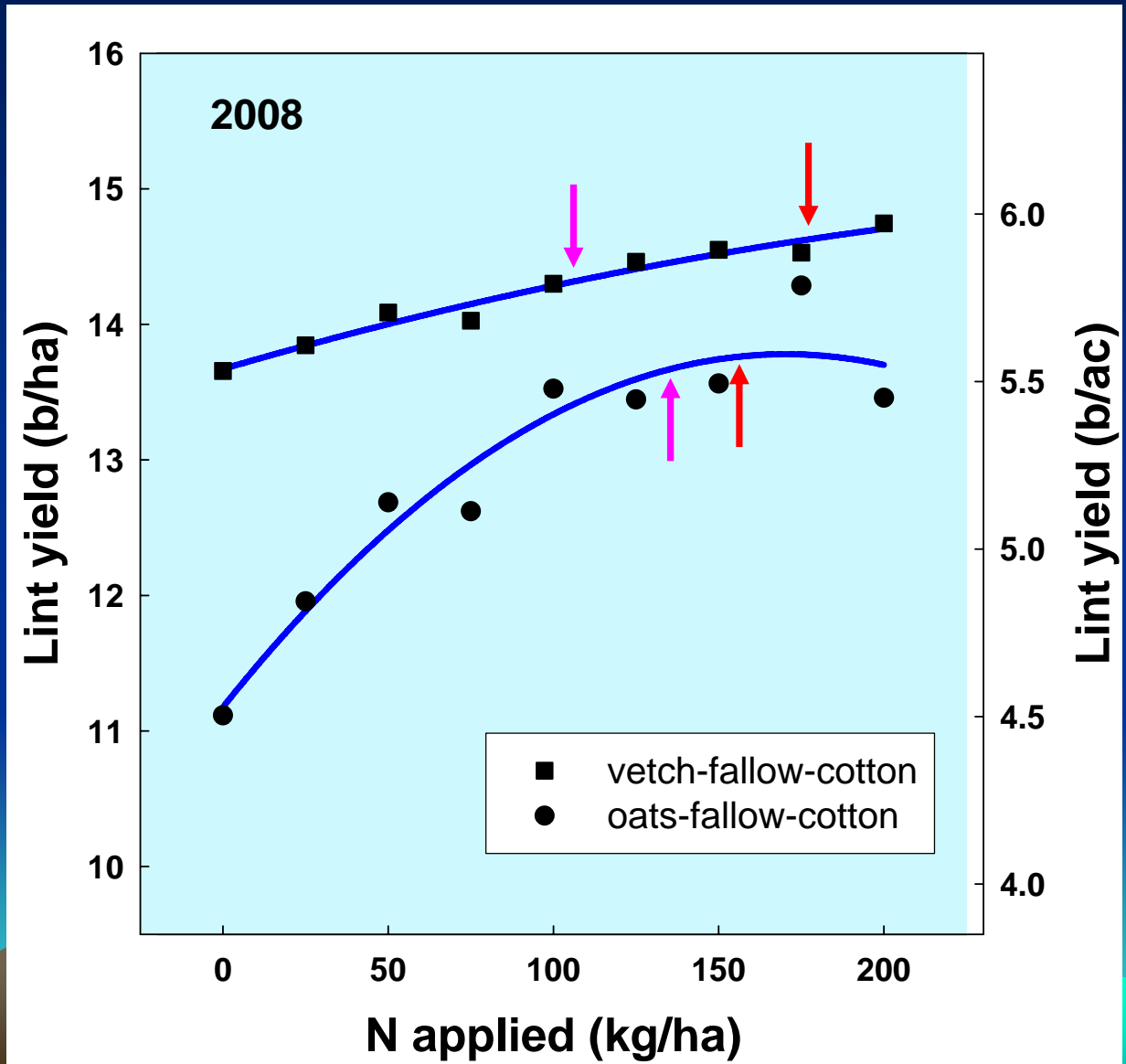


N fertiliser prices

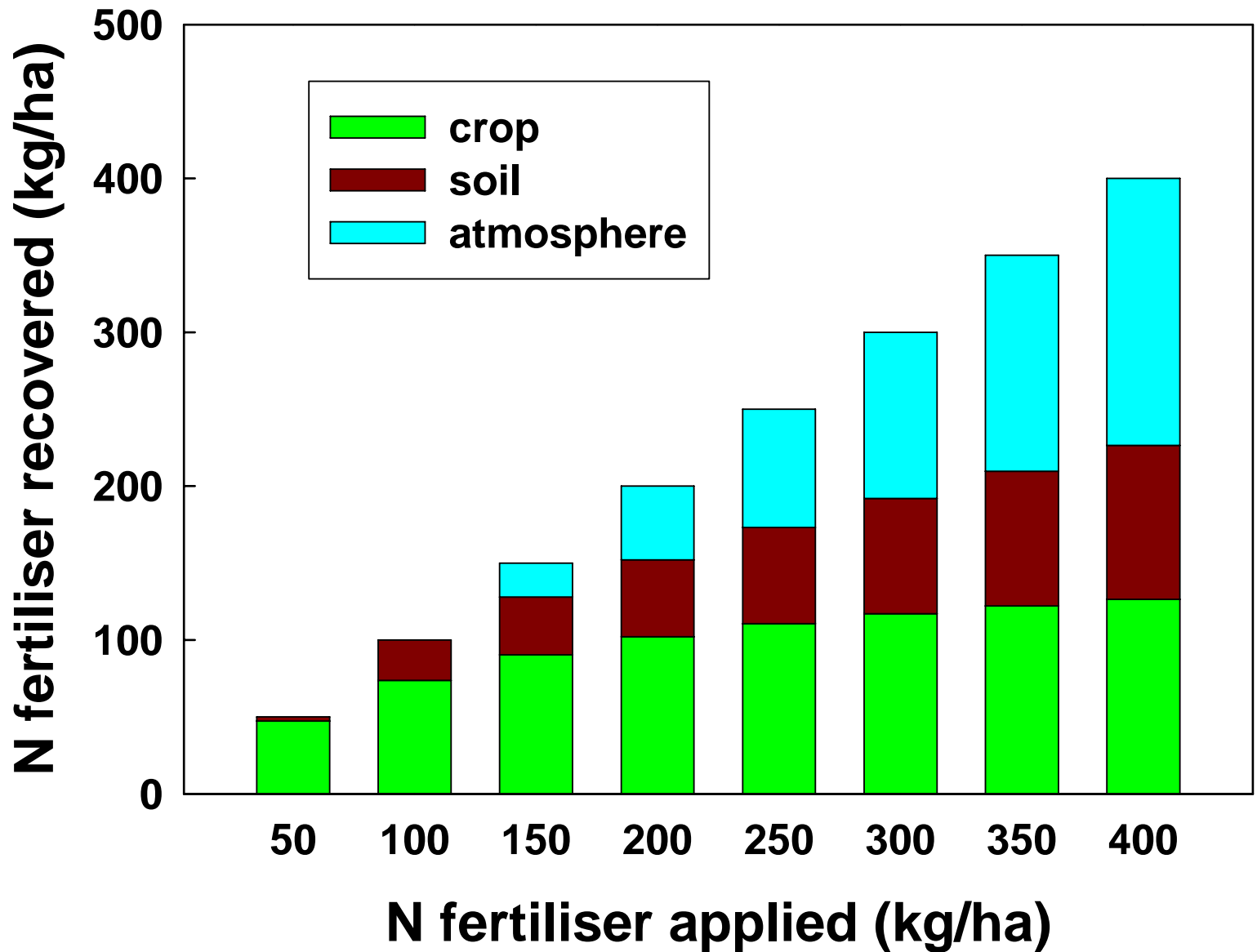
Anhydrous Ammonia (\$ / t N)



2008 lint yield



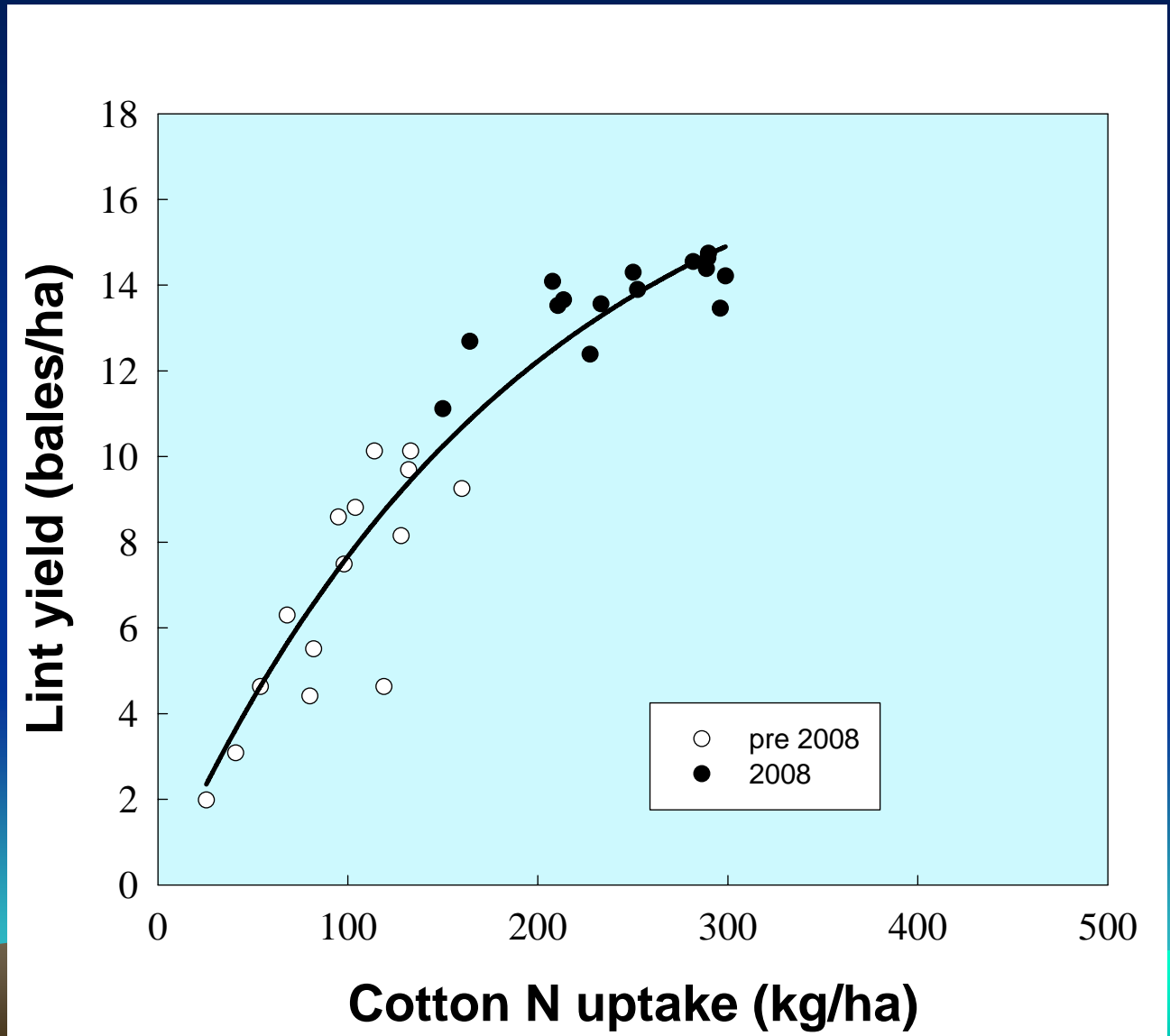
Fate of N fertiliser applied to cotton



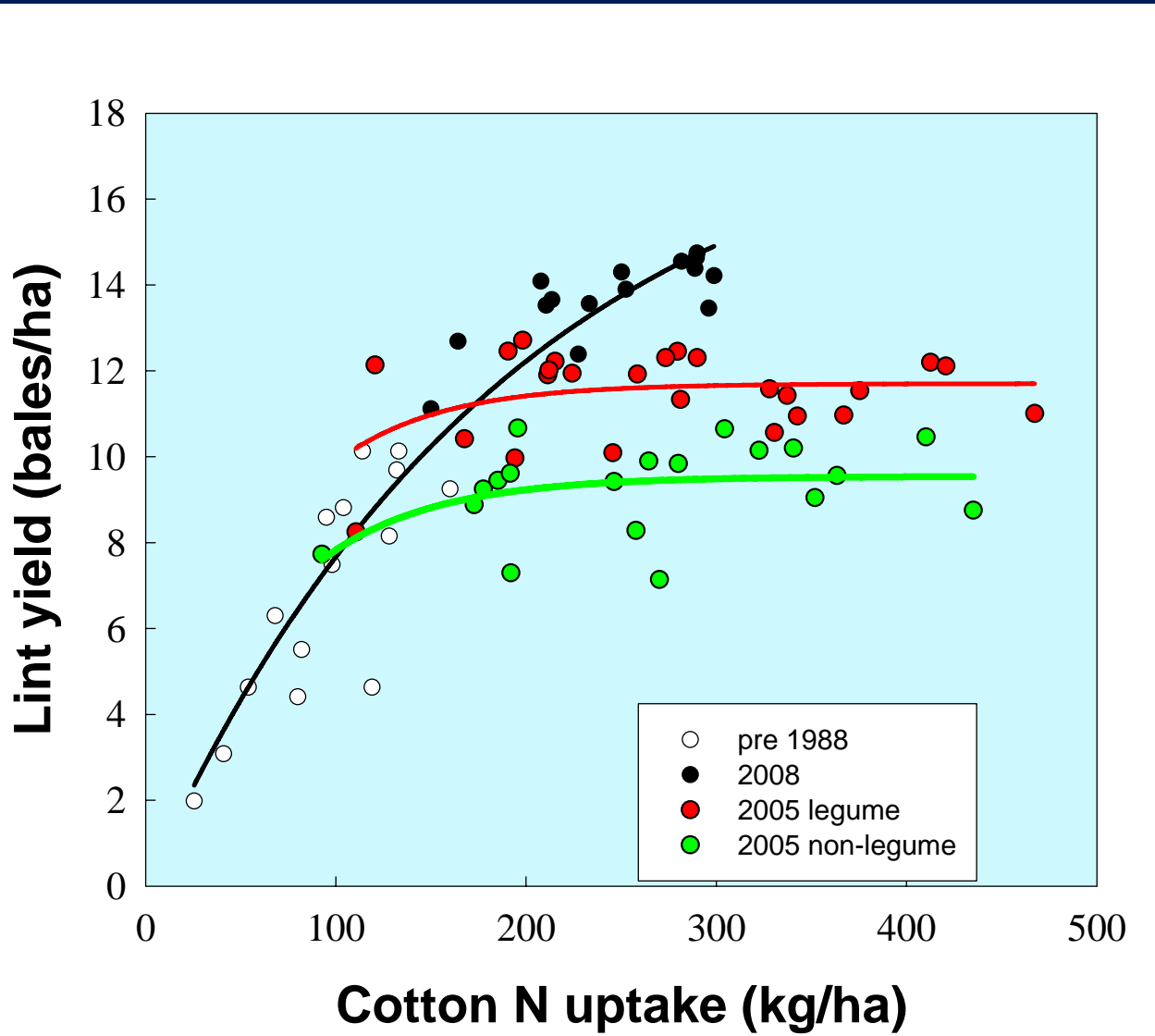
Cost of over-fertilising with N

- Decreased lint yield
- Waste of fertiliser (\$ and energy)
- Delayed maturity
- Need to apply growth regulators
- Increased disease (boll rot)
- Defoliation problems (rank growth)
- Insect control / management
- **Environmental degradation (esp N₂O)**

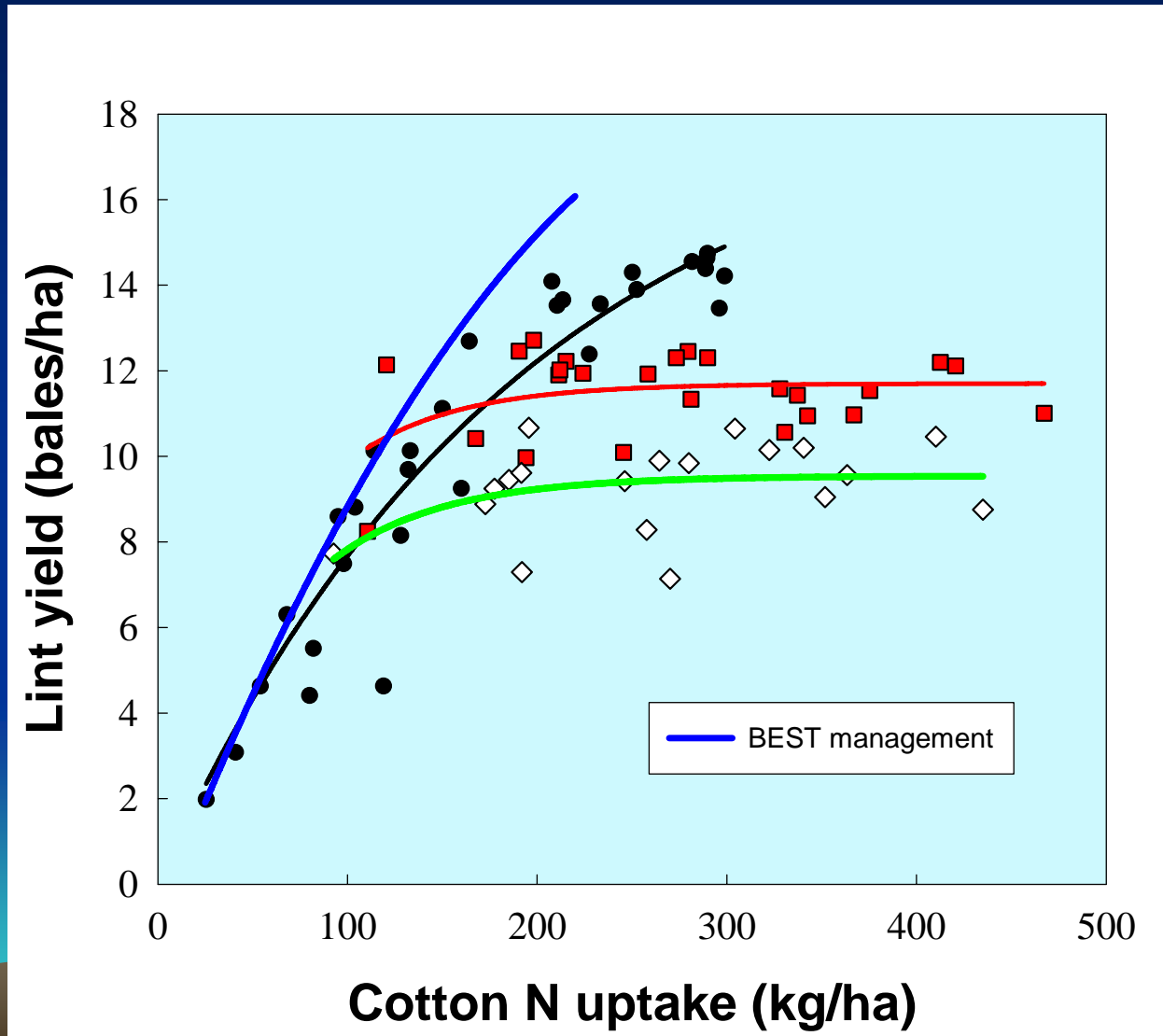
Crop N uptake



Crop N uptake



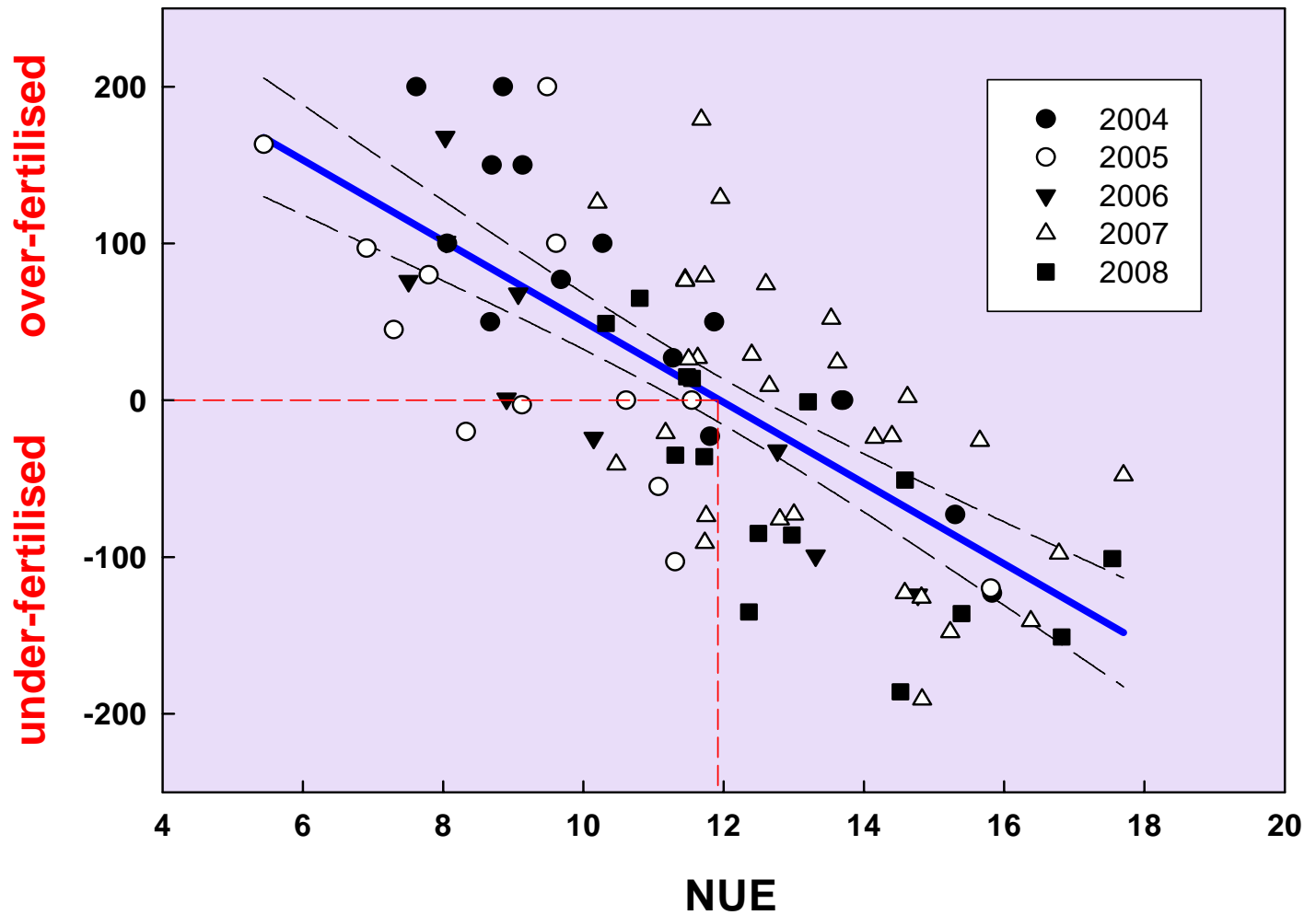
Crop N uptake



Measuring N use-efficiency

- Fertiliser N use-efficiency
N fertiliser recovery
- Crop N use-efficiency
kg lint / kg crop N uptake

Crop NUE and N fertiliser use

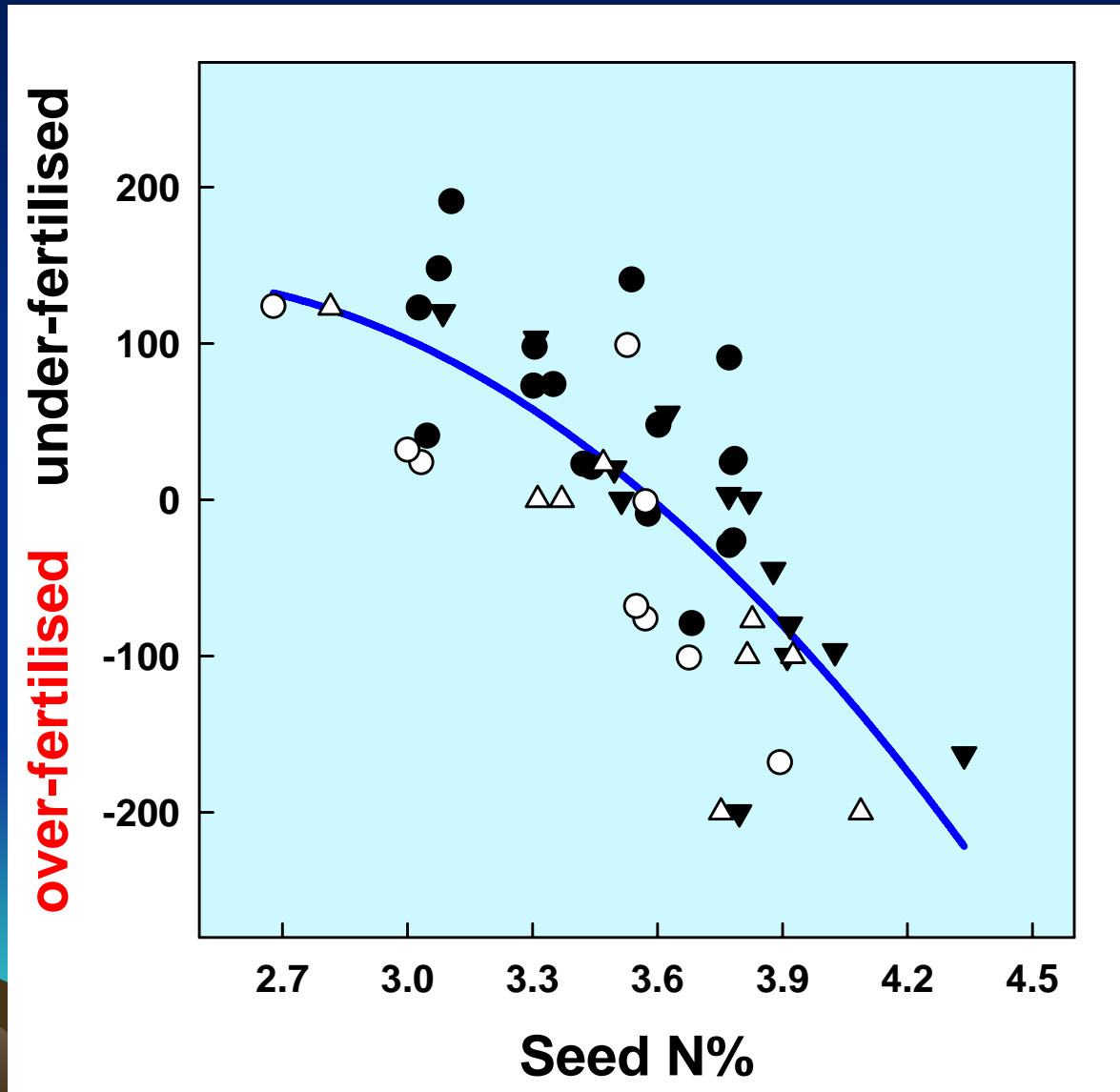


Survey of Grower Fields

27 fields assessed

- 2 high NUE (P deficiency)
- 8 ok (normal)
- 17 low NUE (**almost 2/3 over-fertilised**)
 - All sites averaged 40 kg N/ha too much N fertiliser
 - Worst was 127 kg N/ha too much

Measuring NUE on-farm



Improving NUE – Future

- Optimise N fertiliser use (tools)
- Adopt better (N) management practices
- Legumes – economic N source
- Environmental considerations (N_2O and CO_2 as GHG ↓ with legumes)

Vetch – Kununurra - 2004

