

# Evaluating Nitrogen Use Efficiency in Oilseed Rape

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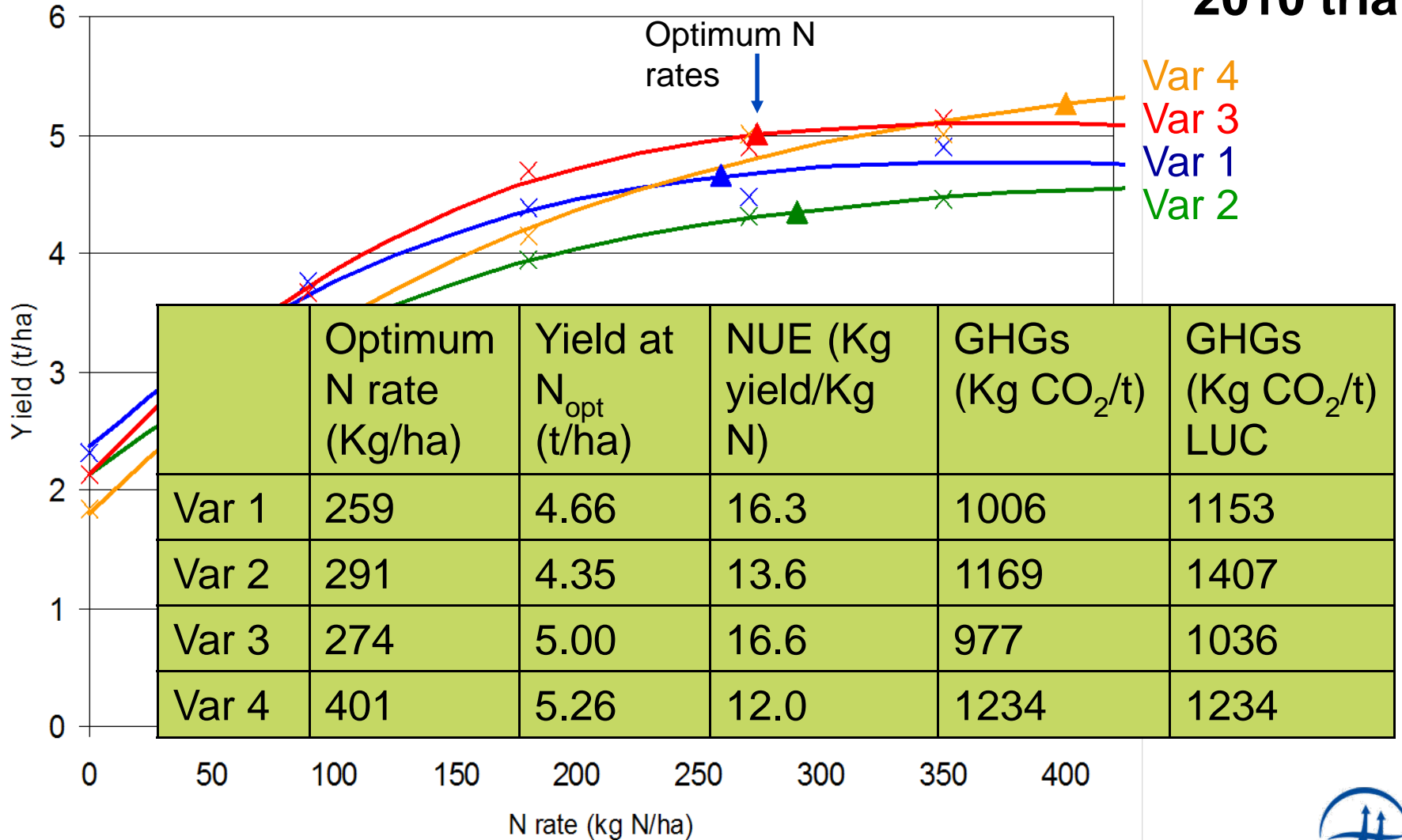
# Reducing N Requirement of OSR

- High fertiliser N req. relative to yield
  - On farm NUE of 10 Kg seed DM/Kg N (harvestable DM yield/unit available N)
  - Low compared to wheat (21) and barley (27)
- N Fertiliser
  - Expensive aspect of crop production
  - Source of GHG emissions from arable farming
    - 79% of GHG emissions from OSR production (energy used in manufacture & N<sub>2</sub>O after application)
  - Nitrate Leaching

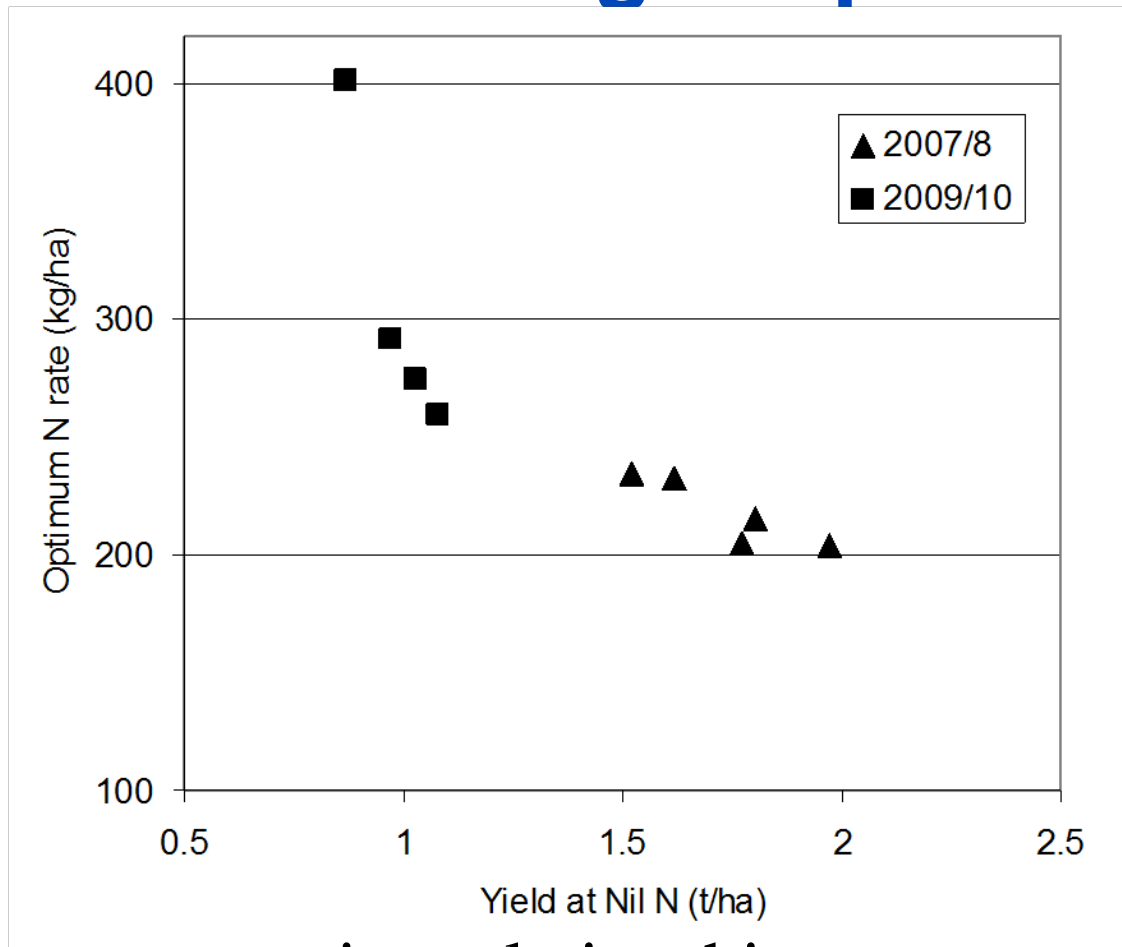
# N Response Trial

## Impact on growing costs & pollution

2010 trial



# Predicting N optima

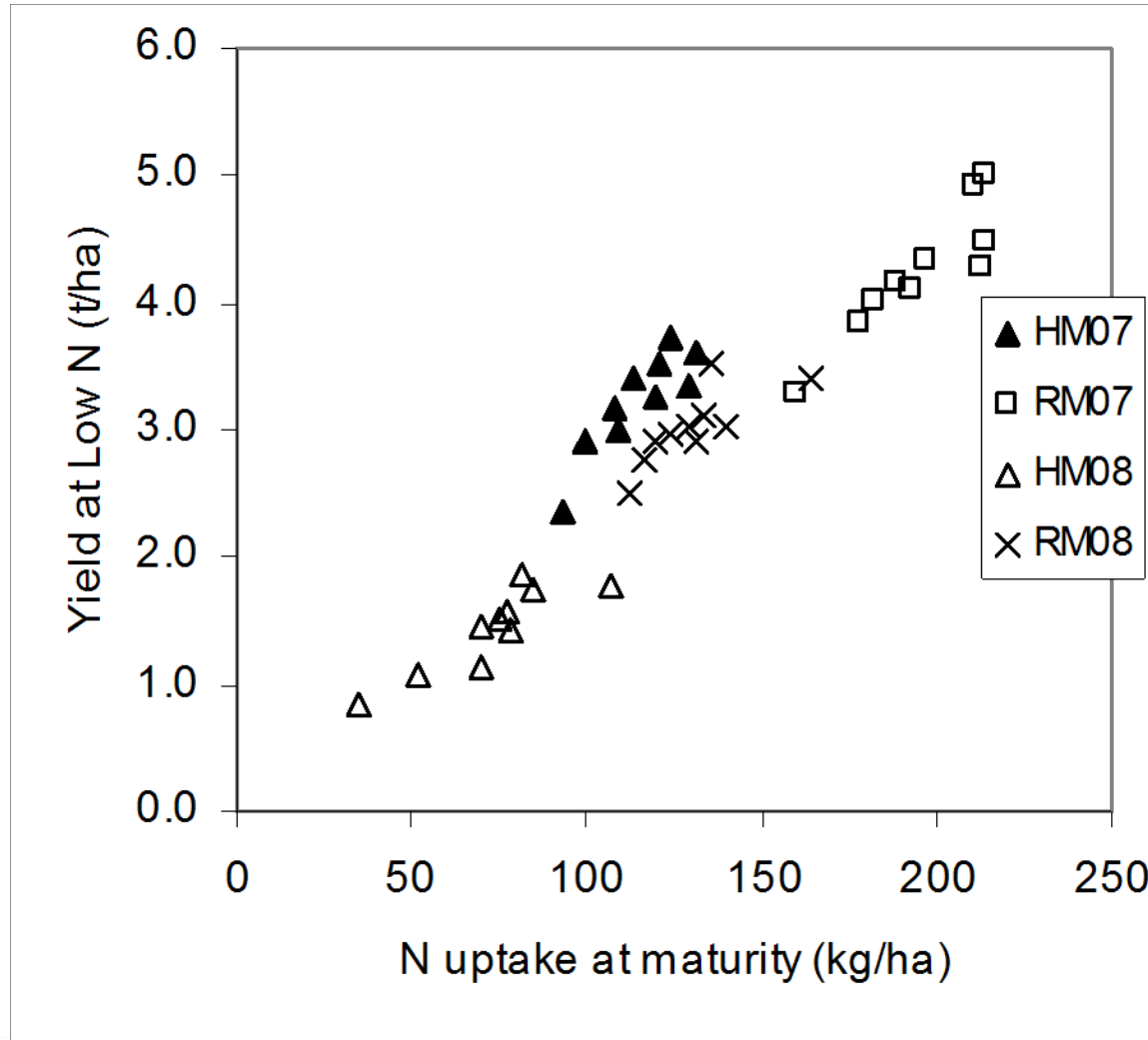


Strong negative relationship

Yield at Low N may indicate N requirement

# Traits Associated with Yield under Low N

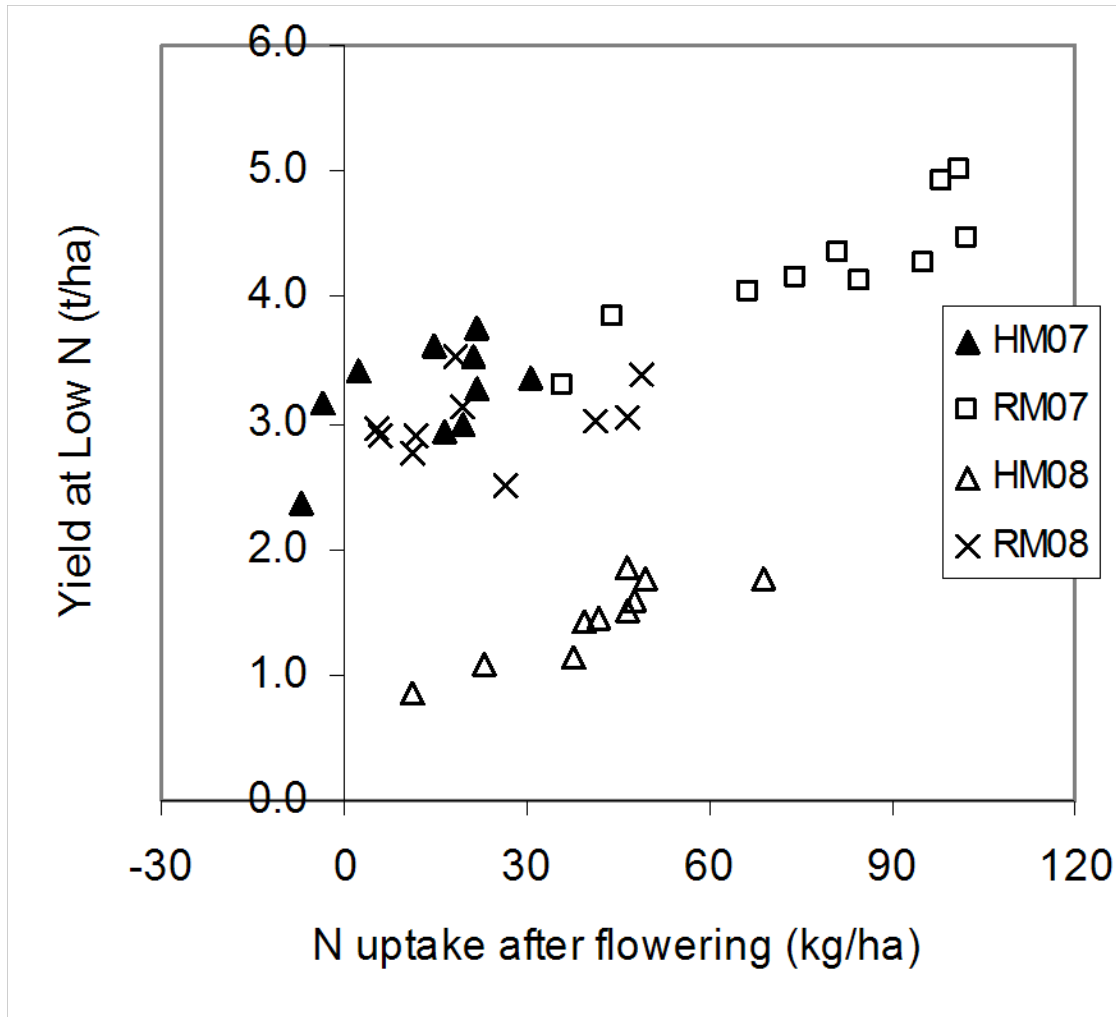
## Yield at Low N correlated with Total N uptake



Each extra kg  
N taken up  
gives 20 kg  
seed/ha

# Traits Associated with Yield under Low N

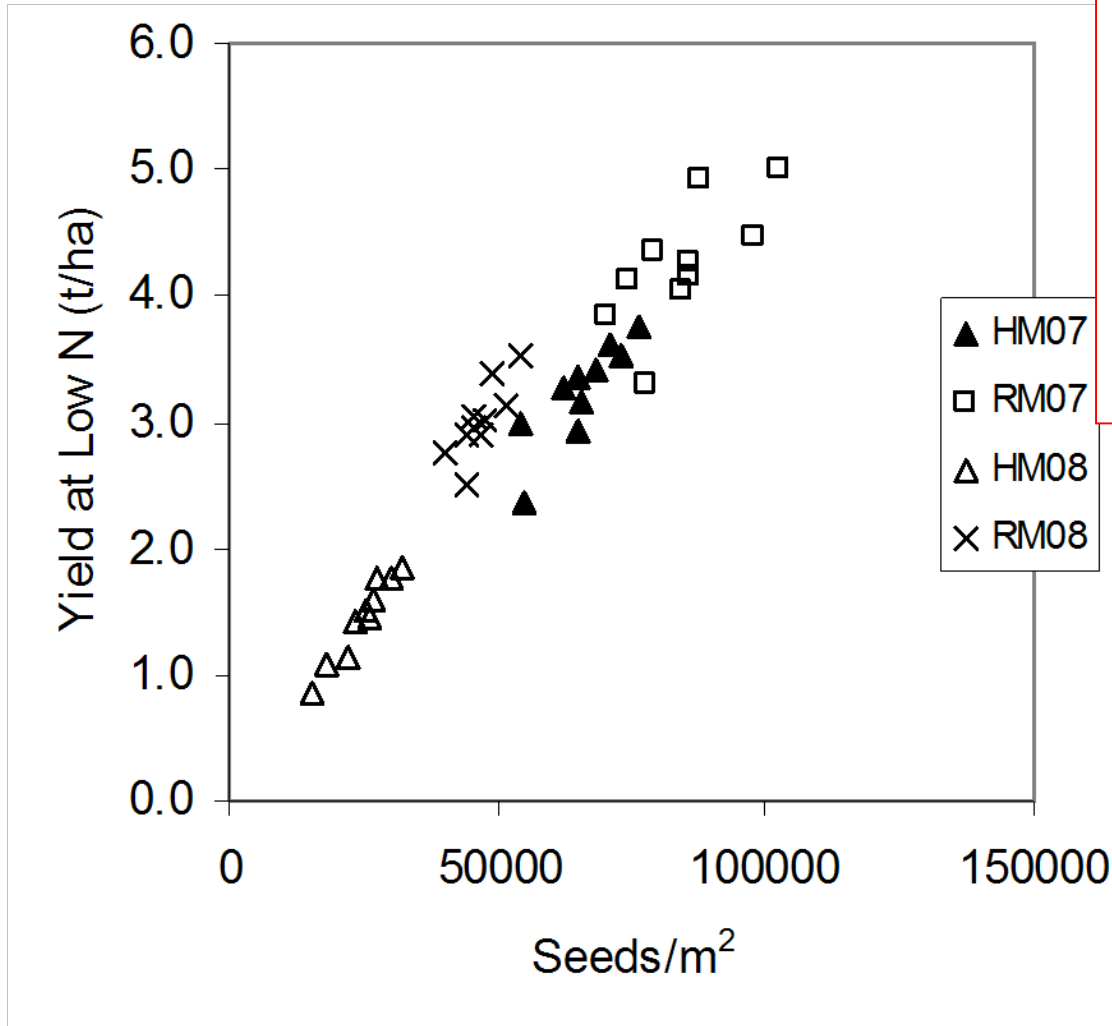
## N uptake after flowering



Each extra kg N taken up gives 16 kg seed/ha

# Traits Associated with Yield under Low N

## Yield & seeds/m<sup>2</sup>



Each 1000 seeds associated with an extra 1.4 kg N taken up after flowering

# Conclusions

- **Importance of Late N Uptake**
- **Need to test varieties under Low N Conditions**





# Breeding oilseed rape with a low requirement for nitrogen fertiliser

## LK0979



**Elsoms Seeds**

