

Turning Pastures into Product

- for the long term

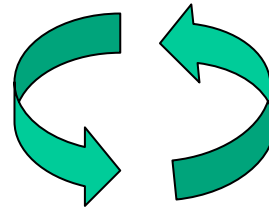
Cameron Allan

Manager, Pastures & Resource Management

MLA

- **Strategic aspects**

- Target market
- Feed supply
- Animal genetics
- Management calendar



- **Tactical aspects - Growing & Using pasture**

- Soil fertility; Grazing management; Species
- Matching feed supply and demand

- **Take the guess work out of grazing decisions**

The challenges for industry and individuals

INCREASE:

- PRODUCT
OUTPUT AND/OR
VALUE
- RISK CONTROL

DECREASE:

- RESOURCE USE
- ENVIRONMENTAL
IMPACT

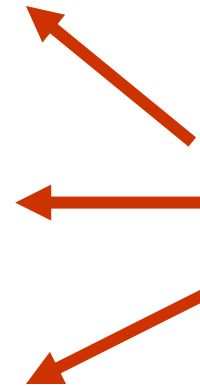
This is all about

RESOURCE USE EFFICIENCY

More precision in grazing decisions !

1) Pastures are key to Profitability (and increasing output)

$$\begin{aligned} &= \text{Number of Units} \\ &\quad \times \\ &\quad \text{Price received} \\ &\quad - \\ &\quad \text{Costs} \end{aligned}$$



Pasture
Production &
Utilisation
impact here

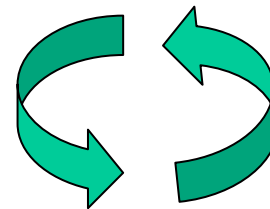
2) Pastures manage (natural) resources

- Salinity
- Soil erosion
- Nutrient loss
- Soil acidity

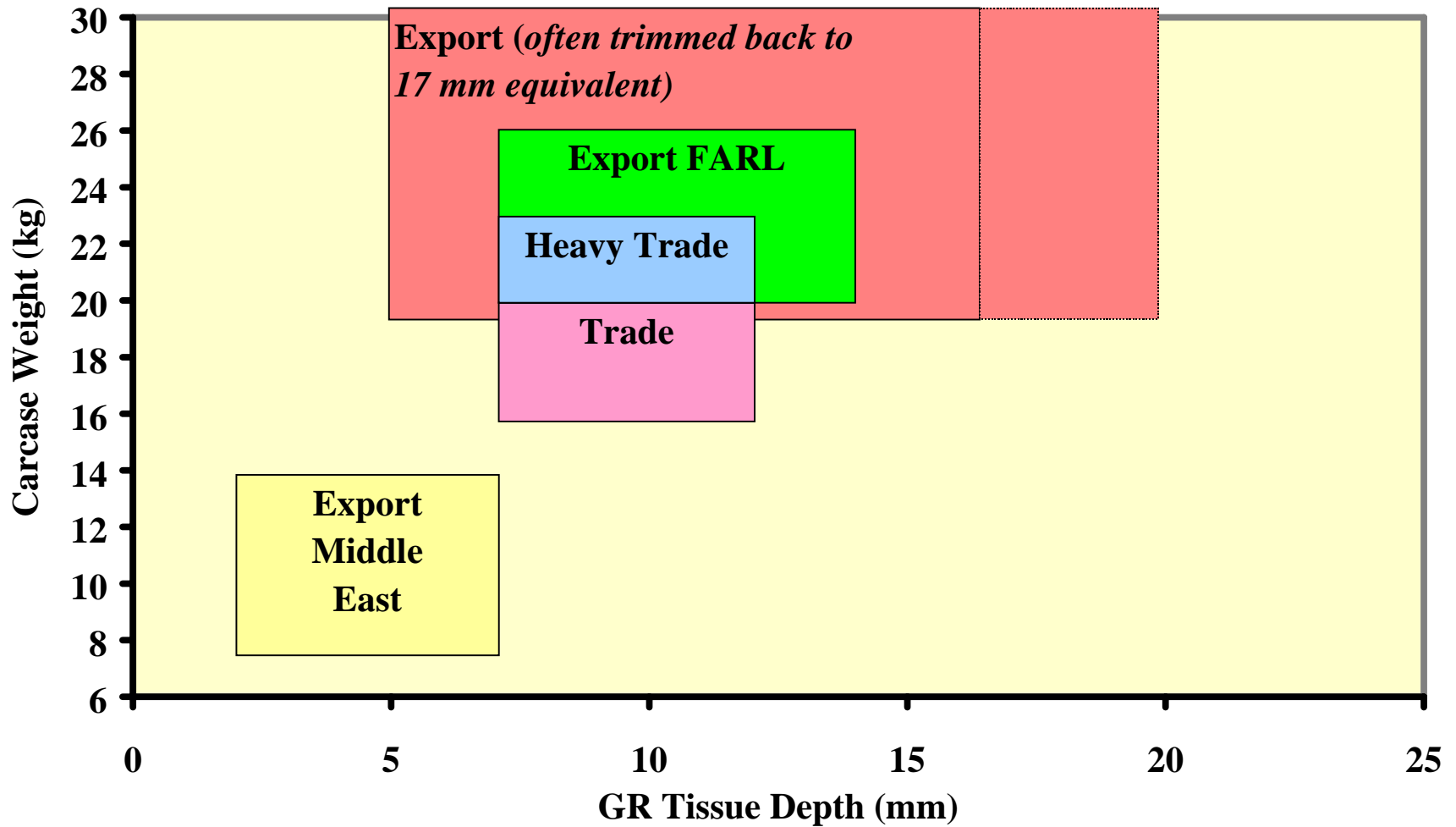
We need a pasture base that captures water, soil and nutrients

Firstly – strategic thinking !

- Strategic
 - What is my current animal demand ?
 - What is my current feed supply ?
 - How do I “bend” these curves ?
- You can modify:
 - target market
 - animal genetics
 - management calendar
 - feedbase



What is your target market ?



Best genetics (muscle, growth, fat); Best feeding

Pastures impact through the sheep production cycle

Pre-joining

Pregnancy

Lambing


Pre weaning

Finishing

Return to Joining

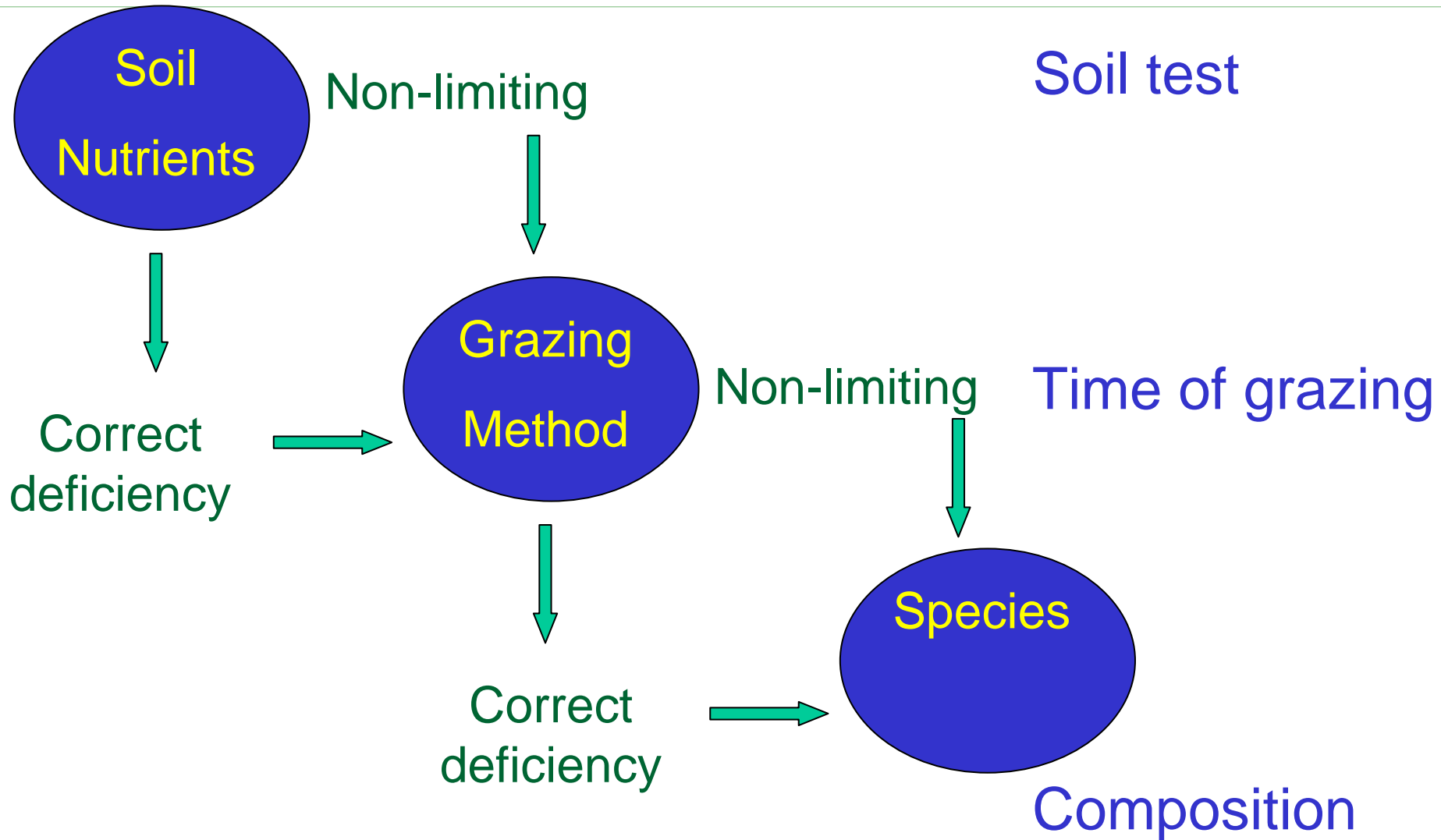


The right Quality & Quantity, when it is needed



But, What sort of feed is needed at each stage ?

Growing pastures - Checks



1) Grow pasture - Soil nutrients

1. **Where am I now?** *Standard soil test*
2. **Where do I need to go?** *Phosphorus Buffer Index (PBI)*
 - PBI - identifies “plant-available” P in soil.
 - Know your “critical” soil fertility level
 - more P will not result in further growth
 - determine pasture growth opportunity
 - Fertilise to that level, then revert to “maintenance”
3. **How many extra animals will I be able to carry?**
4. **Will the investment make a decent \$-return?**

Five easy

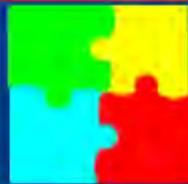
to ensure you are making

DEPARTMENT OF
PRIMARY INDUSTRIES

Farm Nutrient Loss Index

Fact Sheet

An output of the Landscape Systems platform



What is the Farm Nutrient Loss Index?

The Farm Nutrient Loss Index (FNLI) is a computer-based tool that predicts the relative risk of nitrogen or phosphorus loss to the environment from different paddocks on the farm.

Farm nutrients can reach waterways and the atmosphere through surface runoff, subsurface drainage and via gaseous nitrous oxide emission. This can cause water quality problems, add to greenhouse gases and also reduce farm nutrient use efficiency.

Greenhouse gas emission loss

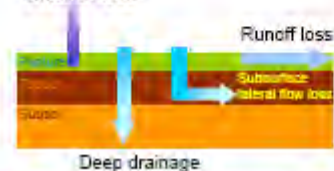


Figure 1. Nutrients can move from grazed paddocks along different pathways.

What is the purpose of the FNLI?

The FNLI is designed as a learning tool for use by farm advisors in conjunction with dairy, sheep and beef farmers to get a better understanding of how nutrients move off farms.

The risk of nutrient loss is affected by a combination of land features, weather, and nutrient and pasture management practices. Considering where and how nutrients may be lost from the farm can be important when deciding how to manage all types of nutrients including fertilisers, supplementary feed, dung and urine.

Farm Nutrient Loss Index

Function Exit



Land Features

More Info

Slope	<input type="text" value="Gentle 1 - 5 %"/>	?
Dominant land shape	<input type="text" value="Flat < 1 % slope"/>	?
Waterlogged area (%)	<input type="text" value="1 - 10%"/>	?
Runoff modifying features	<input type="text" value="Net runoff acceleration"/>	?
Proximity to nearest receiving waterway (m)	<input type="text" value="60"/> <input type="text" value="0"/> <input type="text" value="300+"/>	?
Soil profile type	<input type="text" value="High infiltration and drainage"/>	?
Ground water	<input type="text" value="< 1.5 m"/>	?
Topsoil P fixation (P Buffering Index)	<input type="text" value="35 - 140"/>	?

Back

Next

Status

1 Farm Info **2** Land features **3** Nutrient **4** Pasture **5** Report

2) Grow pasture -Grazing

EverGraze
More livestock from perennials

- More perennials
- Better livestock
- Healthier catchments

Good to High
: Good to

Yield: High
Quality: Low

Chicory is a champion in

tips & tools
FEEDBASE AND PASTURES

Grazing management for productive native pastures

Native grasses produce significant quantities of wool and meat in the temperate high rainfall zones of Australia. With careful grazing management, they can be persistent and provide a valuable feed supply.

Key benefits

- Using seasonal tactics can improve native pastures.
- A preferred balance of plant types can be achieved

low growth due
shading of
rowth points

tips & tools
FEEDBASE AND PASTURES

Grazing management for mixed perennial-based pastures

A perennial based pasture usually contains a mixture of desirable and less desirable species. Achieving a balance through grazing management is vital to pasture productivity and sustainability.

Tactics

The following tactics can be used to manipulate pasture towards the ideal balance. Some tactics may need to be implemented for only one season while others will require a longer commitment.

Late summer/autumn

Key benefits

- By varying your grazing management tactics by season you can manipulate pasture towards a preferred plant-type balance.
- Managing different plant species can improve productivity and persistence.

Increase perennial grasses by seedling recruitment in targeted paddocks – defer grazing for eight weeks

tips & tools
NATURAL RESOURCE MANAGEMENT

Intensive rotational grazing

Intensive rotational grazing systems involve livestock being moved frequently through a large number of paddocks, based on either a fixed time rotation or pasture growth.

Key benefits

- Implementing rotational grazing based on pasture growth can maximise pasture and animal productivity.

- **Set stocking**

- Easy
- Decline in perennials
- Maximise intake
 - Lambing
 - Growing stock
 - Selective grazing

- **Rotational Grazing**

- Graze then rest
- Plant recovery
- Controlled (how long and hard)
 - Control intake
 - Paddock management
 - Supports persistence
 - Higher stock density

Combine grazing methods, to achieve goals:

-but first, define what you want to achieve

- think “per ha” production

3) Grow pasture – species



Pastures Australia - New South Wales and ACT - Windows Internet Explorer

http://www.pasturepicker.com.au/NSW_Murrumbidgee.htm

Edit View Favorites Tools Help

Pastures Australia - New South Wales and ACT



Test different scenarios, for options:
- More of less fertile ?
- Higher or lower pH ?

Features Available: 11

- New South Wales & ACT (NSW & ACT)
- Regions (NRM): New South Wales & ACT
 - 550 Rainfall average for southern NSW: range (mm)
- Soil texture
 - deep sand
 - sand;sandy loam
 - loam;clay loam
 - clay
- Soil pH (pH water:pH Ca)
 - strongly acidic (pH water: less than 5.0) (pH Ca: less than 4.5)
 - acidic (pH water: 5.0 - 6.5) (pH Ca: 4.5 - 5.5)

Features Chosen: 5

Entities Remaining: 46

- African lovegrass (*Eragrostis curvula*)
- Annual forage sorghum (*Sorghum*)
- Arrowleaf clover (*Trifolium vesiculosum*)
- Balansa clover (*Trifolium michelianum*)
- Berseem clover (*Trifolium alexandrinum*)
- Biserrula (*Biserrula pelecinus*)
- Bladder clover (*Trifolium spumosum*)
- Caucasian clover (*Trifolium ambiguum*)
- Chicory (*Cichorium intybus*)
- Cocksfoot (*Dactylis glomerata*)
- Common vetch (*Vicia sativa*)

Entities Discarded: 82

State/Territory

- Regions (NRM): New South Wales & ACT
 - 550 Rainfall average for southern NSW: range (mm)
- Soil pH (pH water:pH Ca)
- Soil texture

- Aleman grass (*Echinochloa polystachya*)
- Alsike clover (*Trifolium hybridum*)
- American jointvetch (*Aeschynomene americana*)
- Angleton grass (*Dichanthium aristatum*)
- Bambatsi panic (*Panicum coloratum*)
- Blue lupin (*Lupinus consentinii*)
- Bokhara clover (*Melilotus albus*)

Test the cost, with different scenarios



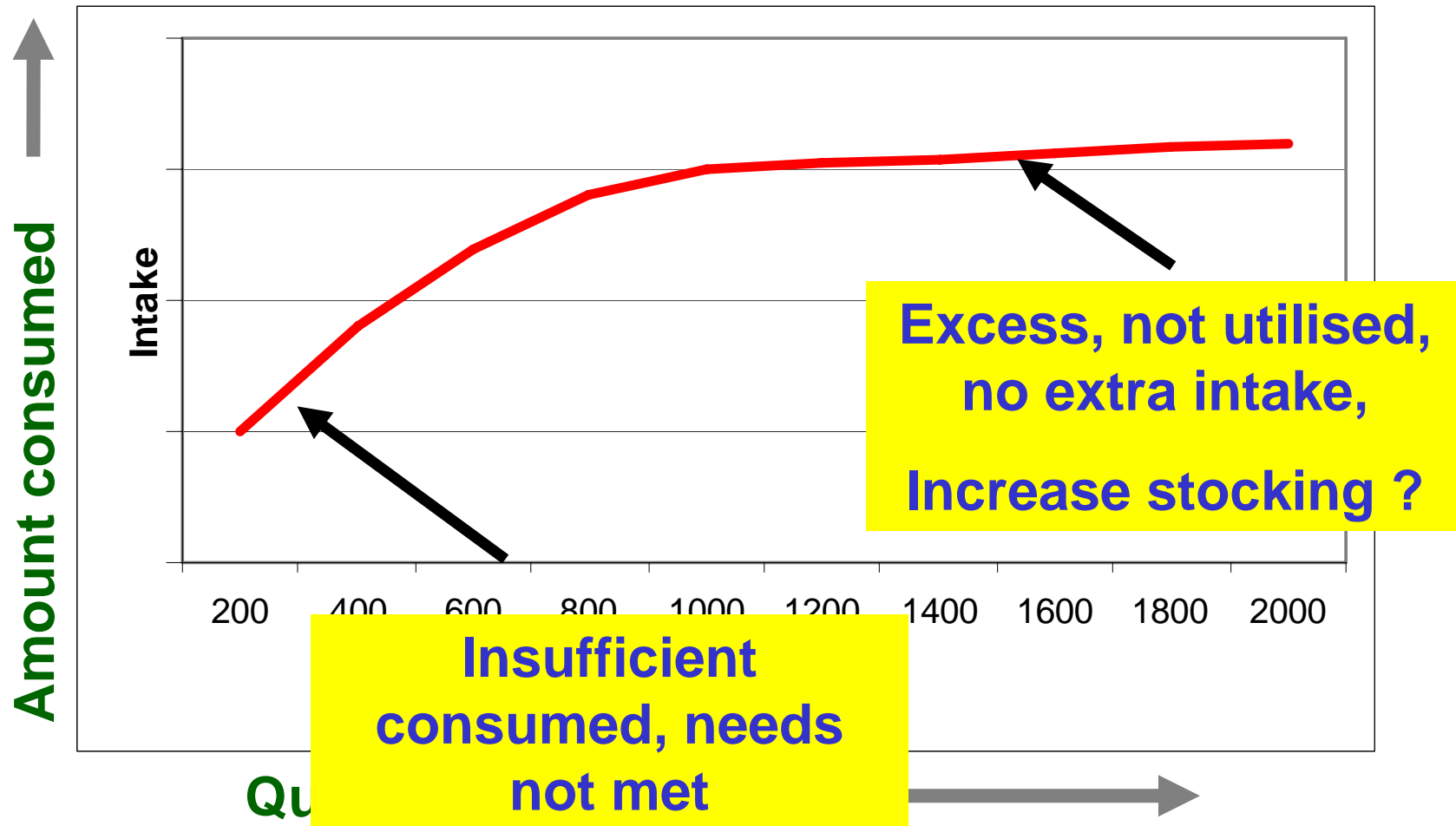
www.evergraze.com.au

Test different scenarios, for options:

- Change in area ?
- Change in seed cost ?

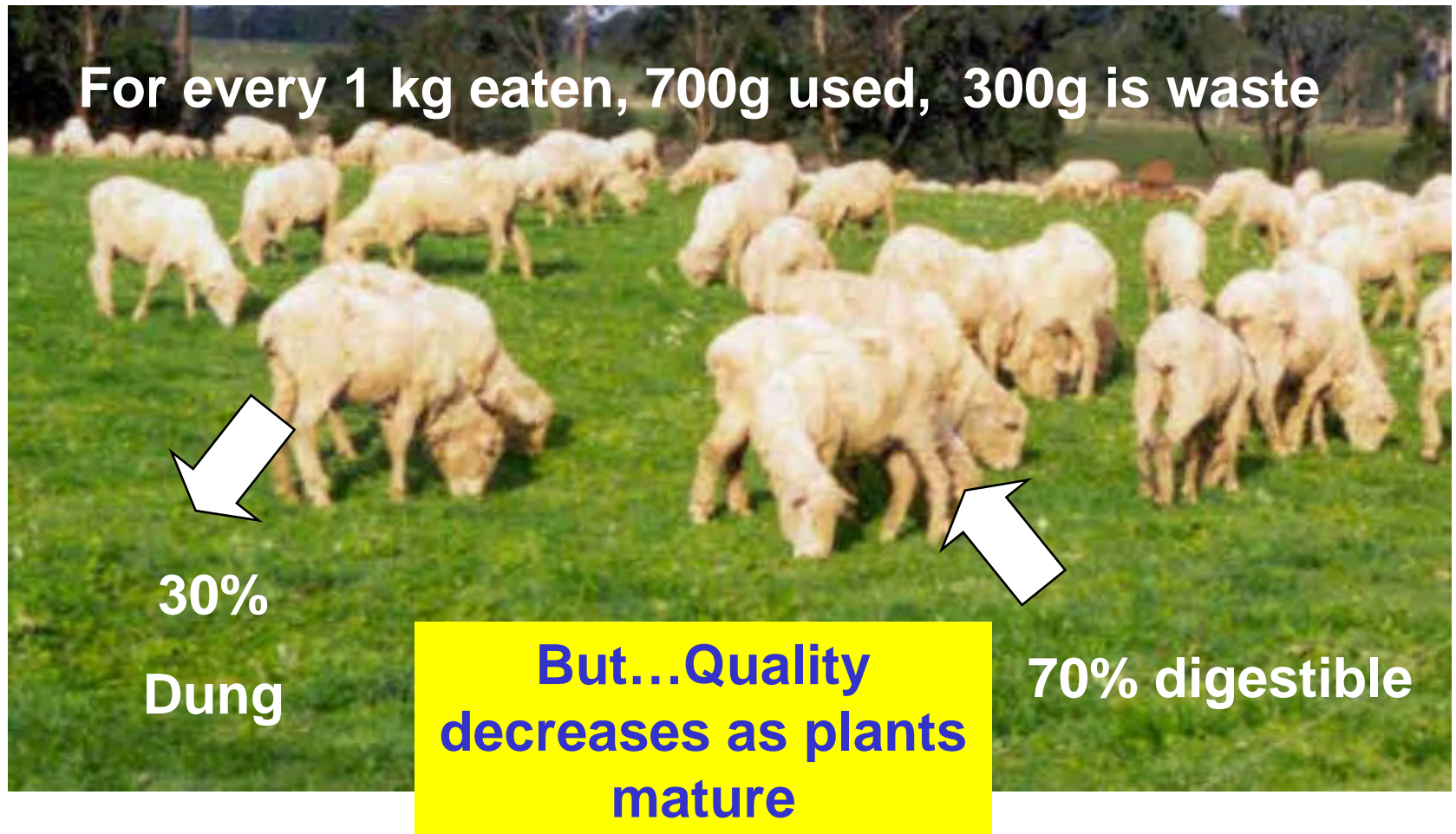
	A	B	C	D	E	F	G	H	I	J	
5	Pasture Establishment Costs										
6											
7	Paddock Development (incl. fencing, levelling)										
8											
9	Cultivation										
10	Type										
11											
12											
13				1	passes	\$50	per Ha	\$50			
14									\$290		
15	Lime/Gypsum Application										
16				0.5	T/ha @	\$45.00	per tonne	\$23			
17	lime				T/ha @	\$30.00	per tonne	\$0			
18	Cartage and Spreading (if not already included)										
19									\$0		
20	Seed										
21	ryegrass		8.0	kg/ha @	\$7.50	per kg	\$60				
22	sub clover		5.0	kg/ha @	\$8.00	per kg	\$40				
23	white clover		0.5	kg/ha @	\$8.00	per kg	\$4				
24				kg/ha @		per kg	\$0				
25				kg/ha @		per kg	\$0				
26				kg/ha @		per kg	\$0				
27	Contract sowing										
28									\$60		
29	Fertiliser										
30	DAP		60	kg/ha @	\$0.80	per kg	\$48				
31				kg/ha @		per kg	\$0				
32				kg/ha @		per kg	\$0				
33	Cartage & Spreading (if not already incl.)										
									\$0		

1) Using pasture - *Quantity* impacts on '*Amount consumed*'



2) Using pasture

Quality (digestibility) feed USED by the animal



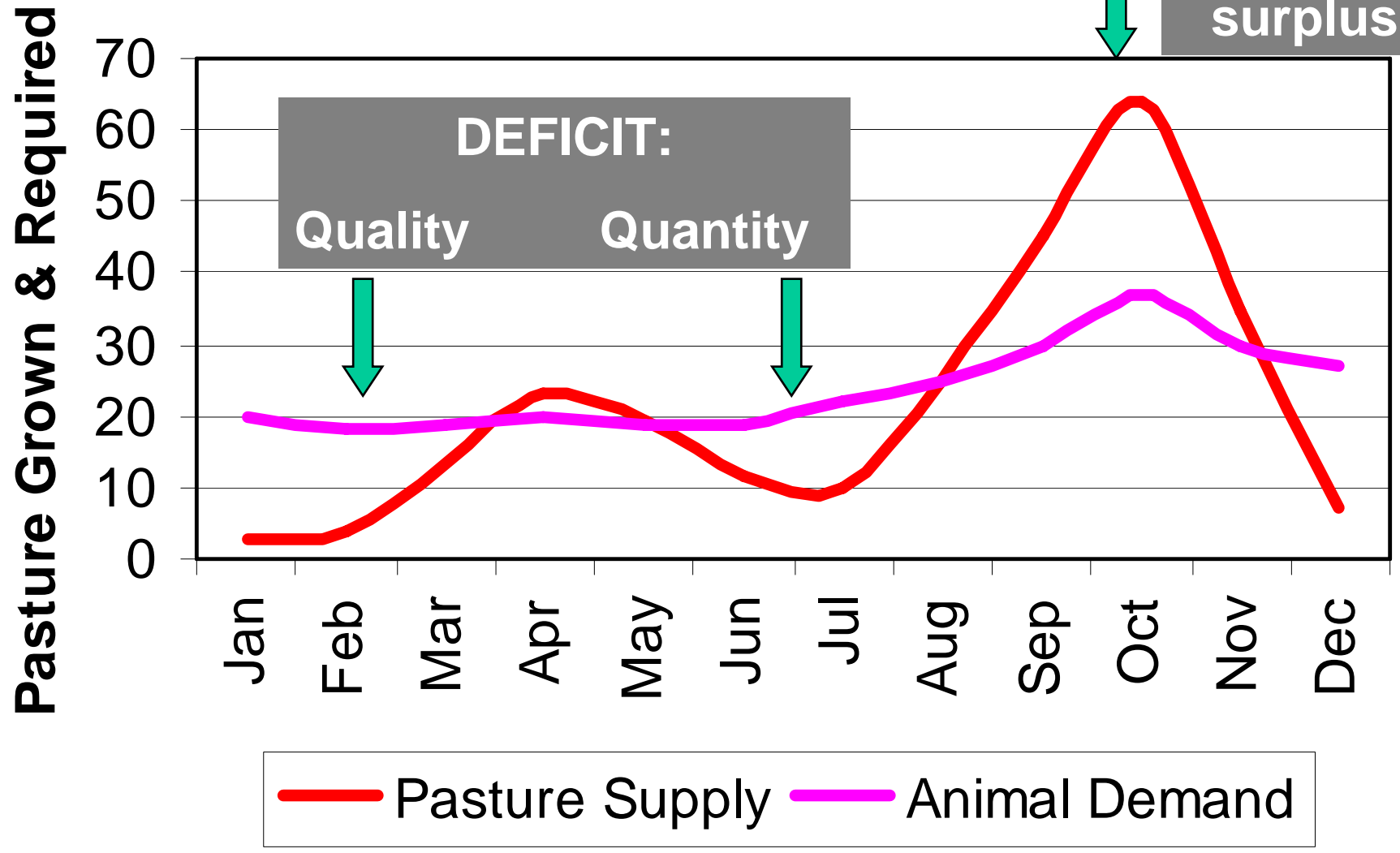
Benchmarks to ensure sheep requirements are met

	Pasture digestibility		
	75%	68%	60%
Dry sheep	400	600	1200
Pregnant ewes			
- mid	500	700	1700
- last month	700	1200	ns
Growing sheep			
75 g/day	400	700	1700
125 g/day	600	1000	ns
175 g/day	800	1700	ns
225 g/day	1600	ns	ns

**More
precision
in grazing
decisions**

**Pasture assessment skills – to meet production goals
.....same idea as condition scoring**

Challenges with changing Quality and Quantity

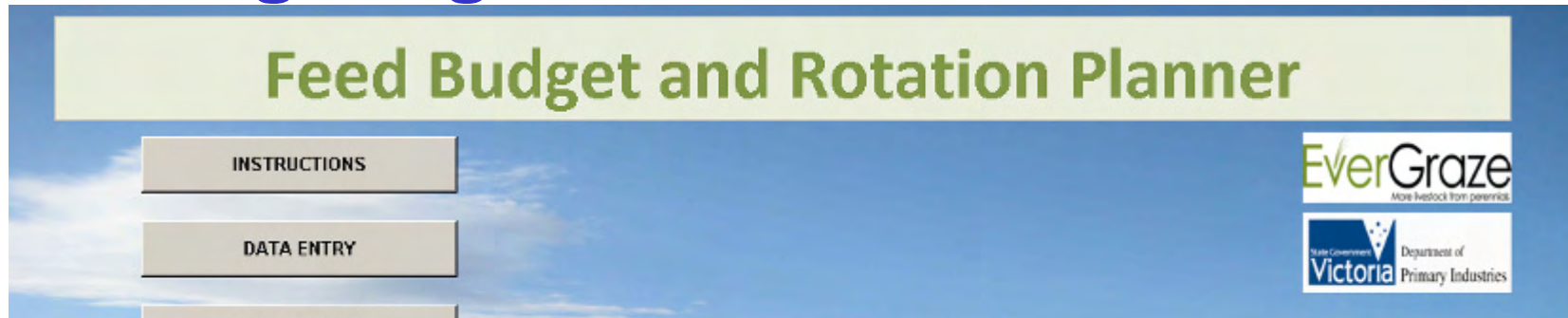


Supply and Demand

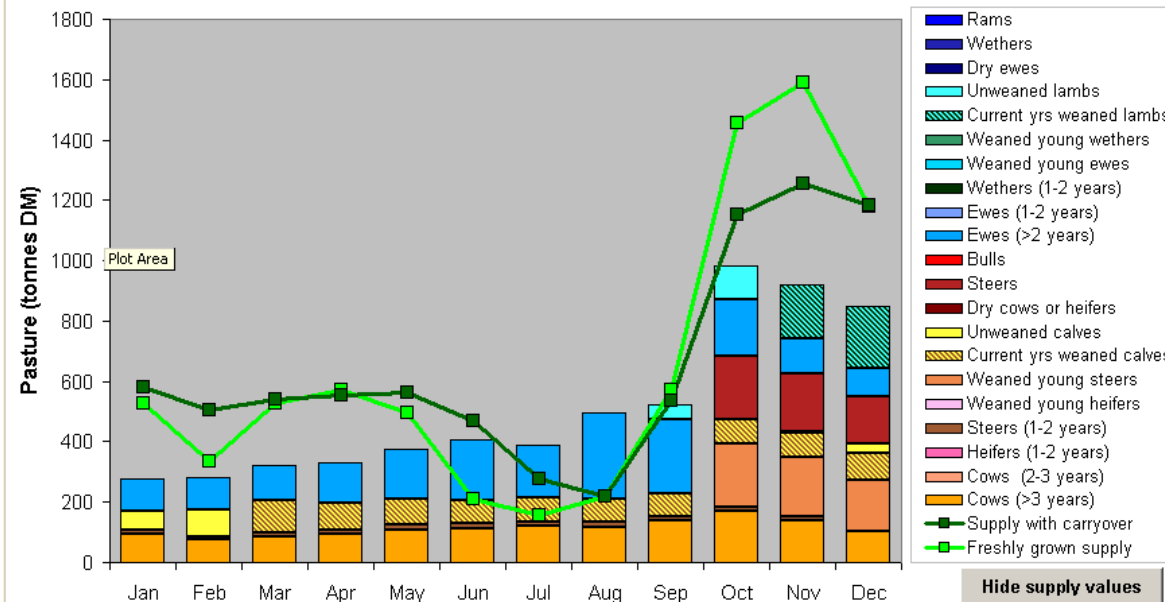
- Balancing a Cheque book – income & expenditure
 - (Available pasture + Growth) less
 - Livestock needs (intake x number)
- Answers:
 - Strategic – enterprise set up, long term decisions
 - Tactical
 - How long will a paddock last ?
 - How many livestock for this paddock?

Planning tools to help decisions:

- Grazing planning
- Feed budgeting



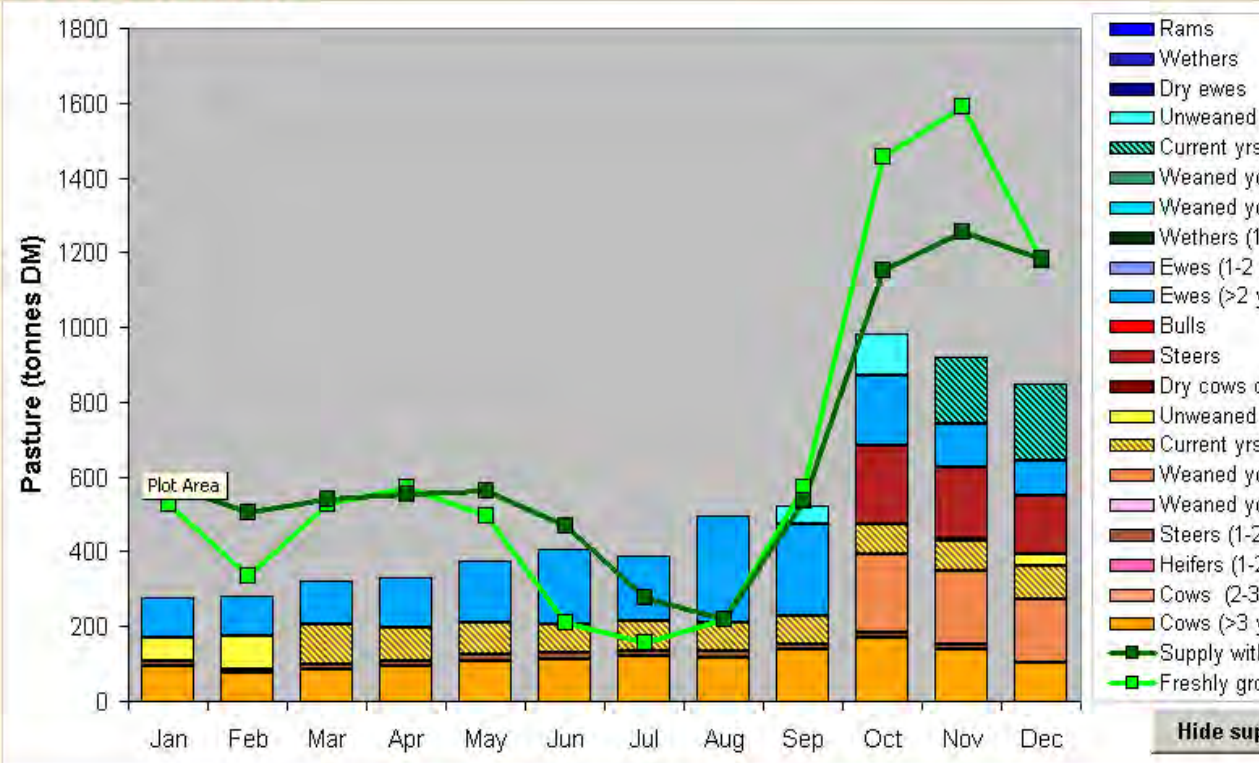
Feed demand



Key Performance Indicators

Pasture deficit, using freshly grown supply **713** tonnes/year

Feed demand



MLA's feed demand calculator can assist thinking

- "bending" Supply or Demand curve
- Options to address Deficit or Surplus

What if sow some more lucerne ?

What if I purchase 100 steers ?

What if I sell earlier ?

Feed budgeting assists !

Points to recall:

GROW IT & USE IT

- Define what you want to achieve
 - Right plants, right place, right inputs – Farm Plan
 - Quantity & Quality – *when needed*
 - More precision in grazing decisions
 - Feed budget - Match supply & demand
 - Tools are available to assist decisions
 - Explore options

**MORE ANIMAL
PRODUCT – for
the long term**



Take home messages:

- Turning pastures to production

- Strategic review
 - Consider the feed “supply” & current “demand curve”
 - Options to change each curve
 - Grow & Use more pasture
 - Management calendar
 - Change animal genetics & target market
 - Focus decisions – animal, pasture & land goals
 - Seek high “resource use efficiency”
- Tactical
 - Pasture (& animal) assessment
 - Feed budgeting – match supply and demand
 - Monitoring, to inform strategic thinking

