

# Reducing Reliance on Imported Feed

Northland Agricultural Research Farm  
June 2015 – June 2018

*DairyNZ* 

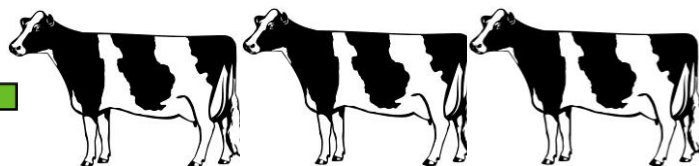
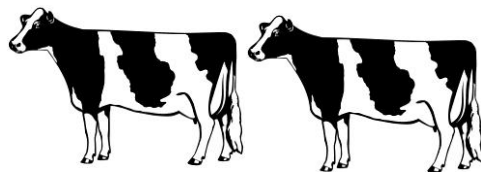
# Experimental Methodology

Treatment	Stocking rate	Feed available
PKE (Control)	2.8	PKE offered when residuals below 1600kgDM ~500kg DM/cow
Cropping	2.7	~23% of farmlet cropped: <ul style="list-style-type: none"><li>• Maize</li><li>• Turnips</li><li>• Fodder beet</li></ul>
Pasture	2.5	Nil

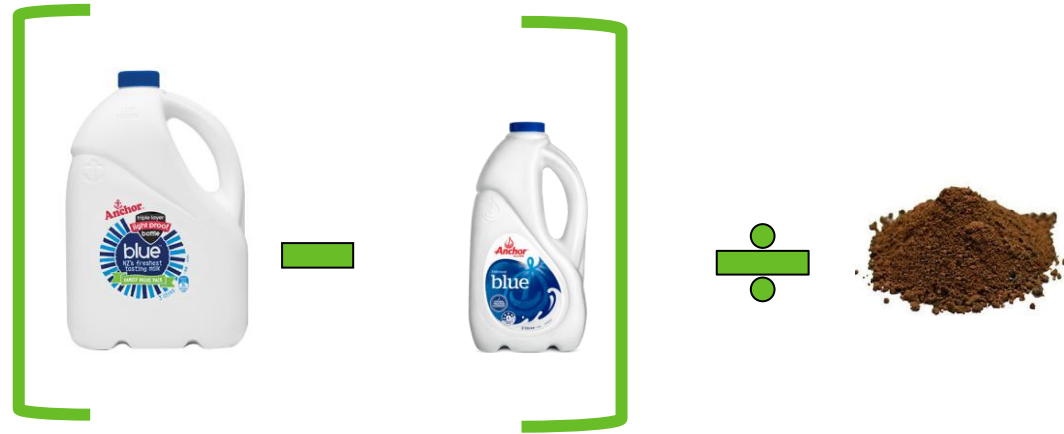
# Cropping treatment... Briefly

- Low crop yields
- Cost incurred irrespective of yield
- Lost pasture production
- Ultimately cropping increased production risk

# Marginal milk solid response to supplement???

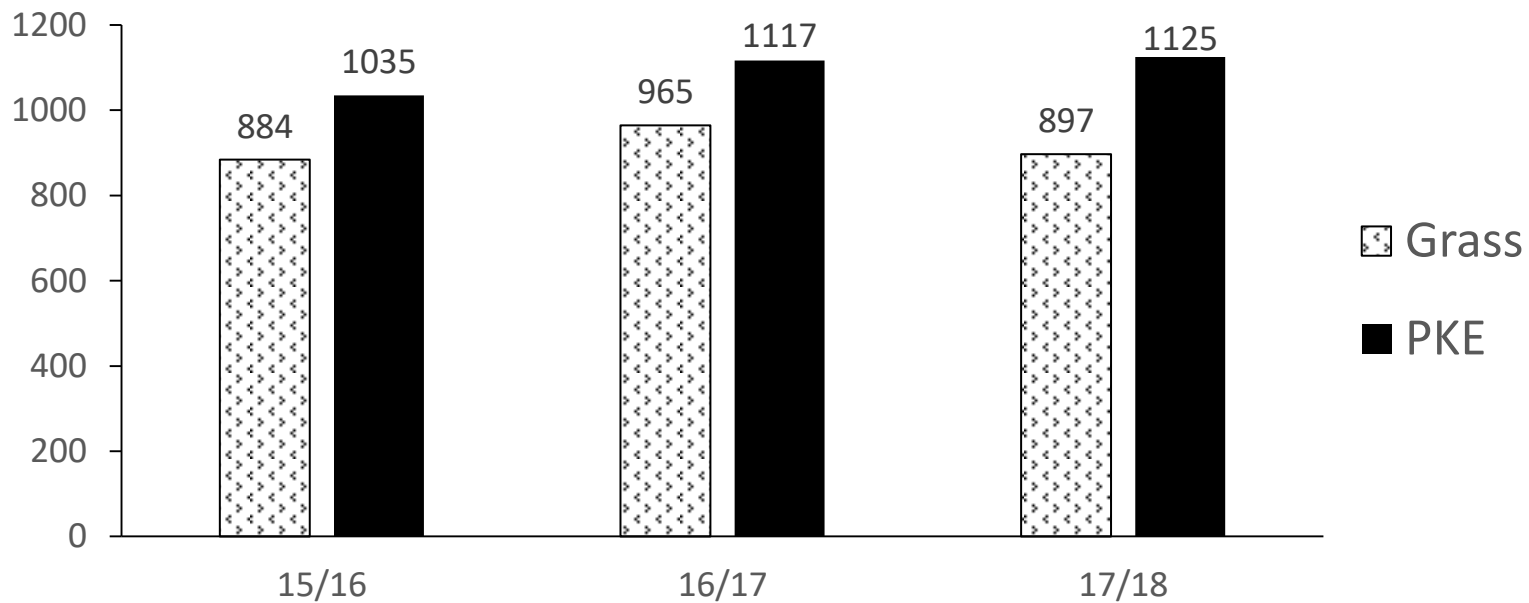


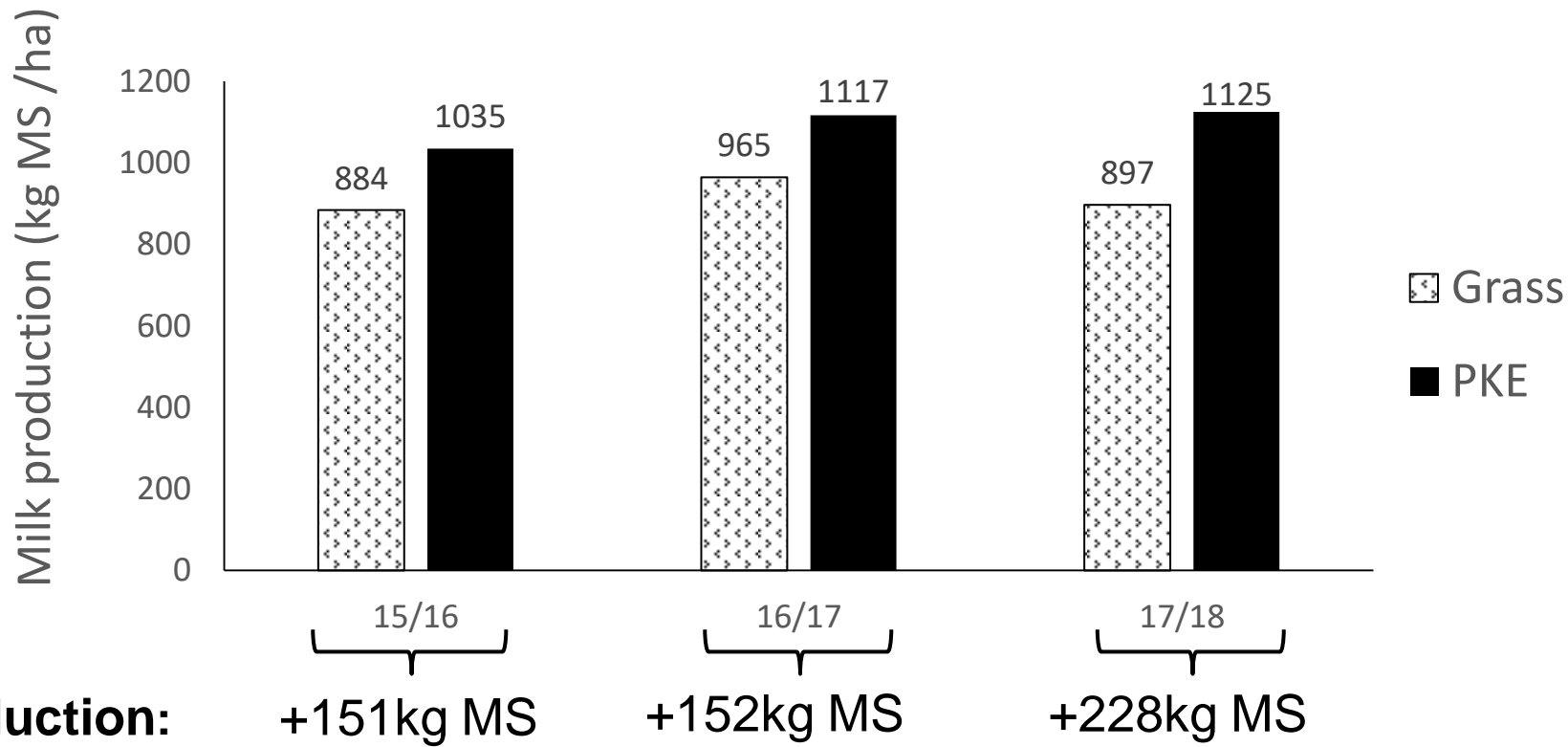
# Marginal milksolid response to supplement???

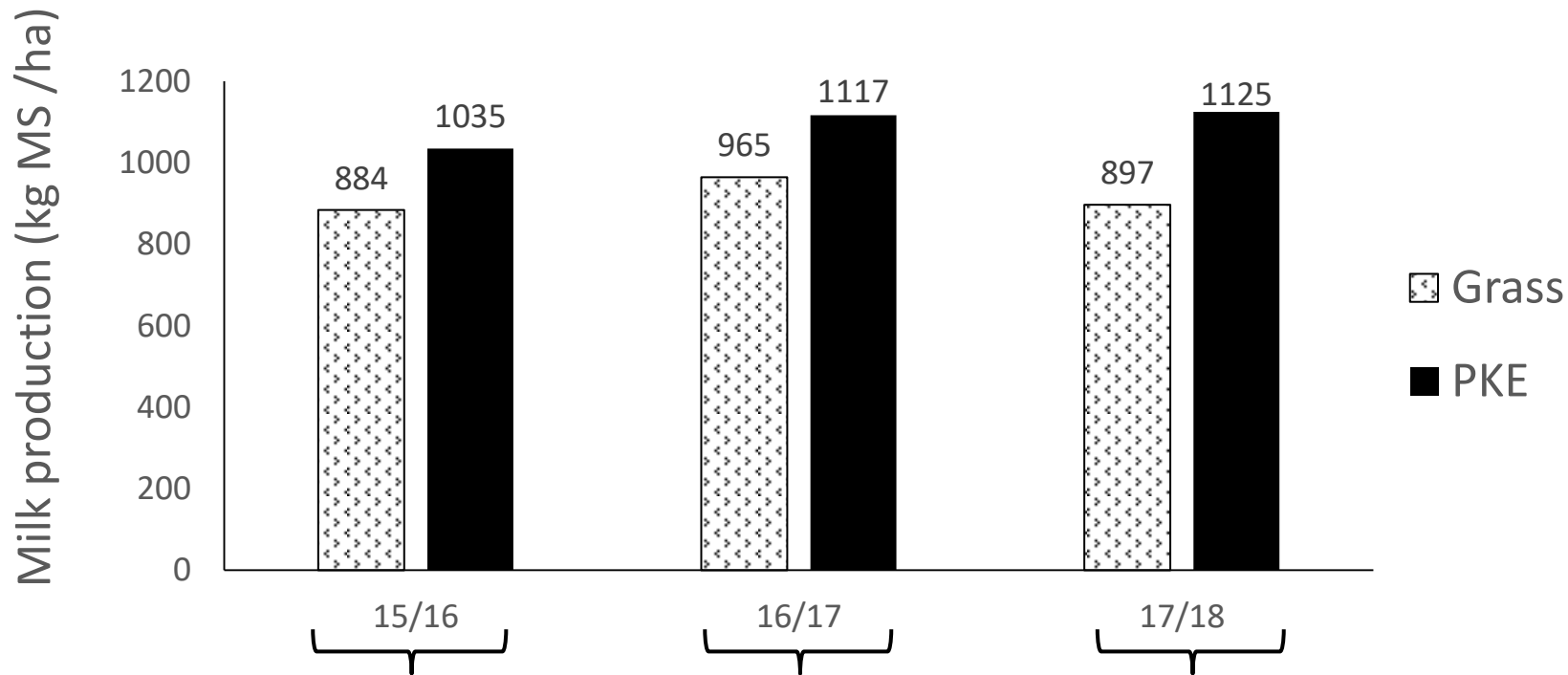


Average response from research  
**~ 80g MS/ kg DM**

Milk production (kg MS /ha)







**Production:** +151kg MS

+152kg MS

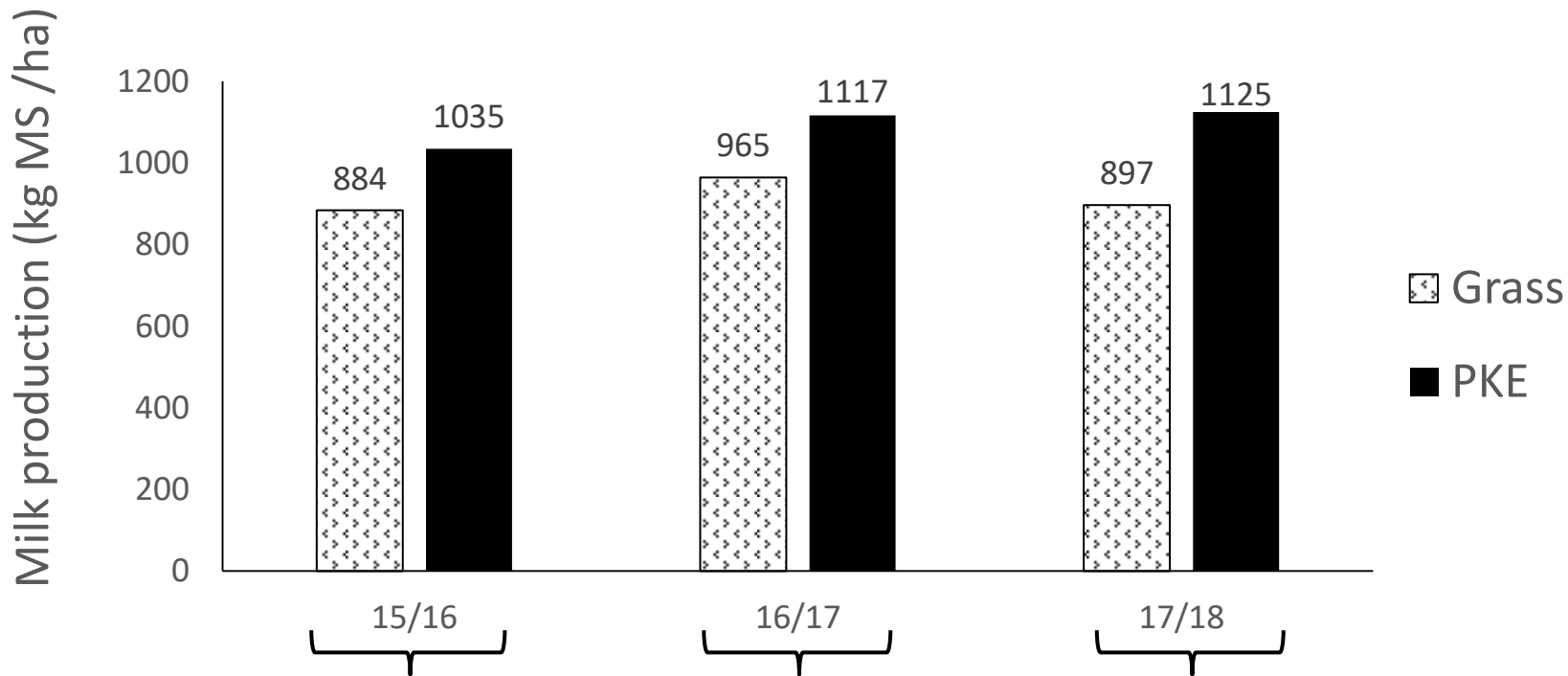
+228kg MS

**Supplement:** +1273 kg DM

+1429kg DM

+1625kg DM





**Production:** +151kg MS

+152kg MS

+228kg MS

**Supplement:** +1273 kg DM

+1429kg DM

+1625kg DM

**Response:** 118g MS/kg DM    106g MS/kg DM    140g MS/kg DM

# Results

- 3-year average response of **122g MS/kg DM**
- Average from research **80g MS/kg DM**
- Achieved response **50%** greater than expected
- Why?????

# Results

- **Response to system change**
  - Increased SR
- **Strict decision rules**
  - Minimise substitution effect
- **PKE treatment likely grew more grass**
  - Energetic calculation suggests greater pasture production in PKE treatment
  - Increased residuals and average cover

# What does this mean for



Surely, if the average cost of my milk  
is less than the milk price,  
feeding supplements is profitable?!!”

- Anonymous  
Pasture Summit

Dangers of dealing with averages:

Average Profits  
Hide  
Marginal Losses

## Production



150,000 kg MS

## Total cost



\$525,000

Average cost:  
\$3.50/kg MS



## Production



150,000 kg MS

## Total cost



\$525,000

Average cost:  
\$3.50/kg MS



175,000 kg MS



\$725,000

Average cost  
\$4.14/kg MS



## Production



150,000 kg MS

## Total cost



\$525,000

Average cost:  
\$3.50/kg MS



175,000 kg MS



\$725,000

Average cost  
\$4.14/kg MS

**\$4.14 < \$6**

**Average cost < Milk price ....**

**Profitable !!!??!?!..... But....**

## Production



150,000 kg MS

## Total cost



\$525,000

Average cost:  
\$3.50/kg MS

**Profit: \$375,000**



175,000 kg MS



\$725,000

Average cost  
\$4.14/kg MS

**Profit: \$325,500**



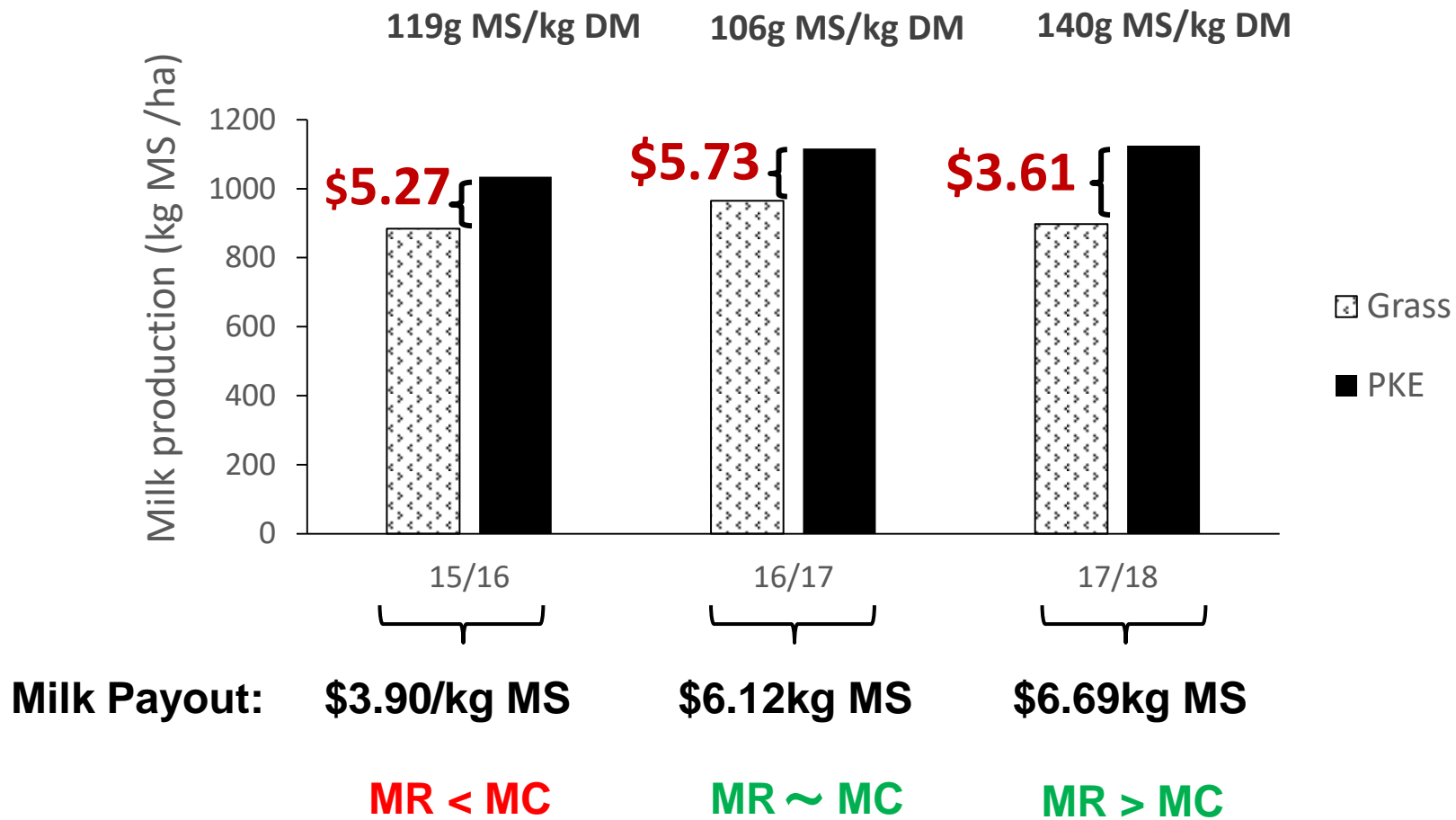
25,000 kg MS



\$200,000

Marginal cost  
\$8.00

**Profit: -\$49,500**





Milk Payout:

**\$3.90/kg MS**

**MR < MC**

**\$6.12kg MS**

**MR ~ MC**

**\$6.69kg MS**

**MR > MC**

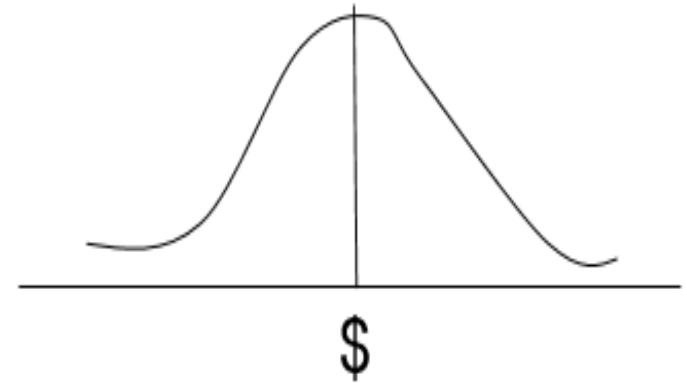
# Economic analysis

@Risk software -> profit **and** variability

▪ Accounted for variability of key input prices:

- **Milksolids**
- **PKE**
- **Urea fertiliser**
- **Grass silage**

– Which system is most profitable longer term??



# Economic Results – Sensitivity to MMPR

-10% {

Response	PKE > Pasture	Pasture > PKE	PKE profit advantage
122g MS/kg DM	70%	30%	\$150/ha
110g MS/kg DM	50%	50%	~
80g MS/kg DM	10%	90%	-\$230/ha

# Conclusions

- Always consider MARGINAL cost
- PKE treatment favourable with **high** response to supplement
- Favourability **highly** dependant on response
- Irrespective of system, focus on utilising pasture