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# The Importance of Legumes to The Farm System

**Peter Anderson**

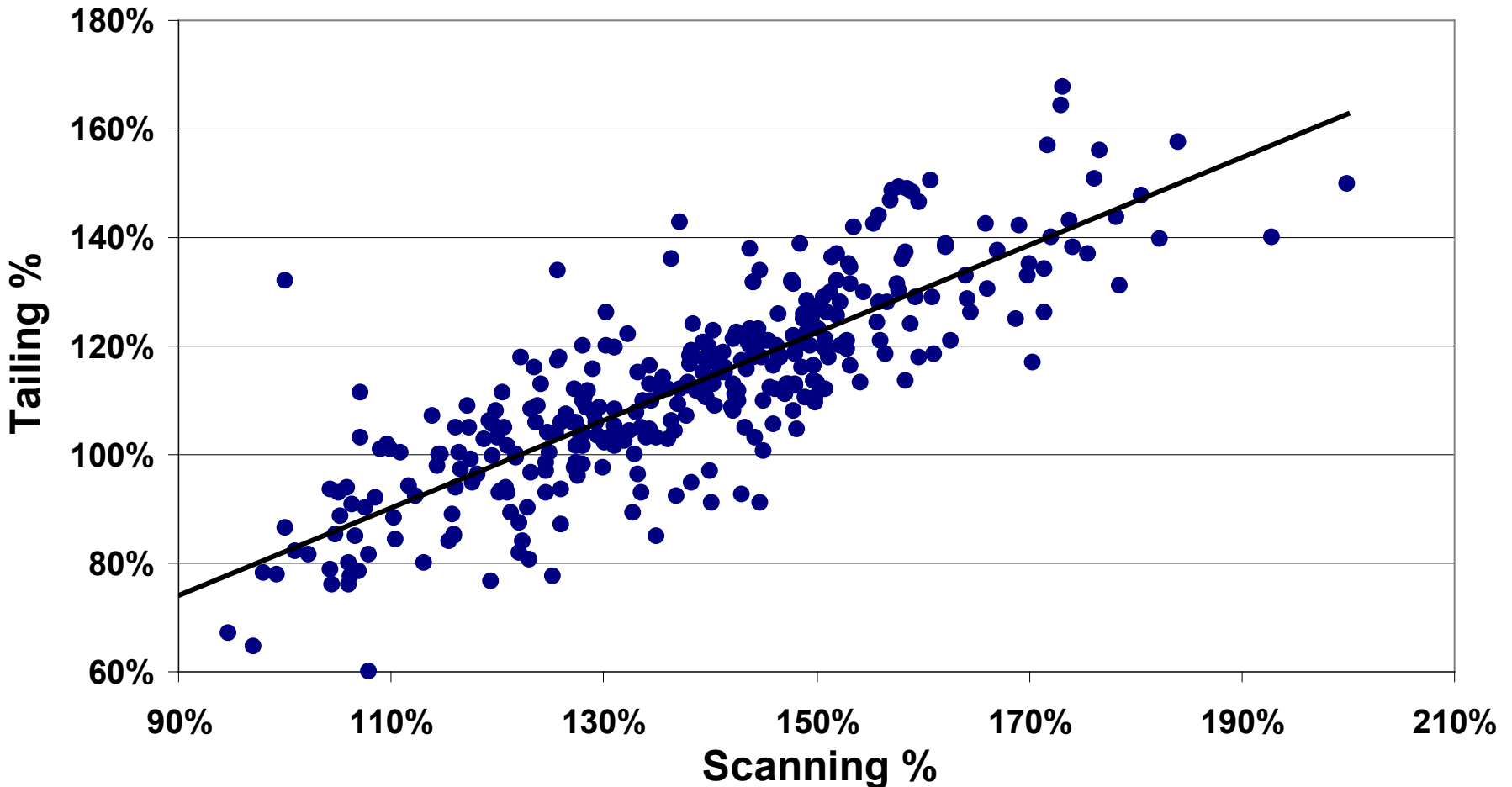
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# Commentary...

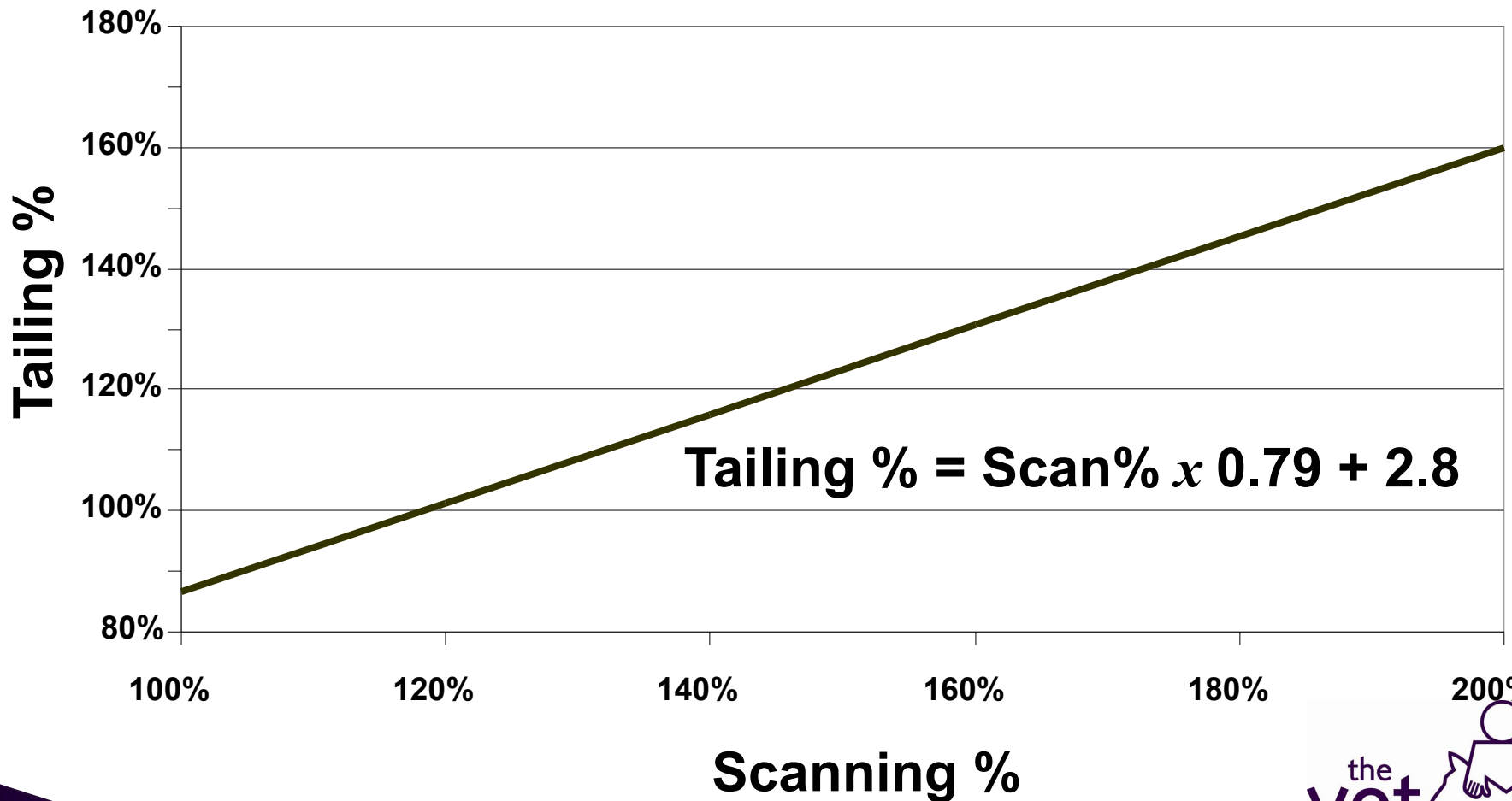
- Early days of working with farmers to improve ewe flock performance involved
- Setting up Planned Animal Health and Production Schemes (PAHAPS)
- Weighing and recording body weights of ewes and hoggets
- Recording lambing %'s etc.
- No consistency in how lambing %s were measured – no standards.
- Not until pregnancy scanning started did we appreciate the range of conception rates, lambing %'s, and lamb mortality – scanning to tailing.

# Lambs scanned to ewes at scanning vs. Lambs tailed to ewes at scanning

## Tailing % vs Scanning % (All Data 1995-98)



# Predicted Tailing % from Scanning %



# Predicted Tailing % from Scanning %

Scanning %	Tailing %	Diff	%Lamb loss
120	98	22	18.3
140	114	26	18.6
160	130	30	18.7
180	145	35	19.4

# Commentary...

## Scanning allowed us to

- Bench mark
- Make some predictions.  
*If a flock scanned 160% it should tail at least 130%*
- From the mating weight work out a scanning index (SI) for an individual flock.
- Use S.I.'s to measure the effect of different management practices around mating.  
*e.g. those causing weight changes.*

# Commentary...

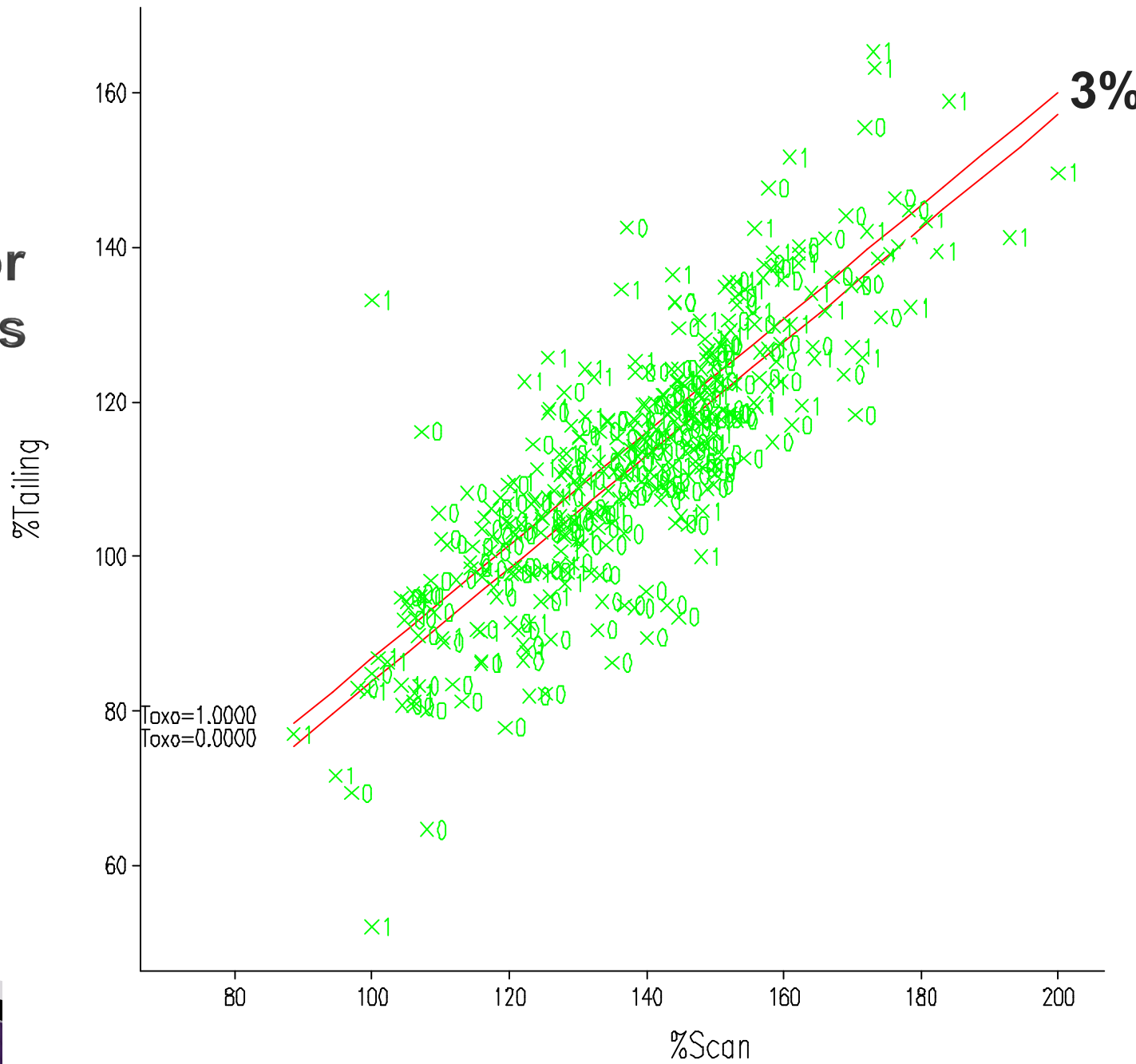
Scanning also allowed us to compare the performances of flocks that carried out different animal health programmes.

e.g.

- *Compare the performance of flocks that vaccinated for Toxoplasmosis with Toxovax with those that didn't.*
- *Compare the performance of flocks that vaccinated for Campylobacter abortions with those that didn't.*
- *Compare the performance of flocks that treated ewes with Vit E (LSD) pre-lamb with those that didn't.*

# Effect of Vaccinating for Toxoplasmosis

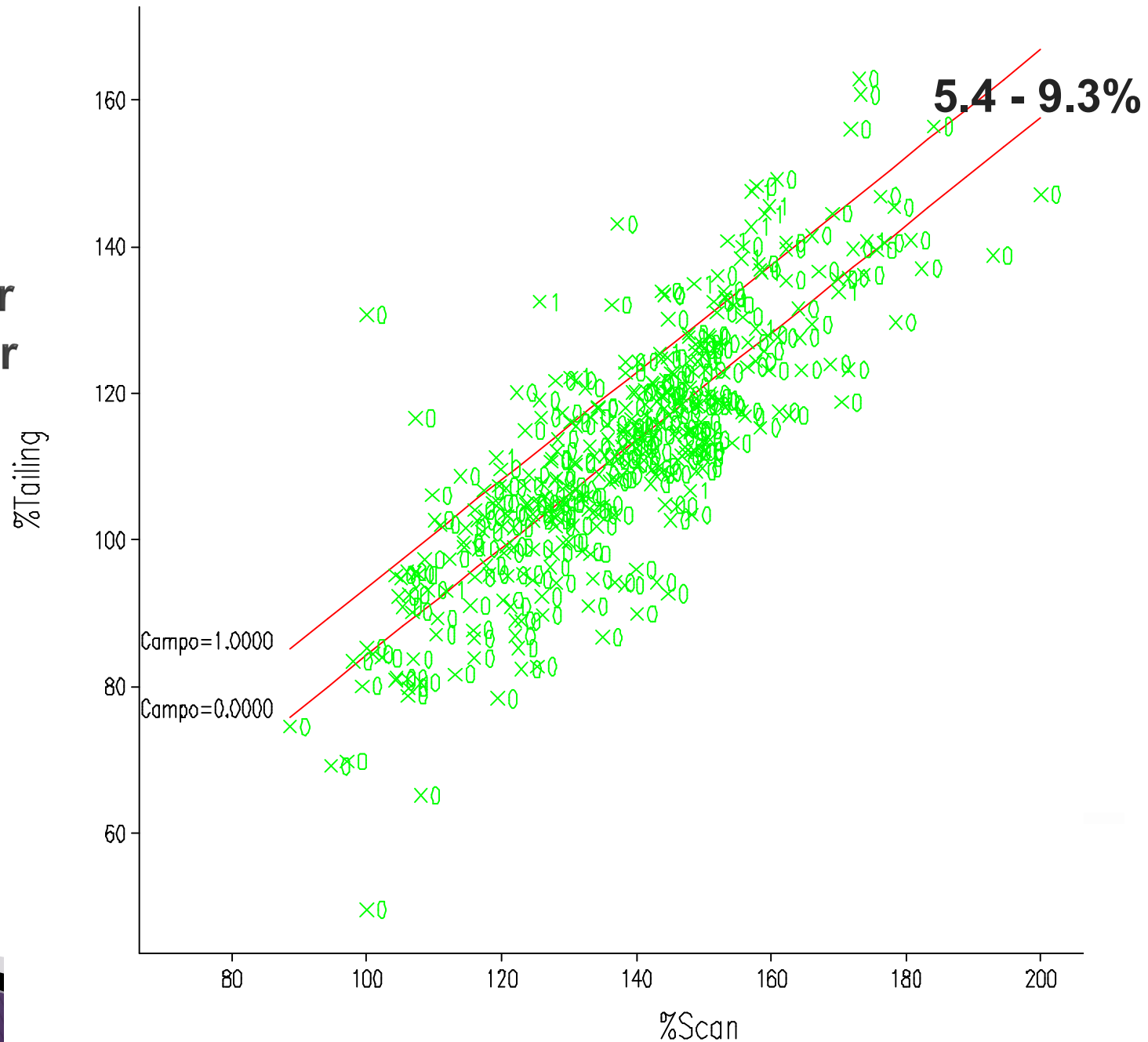
Fitted and observed relationship





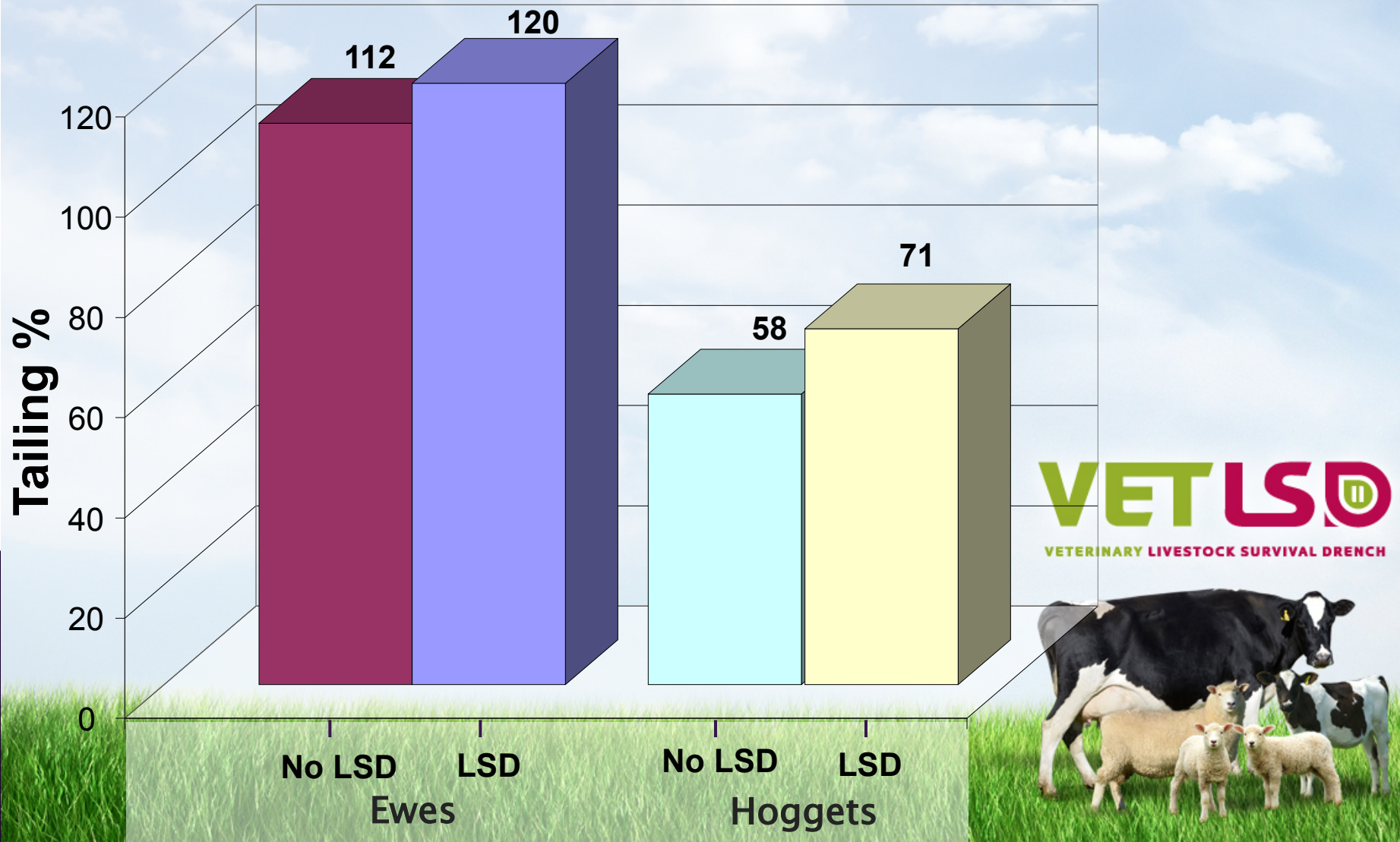
# Effect of Vaccinating for Campylobacter

Fitted and observed relationship



# OptiLamb analysis comparing flocks which used LSD with those that did not.

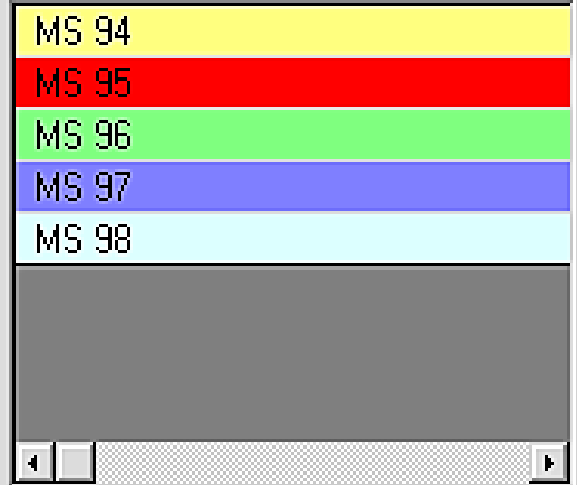
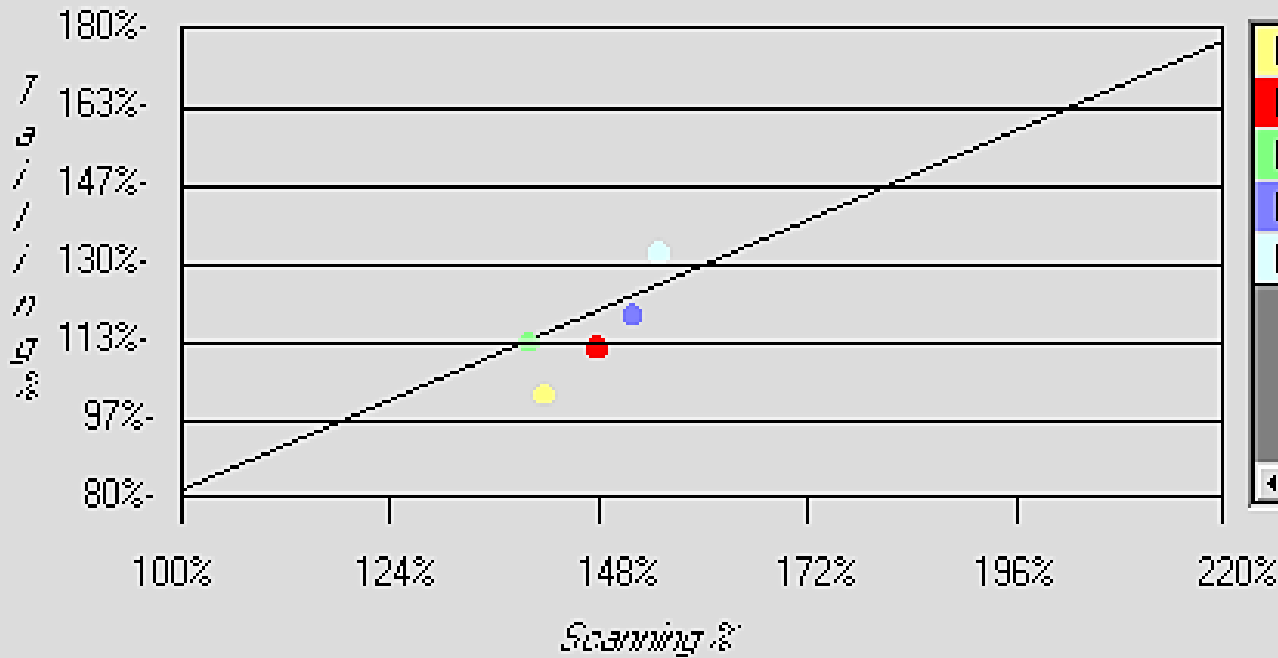
OptiLamb Analysis - Tailing/Docking% (1993-2006)



# Optilamb Analysis graph individual property.

Compare Scenarios

Scanning % Vs. Tailing % Achieved



Add Flock...

Save Graph...

Load Graph...

Print

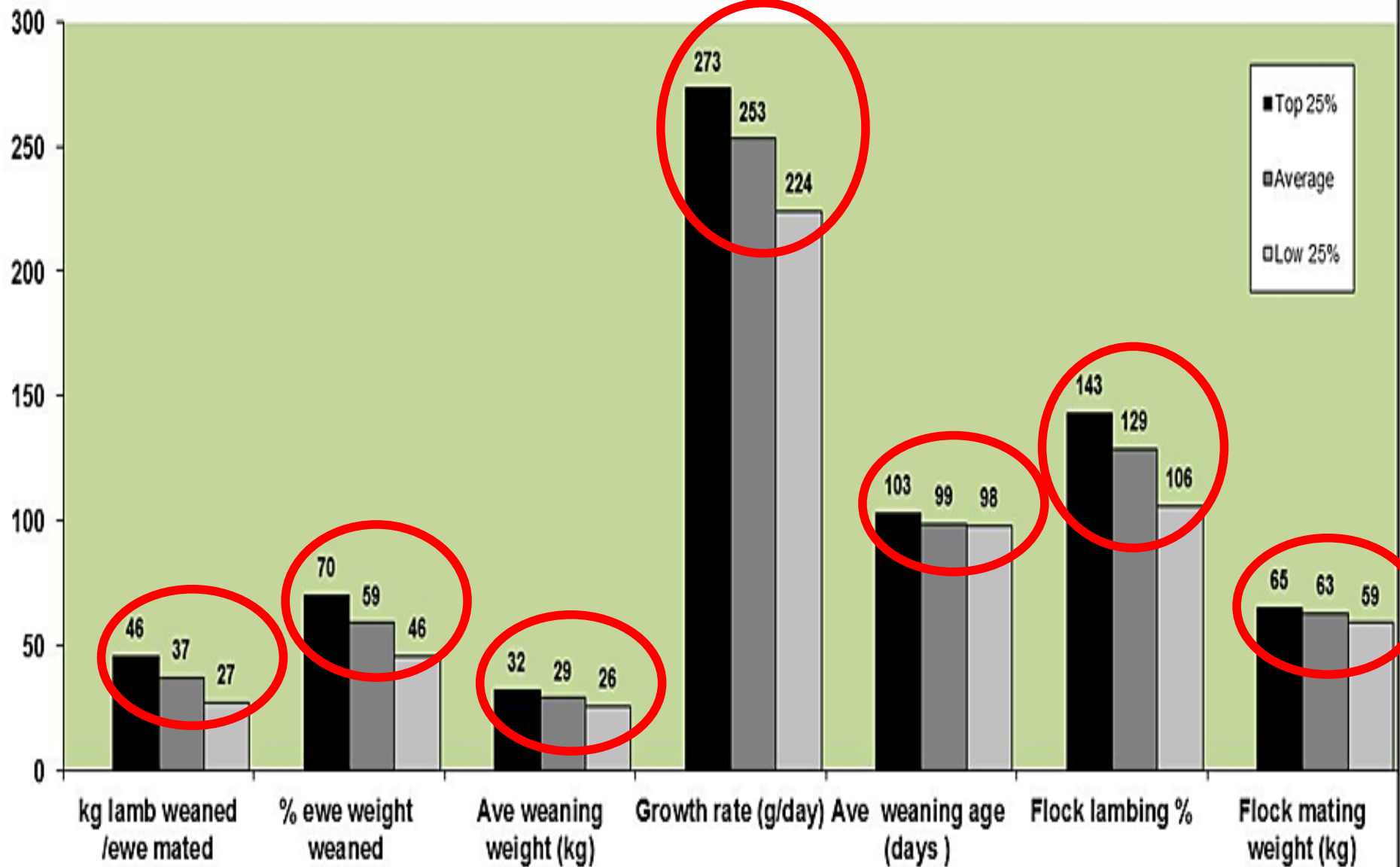
# Commentary...

- While this work, along with other animal health improvements including better parasite control and correcting trace element imbalances, was helping farmers improve scanning percentages and reduce lamb losses and as a result improve lambing percentages, it did not necessarily mean there was an improvement in ewe flock performance.
- Lambing % is not a good measure of flock performance.
- Early efforts were concentrating on management factors including feeding that improved scanning performance and to a certain extent forgetting the other end of cycle, especially feeding in late pregnancy and during lactation.

# Commentary...

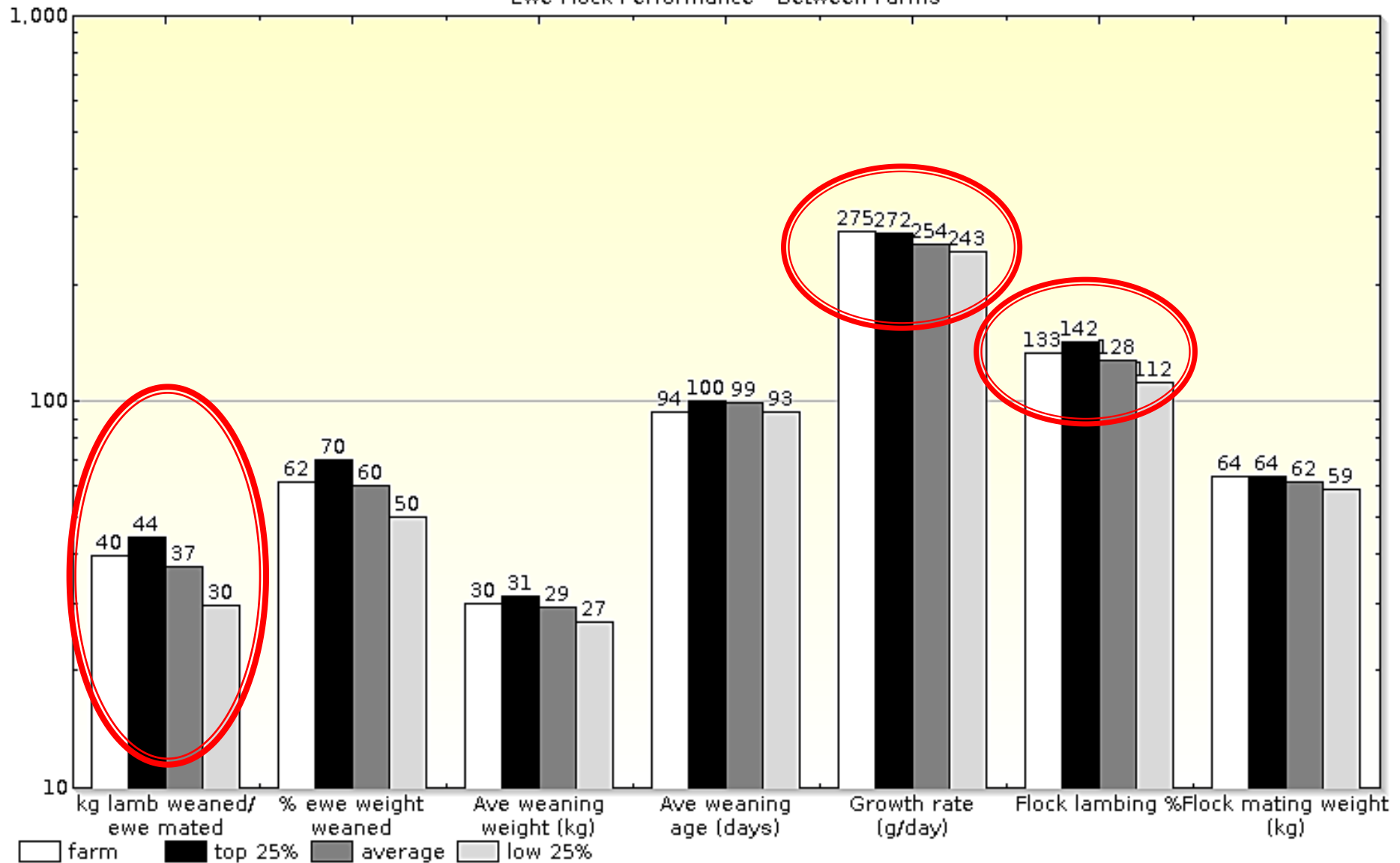
- Not until the “Sheep for Profit” Programme (StockCARE) did we start measuring Ewe Flock Performance properly.
- Best measure = kg Lamb weaned/ewe mated.
- Drivers for this are Lambing % plus lamb growth rate.
- StockCARE allowed us to bench mark and see where the opportunities were on a farm.

## Ewe Flock Performance benchmark against all properties



# Nelson property 2006

Ewe Flock Performance - Between Farms



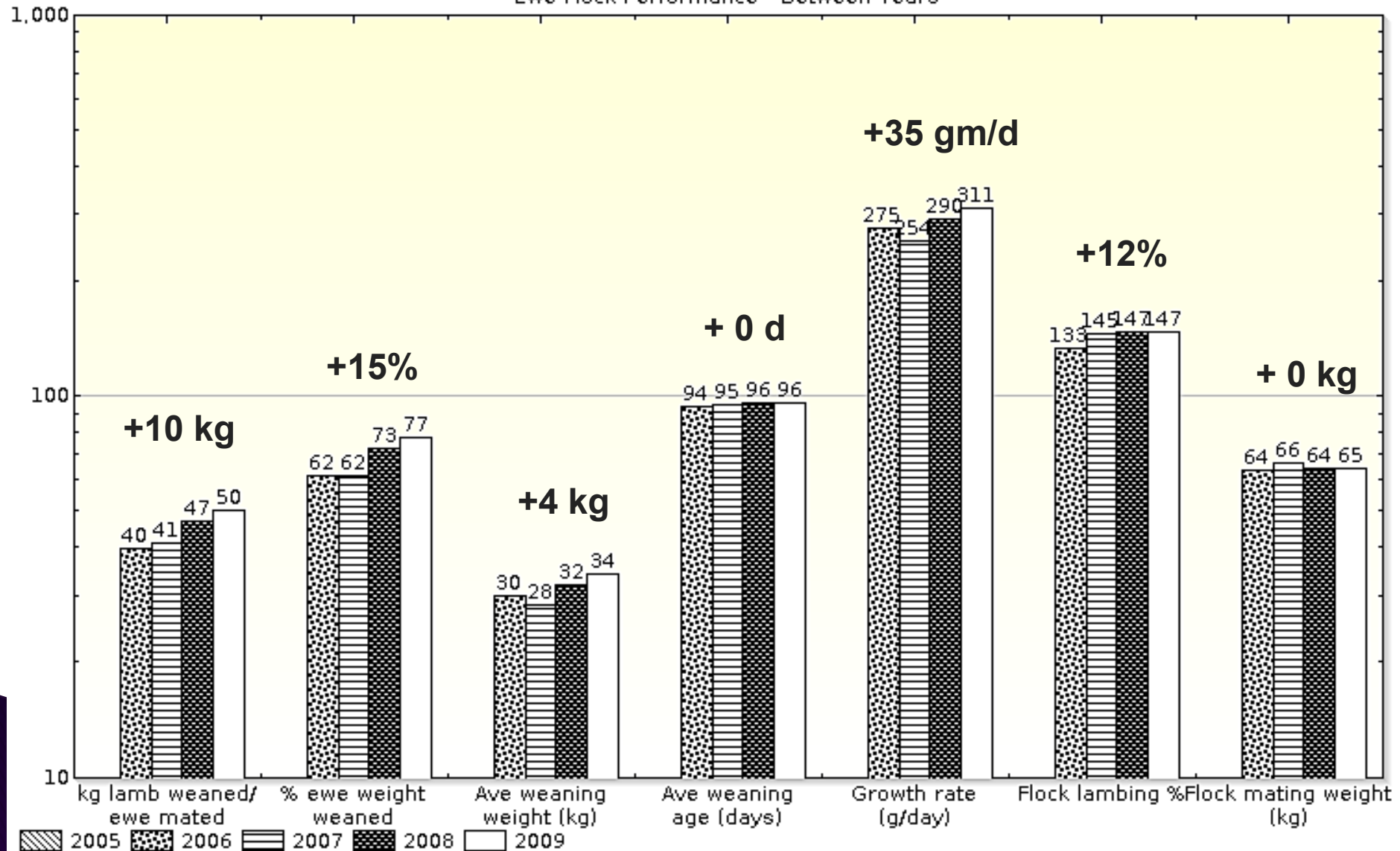
# Nelson property 2006

- Performance of this property OK but can see opportunities especially with lambing %.
- Management changes were implemented to improve Lambing %



# Same property 4 years later

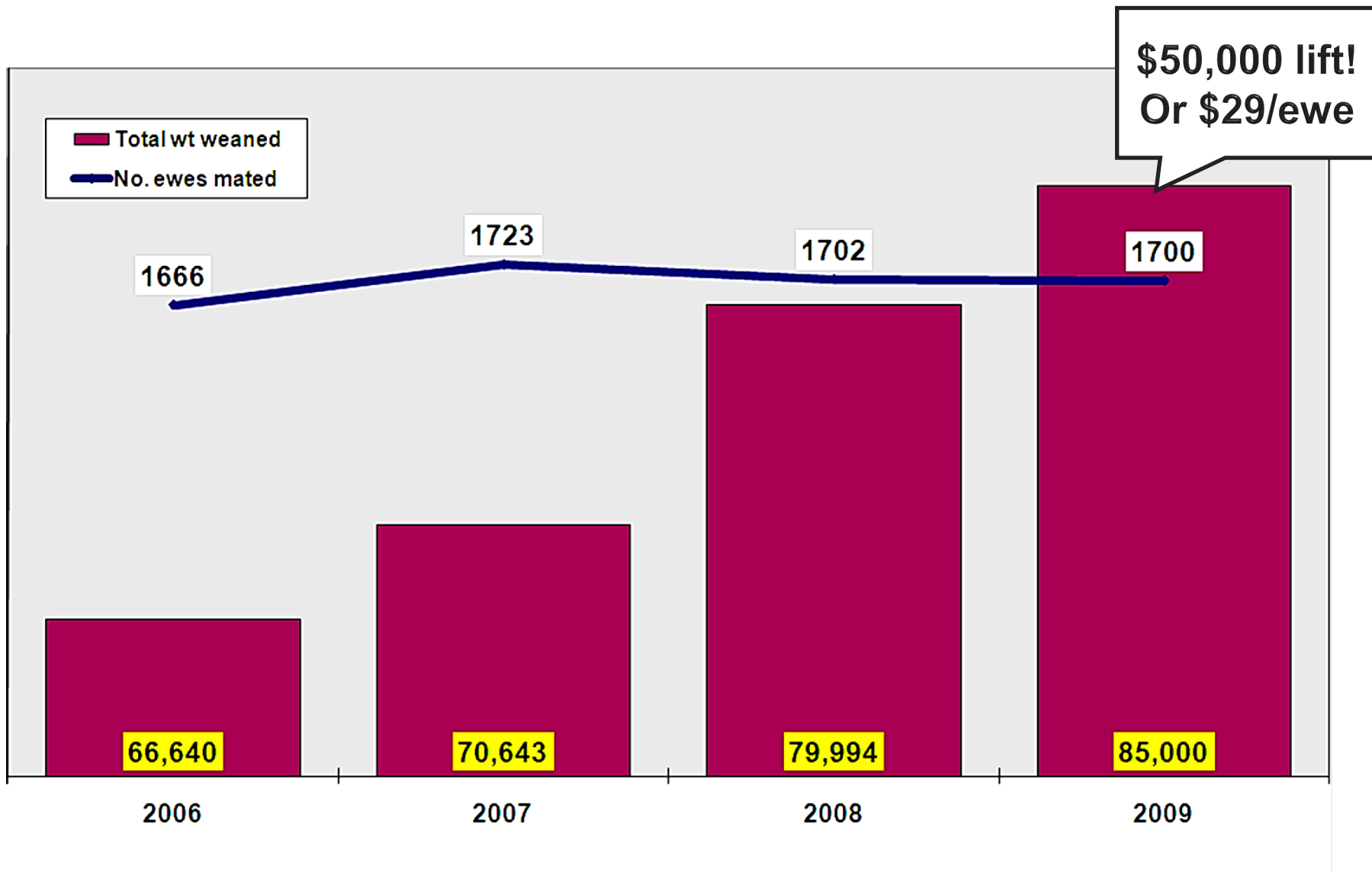
Ewe Flock Performance - Between Years



# Commentary...

While there were one or two minor animal health issues to sort out most of this progress was the end result of:

- measuring and monitoring weights and CS's and adjusting feeding accordingly,
- grooming the pastures especially in the winter and inducing better clover performance in the spring,
- having ewes with higher CSs at lambing – improving lamb survival and ewe milk production and lamb growth rate though the milk effect plus the greater clover content of the pastures.
- In this case much of it was a white clover response. There were no significant cost outlays. Ewe mating weight did not increase but ewe performance certainly did.



### Commentary...

- All changes in management were quite subtle which without monitoring and measuring would not have been appreciated.
- A significant improvement in flock performance over 4 years

# Commentary...

- ▶ A significant component of progress made on StockCARE properties has been the result of understanding the value of body condition to help manage the energy demand curve that the animals endure during the year.
  - *We have a production system where the energy demand increases dramatically when farmers do not have pasture growth to meet this demand.*
- ▶ The correct Ewe CS drives the system
  - a) Too high in late pregnancy and losing leads to metabolic issues and other ewe problems – ewe deaths*
  - b) Too low – reduced lamb survival and lamb growth rate*

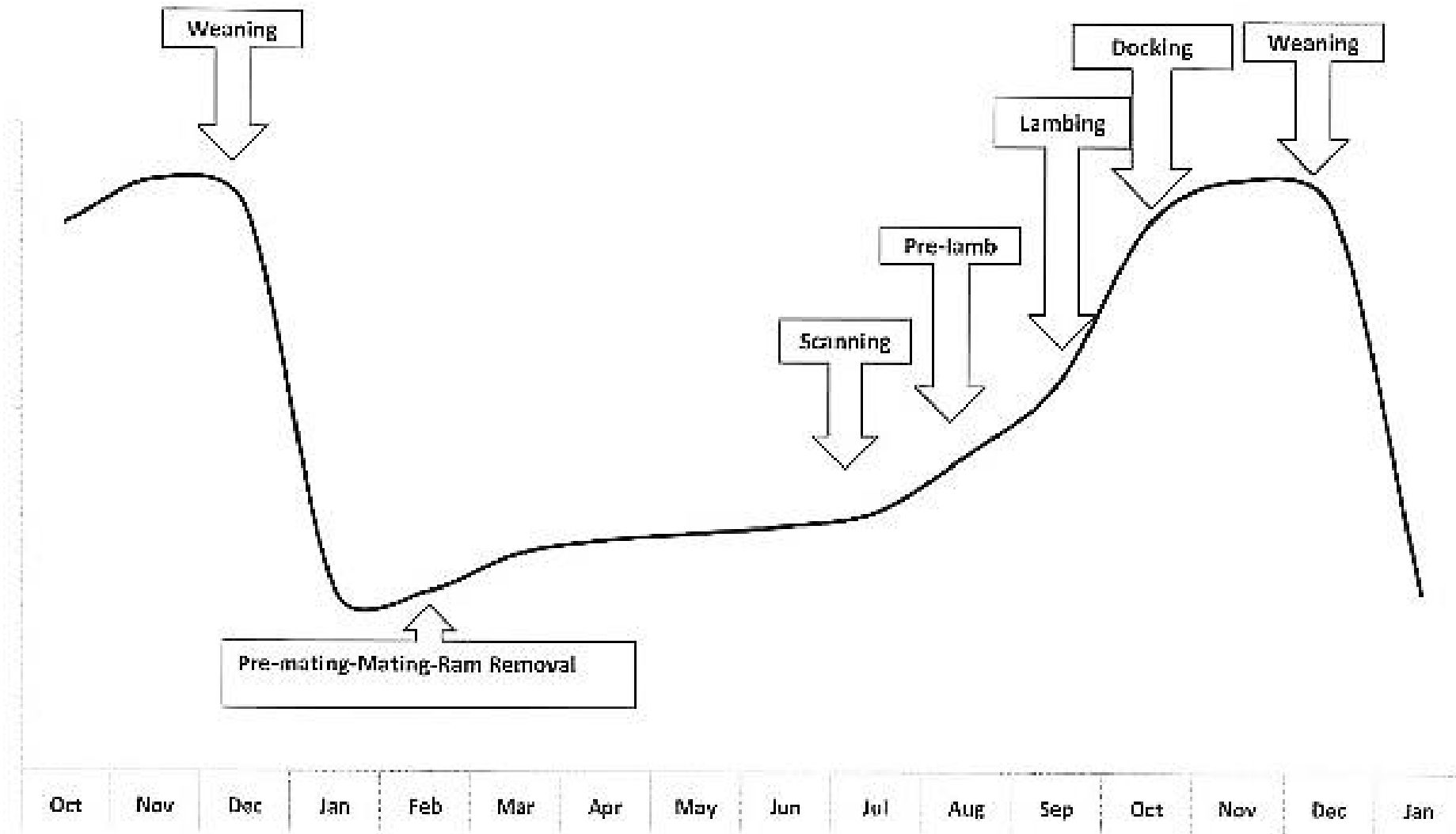
# Commentary...

- Critical that the Quality of feed is optimum from at least the last month of pregnancy until weaning –
  - *Because high producing ewes can only maintain CS if quality is high*
  - *Lambs need a high energy feed source – especially multiples to supplement mothers milk*
  - *Legumes fill this role best*
  - *Timing of lambing is correct.*
  
- The importance of being able to supply this energy demand is even more critical nowadays as the end result (more lambs) of genetic improvement in flocks and animal health come on stream.

# Commentary...

- The importance of feed quality during this period is even more essential in areas of the country where long hot dry summers or long cold winters are experienced because there are shorter growing periods.
  - *Lambs need to grow as fast as possible before weaning.*
  - *Quality = legumes are essential.*
  - *Quality during this period is very easily lost especially in grass dominant pastures.*
- Optimising ewe and lamb body weight at weaning is important not only for a high kg lamb weaned, but ewe weaning weight determines to a large extent next autumn's mating weight and hence scanning % and the following season's flock production.

# Ewe Flock's energy demand

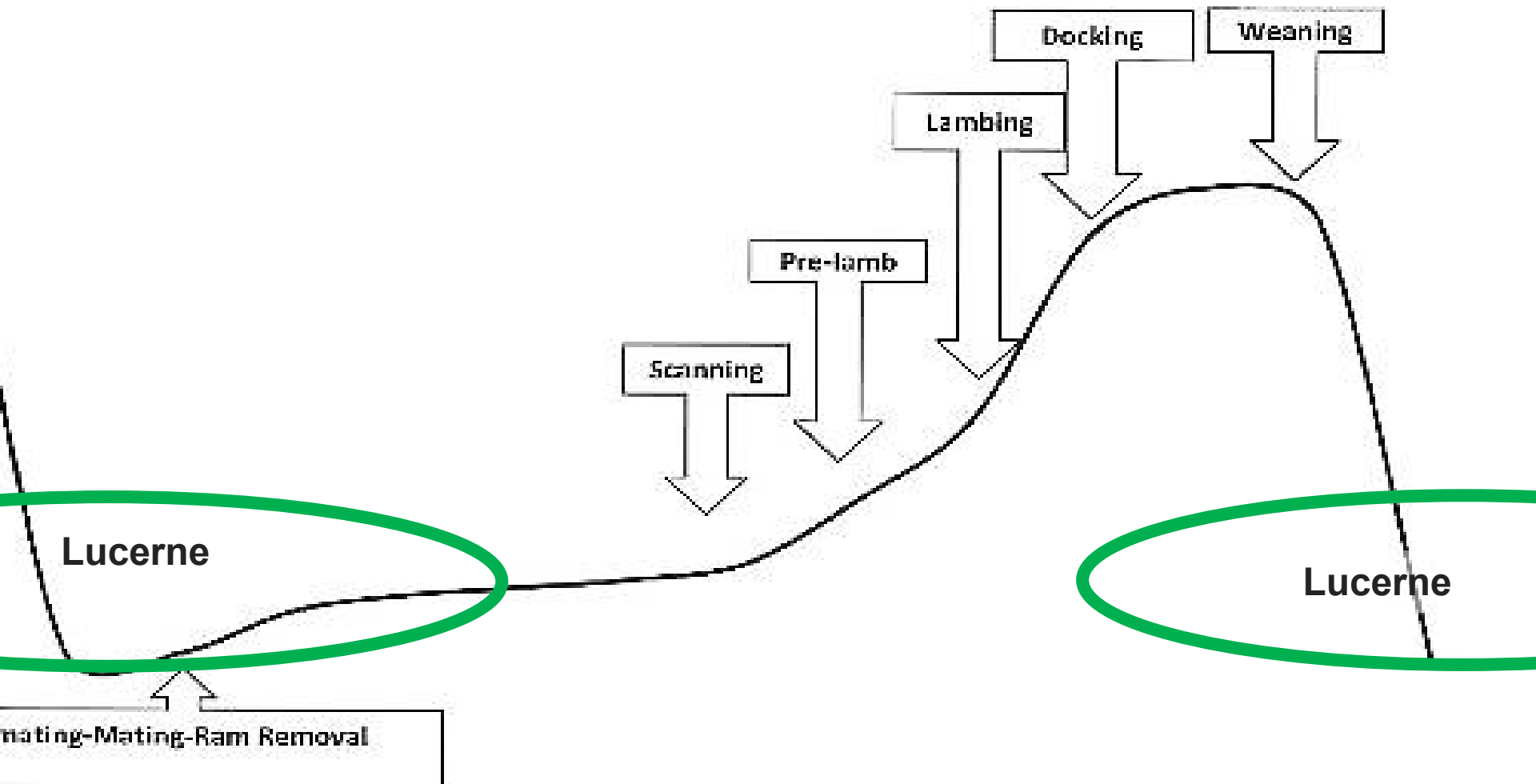


# Commentary....

- Lucerne supplies quality feed during a good part of this high energy demand period beautifully.
- While it is now being appreciated by more farmers for its role as an ideal mating feed for ewes, there is also a shift in emphasis from lucerne being a weaning feed for lambs, between periods of being shut up and conserved as a winter supplement, to an important component of quality feed for ewes and lambs from lambing onwards.



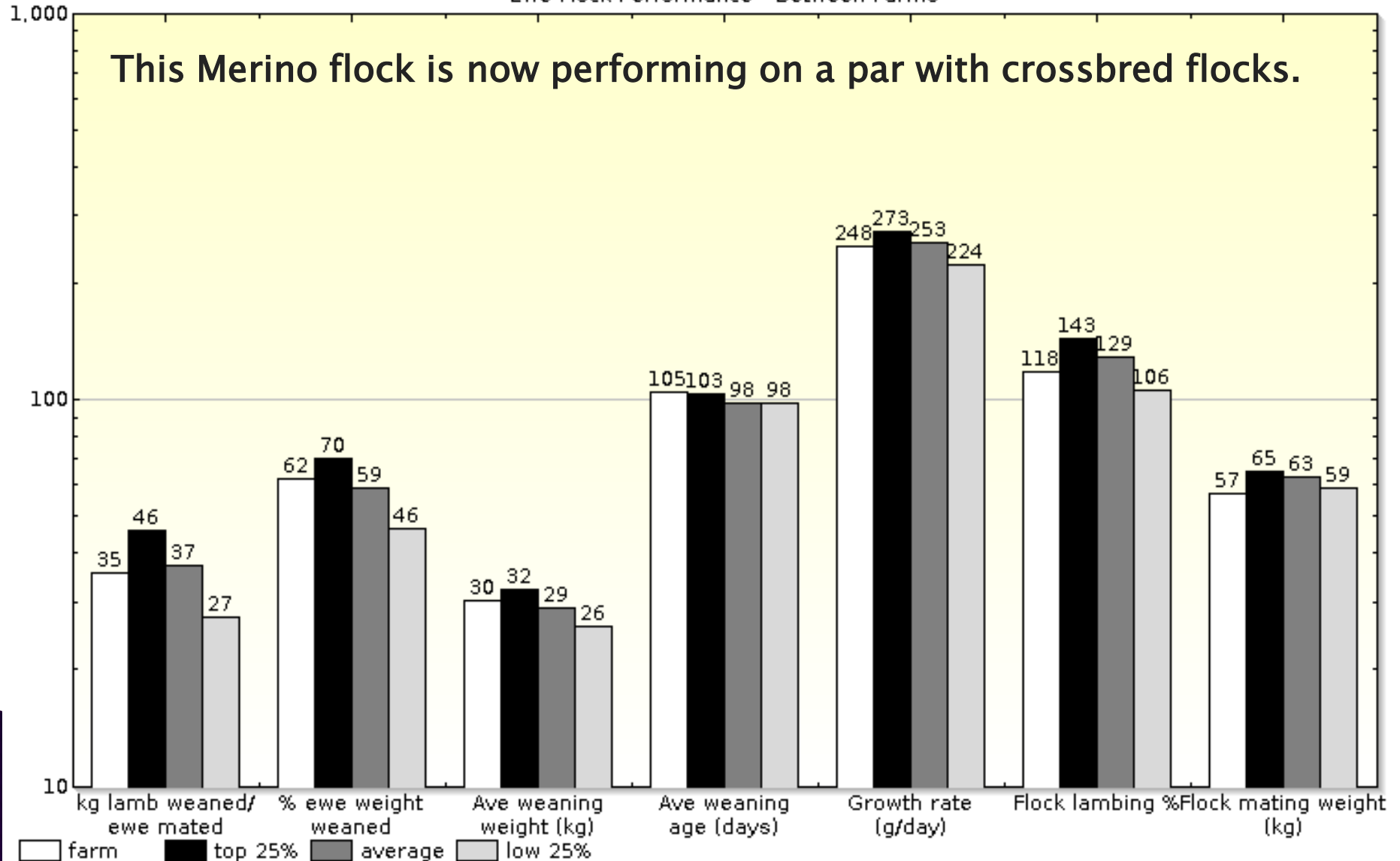
# Ewe Flock's energy demand



# Merino Flock

Ewe Flock Performance - Between Farms

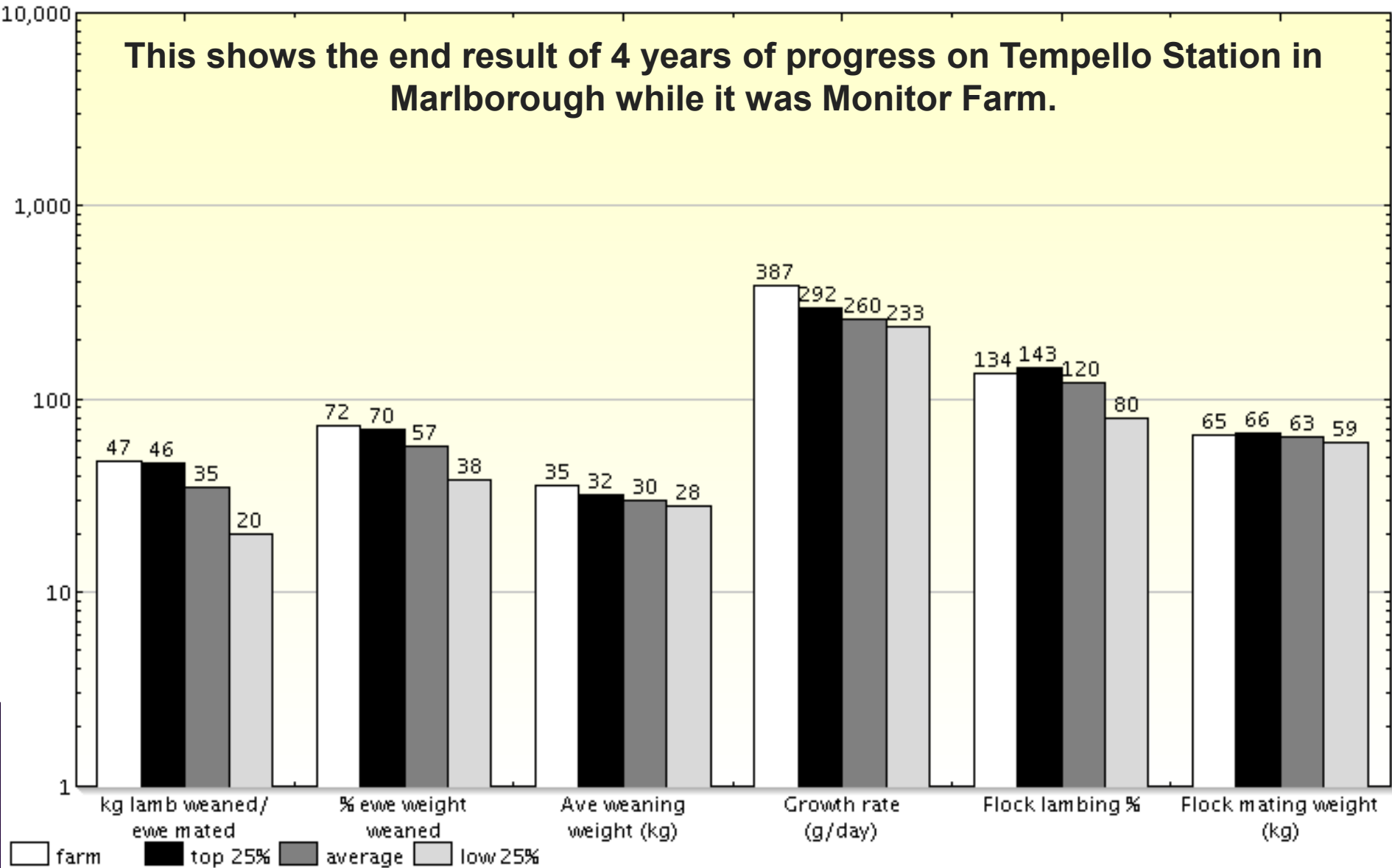
This Merino flock is now performing on a par with crossbred flocks.



# Ewe Flock Performance 2004 Compared with other Sheep For Profit (StockCARE) flocks

Ewe Flock Performance

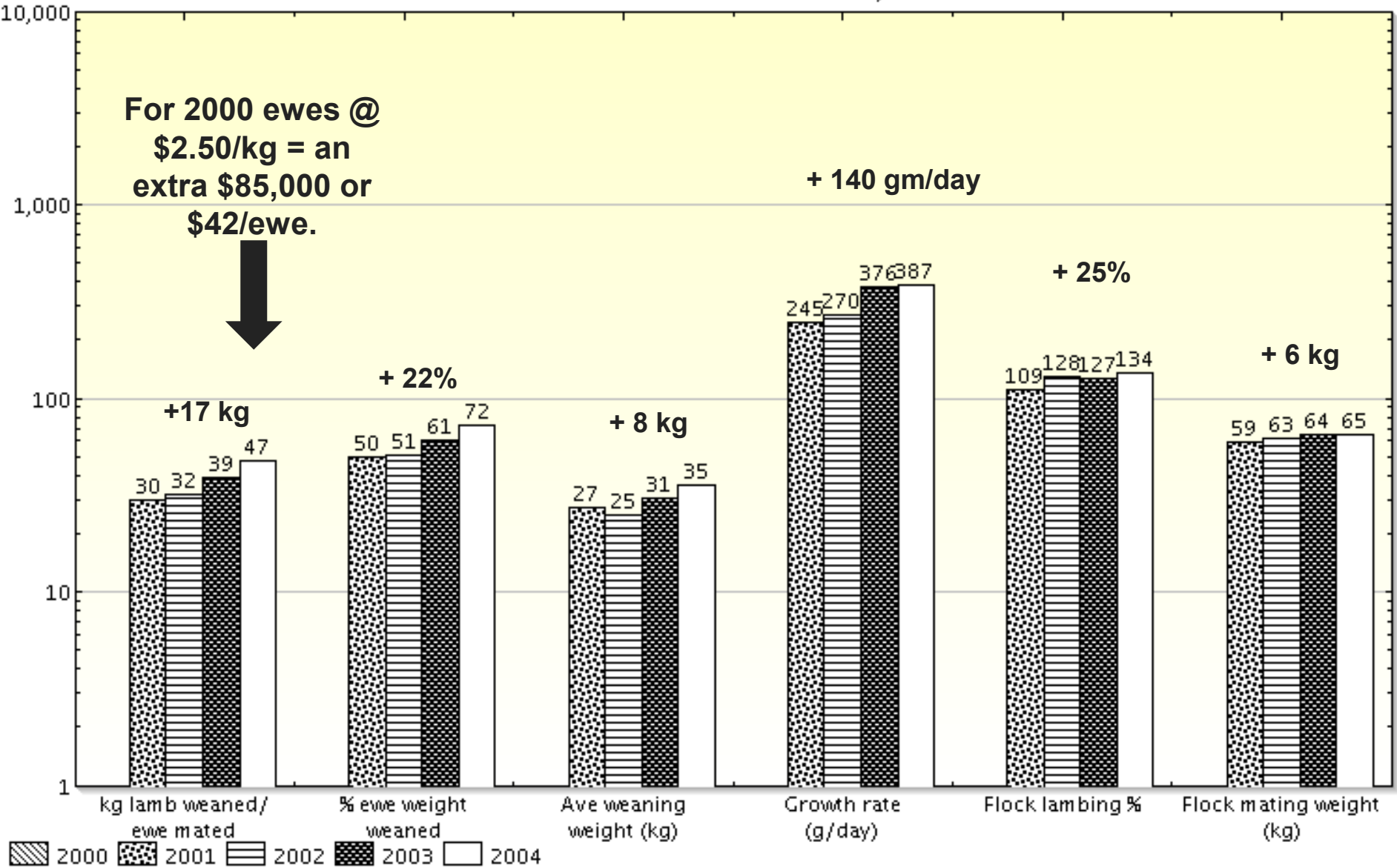
This shows the end result of 4 years of progress on Tempello Station in Marlborough while it was Monitor Farm.



# Ewe Flock Performance

Ewe Flock Performance History

For 2000 ewes @  
\$2.50/kg = an  
extra \$85,000 or  
\$42/ewe.



# Commentary...

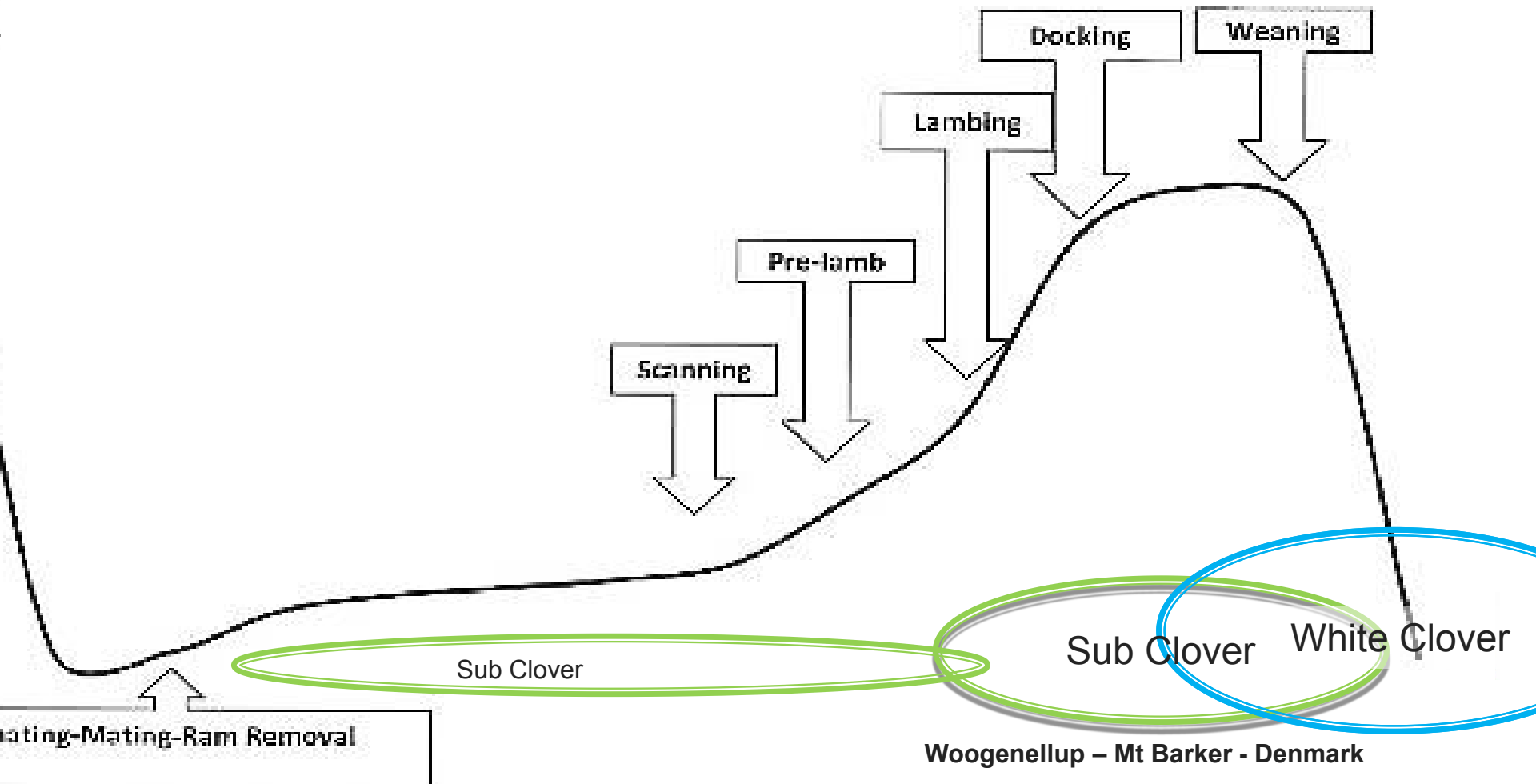
After 4 years of farming and developing an understanding of how to manage and make the most of subclover

- Lambing % lifted 25% through an increase in mating weight and scanning %
- Plus an increase in lamb growth rate of 140 gm/day

Meant that

- A heavier average weaning weight of 8 kg
- His ewes had now become highly efficient lifting their % wt weaned from 50% to 72%.
- And the kg lamb weaned/ewe mated lifted 17 kg from a below average 30 kg to a top 47 kg.

# Ewe Flock's energy demand



# Commentary...

On Tempello ewe flock performance was improved by:

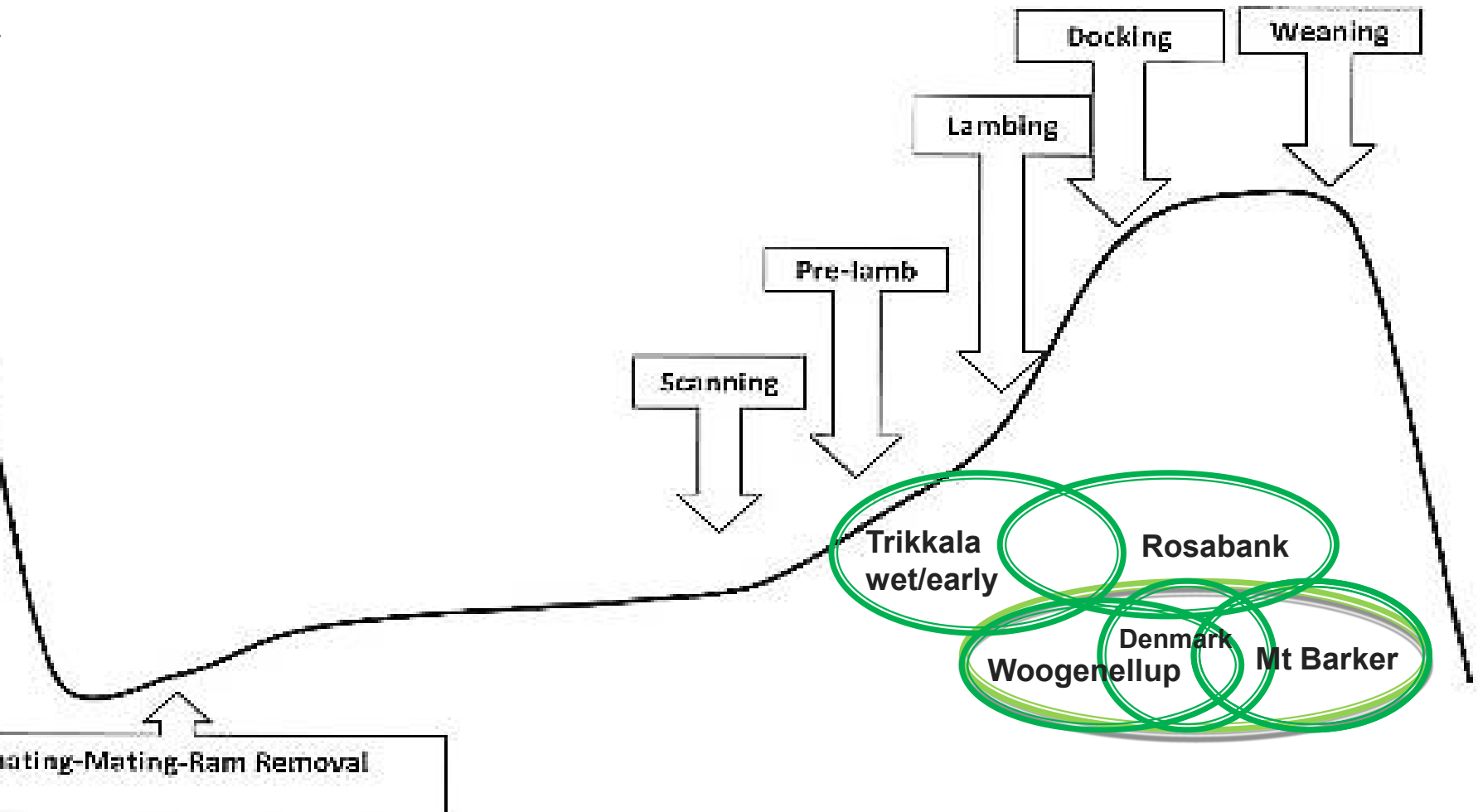
1. Lifting lambing % by ensuring ewe mating weights were achieved and some wt gain made over mating.

- *This was achieved more often than not with the use of high quality lucerne baleage in dry years. In one year it was red clover baleage.*
- *Monitoring of body weights and CSs important.*

2. Improving lamb growth rate.

- *This happened because of an understanding of the sub clover present on the property – Mount Barker and Woogenllup.*
- *Pasture management meant there was a good sub clover content there right on lamb drop, and mating management meant lambing did not take place before it was there.*

# Ewe Flock's energy demand

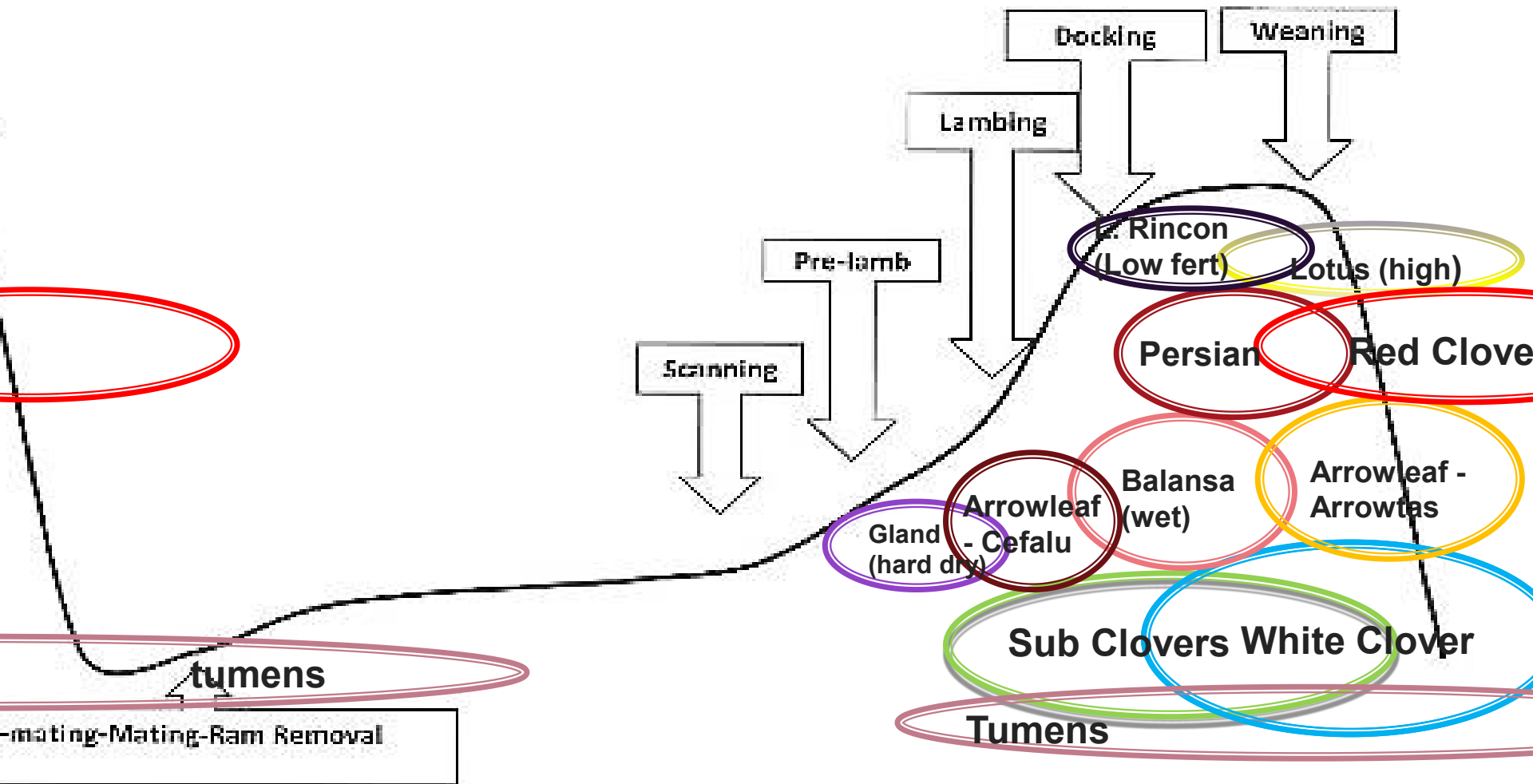




# Commentary...

- More legumes than just lucerne and red and white clover and sub clover.
- Sub clover fits beautifully into supplying the ewe flock's early energy demand from late pregnancy.
- Nurturing those sub clover species currently present in pastures and encouraging further establishment of them is the first priority.
- There are other varieties of sub available that may be better suited to some environments – e.g. *earlier or better adapted to wet or colder environments etc.*

# Ewe Flock's energy demand



# Commentary...

- Good range of other legumes, including top flowering annual legumes, perennial deep rooted varieties, lotuses etc. that may be well suited to some areas.
- Others may not be highly productive but could fill a niche not currently filled by other legumes.
  - e.g. *Gland clover* - early on dry ridges.
- Not about how much individual legume species can produce.

**Its about quality and when and where for individual species on each property.**