



**IMPROVING DAIRY FARM NITROGEN AND PHOSPHORUS USE:  
OPPORTUNITIES AT THE FARM SCALE**

**Cameron Gourley and Sharon Aarons**



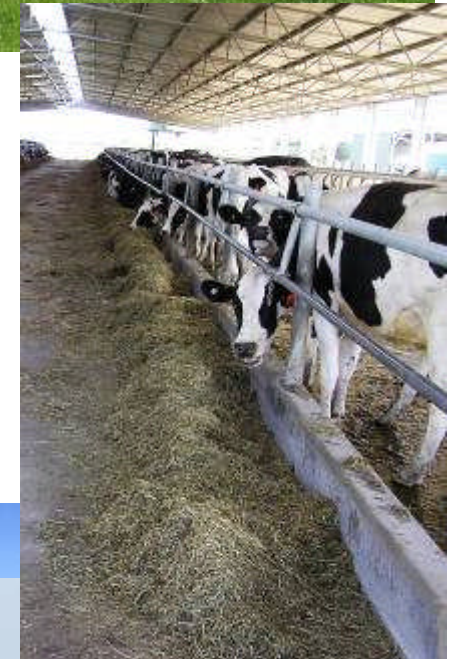
**DEPARTMENT OF  
PRIMARY INDUSTRIES**

## Significant intensification in past 20 years

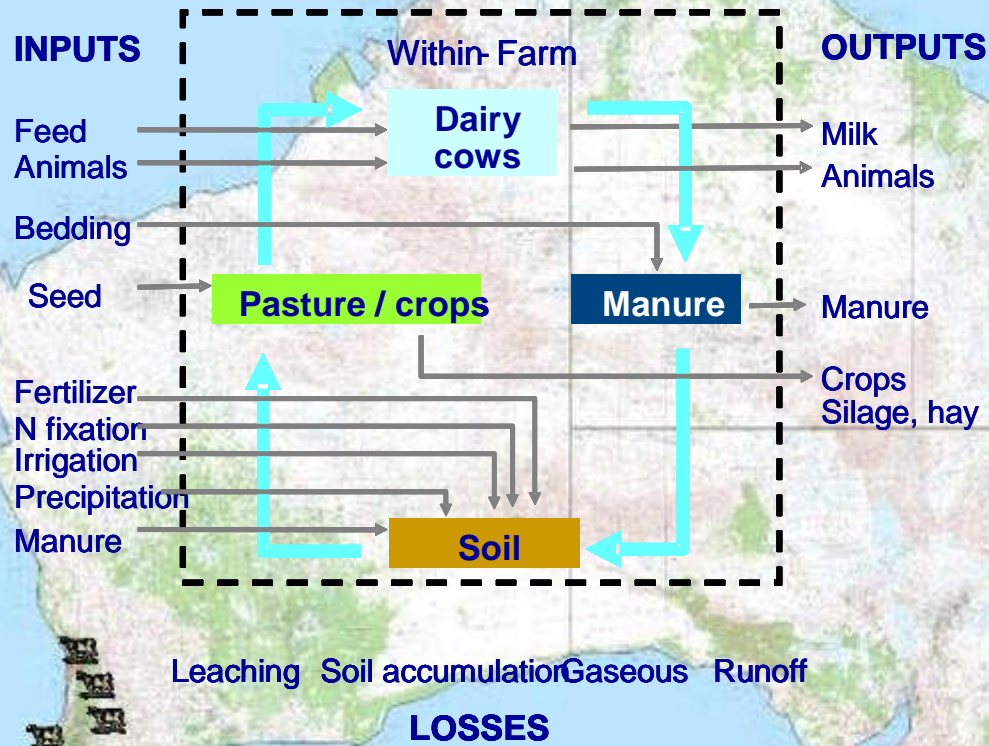
Increasing - stocking rates  
- litres per cow

Increasingly reliant on external inputs:

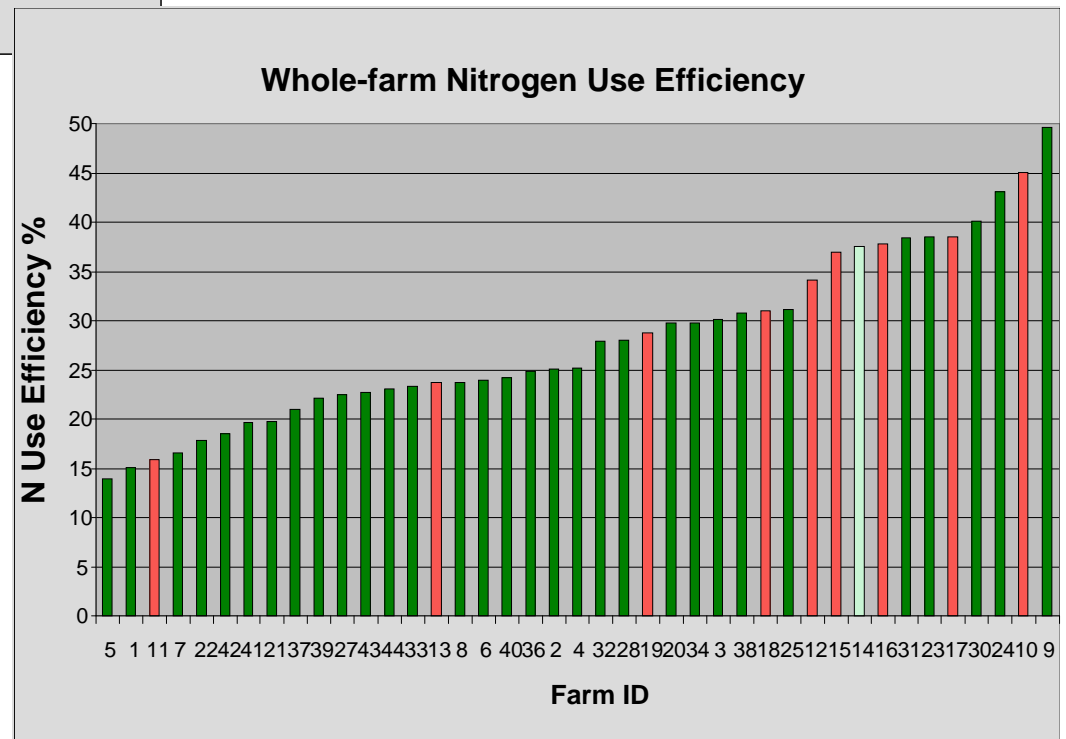
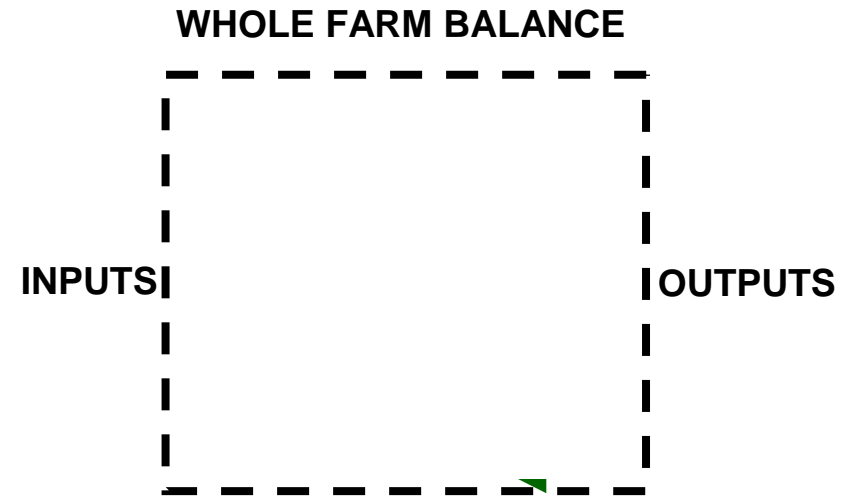
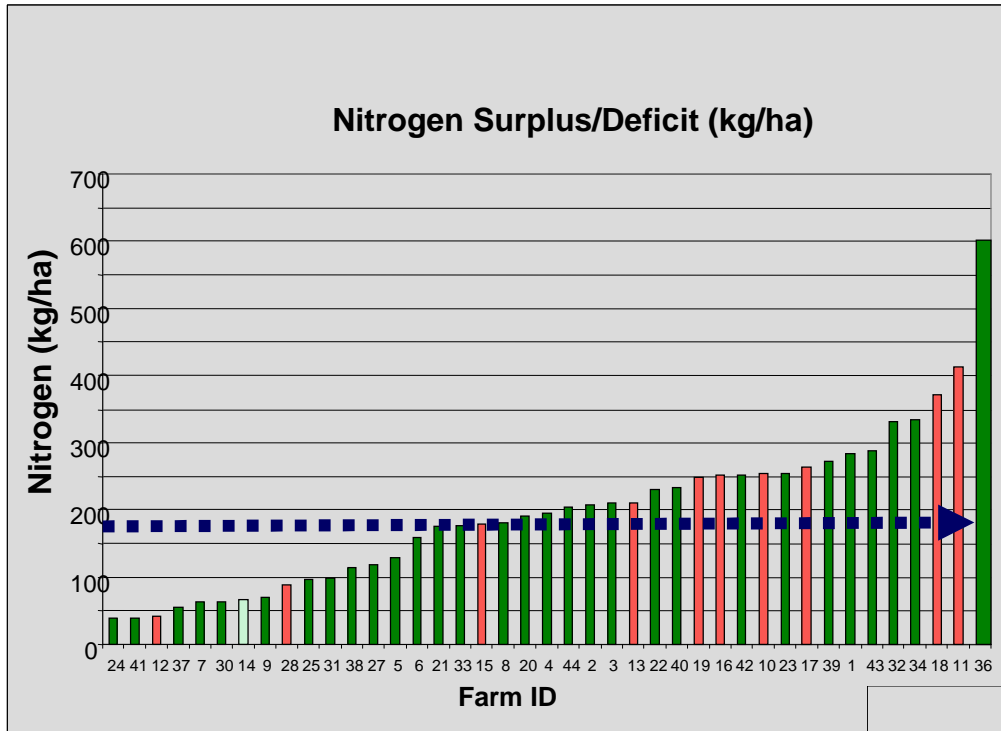
- purchased feed
- nitrogen fertiliser



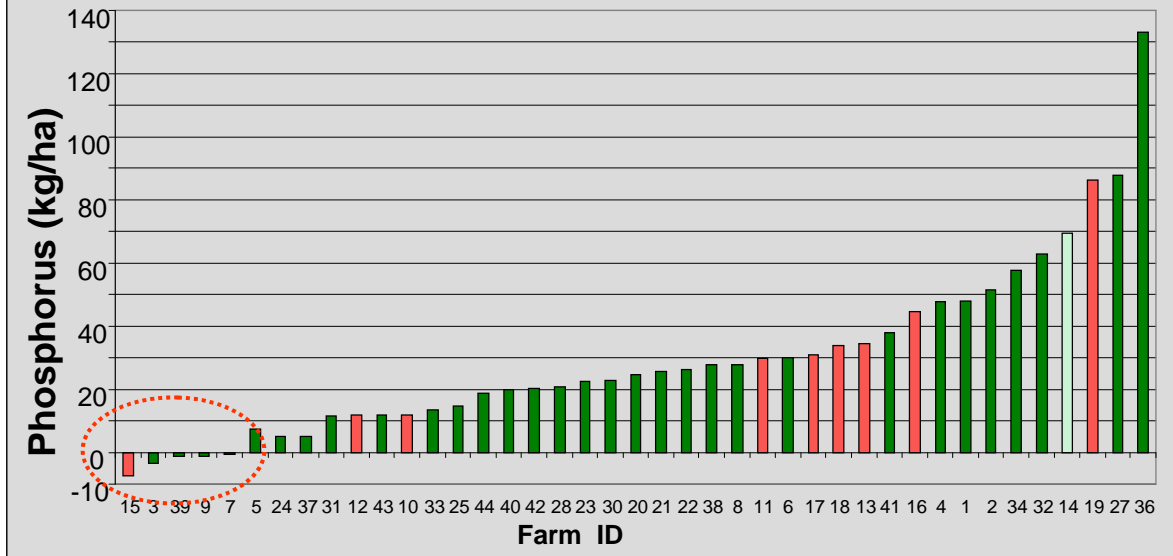
# Nutrient flows and transformations



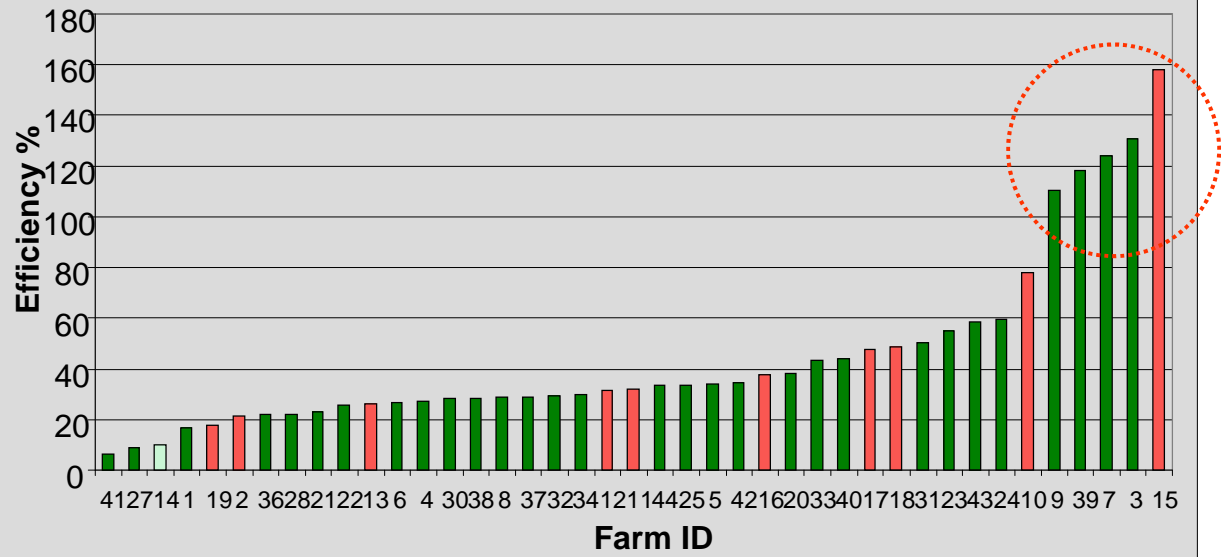
**ACCOUNTING FOR NUTRIENTS  
ON AUSTRALIAN DAIRY FARMS**



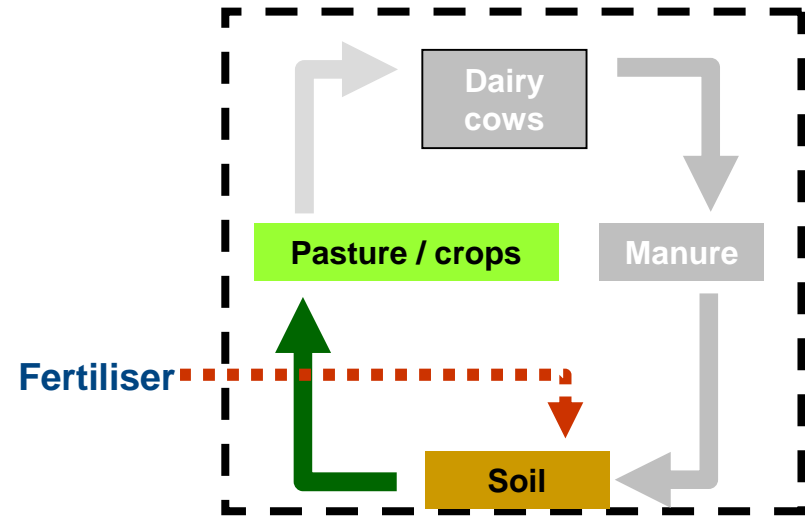
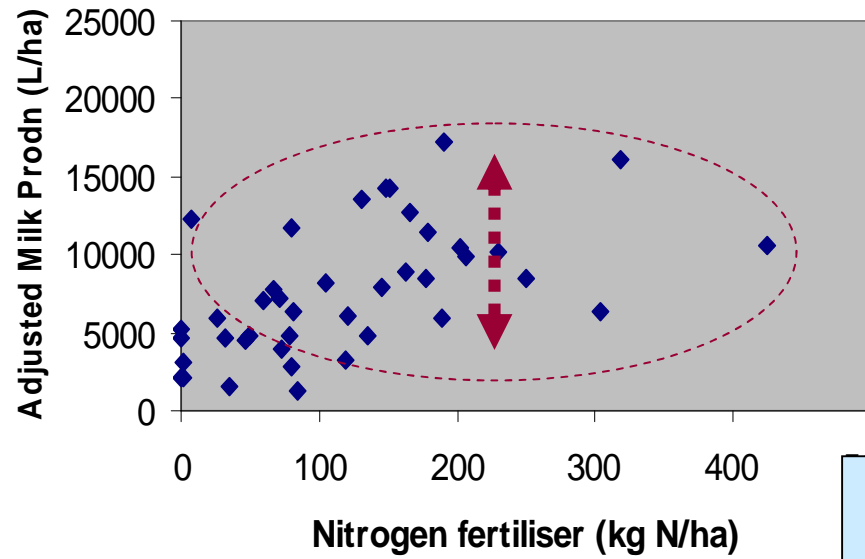
**Phosphorus Surplus/Deficit (kg/ha)**



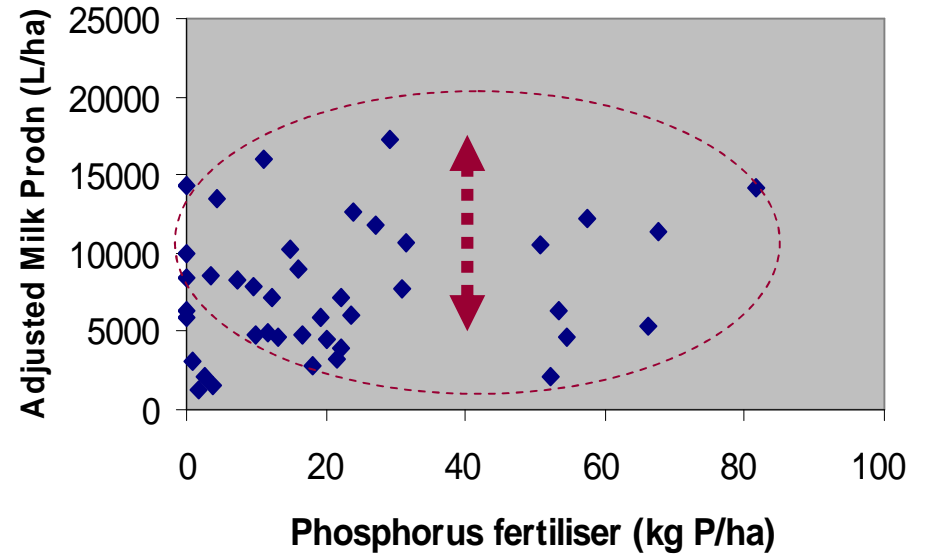
**Whole-farm P Use Efficiency**



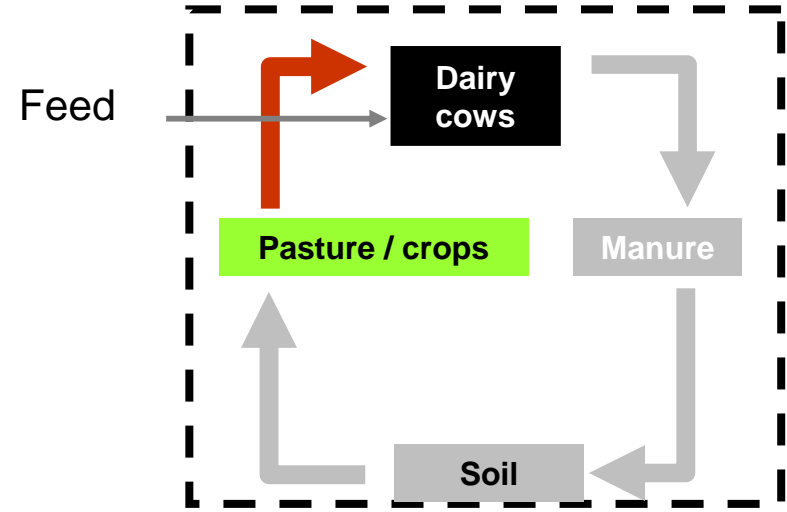
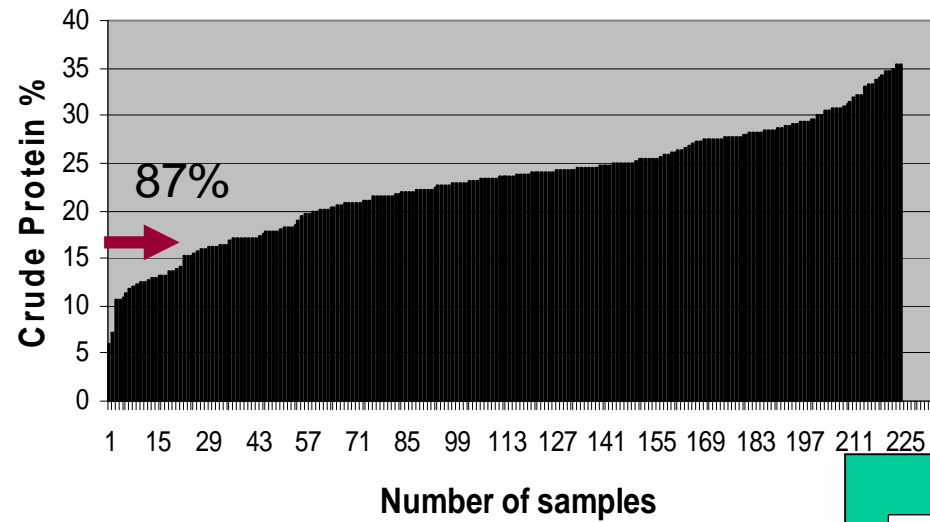
### Adjusted Milk Prodn and N fertiliser inputs



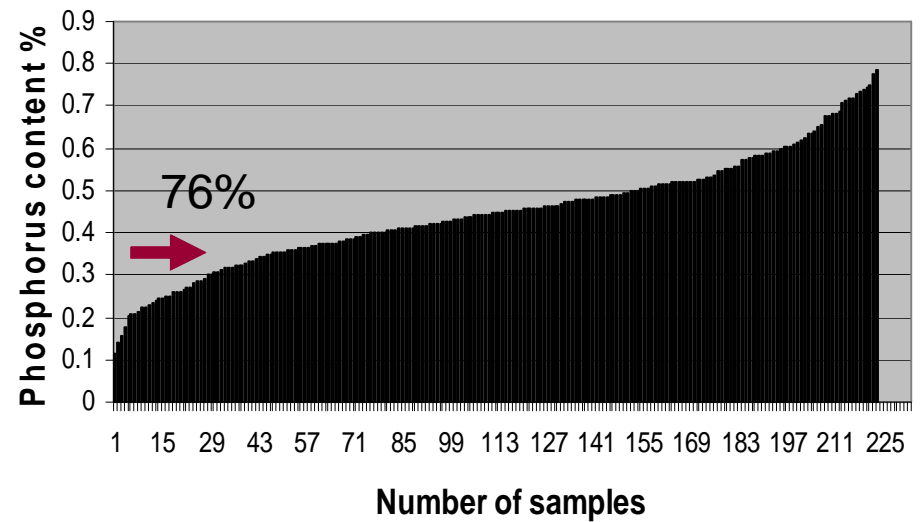
### Adjusted Milk Prodn and P fertiliser inputs

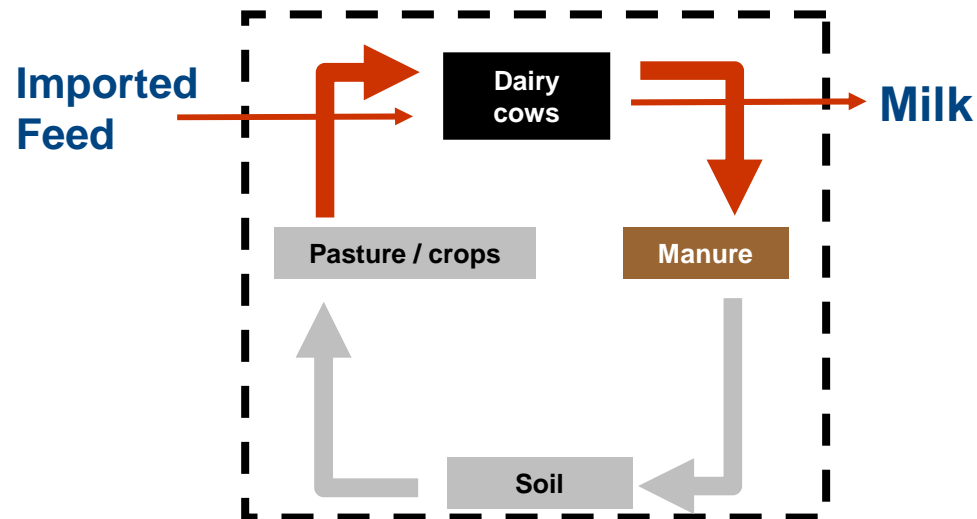


Crude Protein % of Ryegrass



Phosphorus content (%) of Ryegrass





**Feed N and P use efficiency and daily loads excreted by lactating cows from 43 dairy farms over 5 visits**

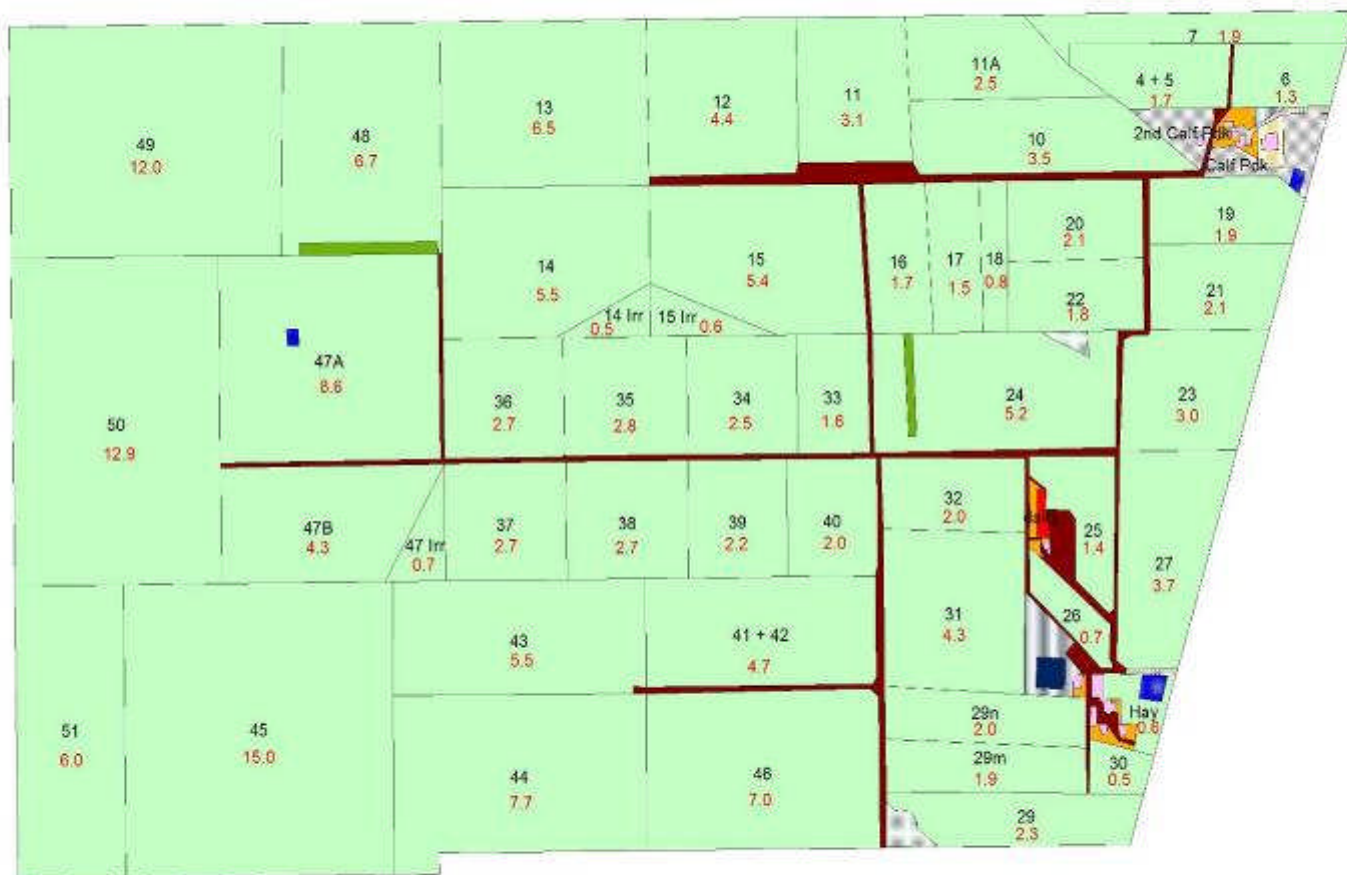


	Efficiency of nutrient utilisation (%)	
	N	P
Mean	20.8	25
Minimum	10.5	10.7
Maximum	35.1	48.5





## SITE 40 FARM LAYOUT, PADDOCK ID & AREA (HA)



Accounting for Nutrients

0 100 200 300 400 500 600 700 800 900 1000 Meters



Accounting for Nutrients



Dairy

