

PASTURE DEVELOPMENT & SOPHISTICATION

RLLS PASTURE UPDATE
MARCH 2021 – WAGGA WAGGA

INNOVATION



TECHNOLOGY

EFFICIENCY

AGRICULTURE

“Its supposed to be hard.
If it wasn't, everyone would do it.
The hard is what makes it great”

J Dugen

ROLLING IN CLOVER, SPRING 2015

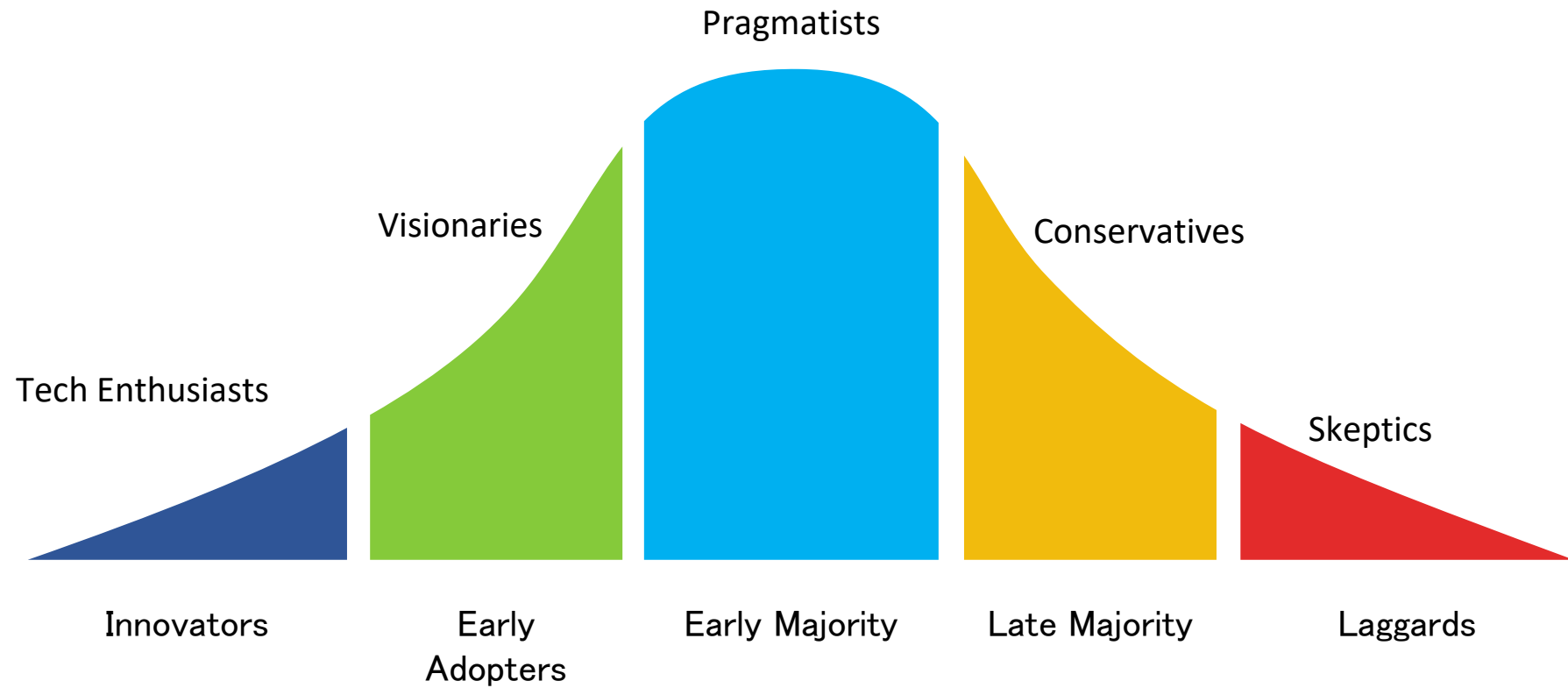




KEY WORDS

- DRY TIME MANAGEMENT not DROUGHT
- GROWING SEASON RAIN (GSR)
- SOIL MOISTURE RETENTION carbon/organic matter
- SECURE WATER quality
- RISK ADVERSE – business stability
- TIME POOR
- MENTAL BALANCE
- WEATHER PATTERNS, NOT FORECASTS

Product Adoption Curve

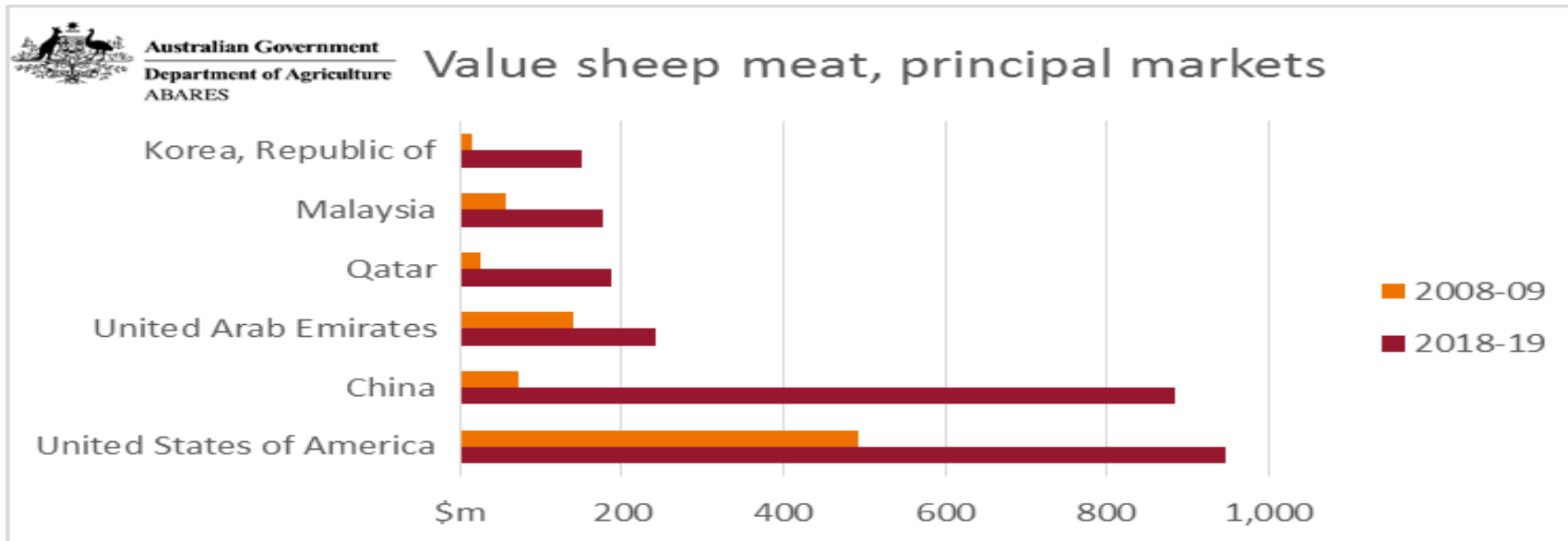
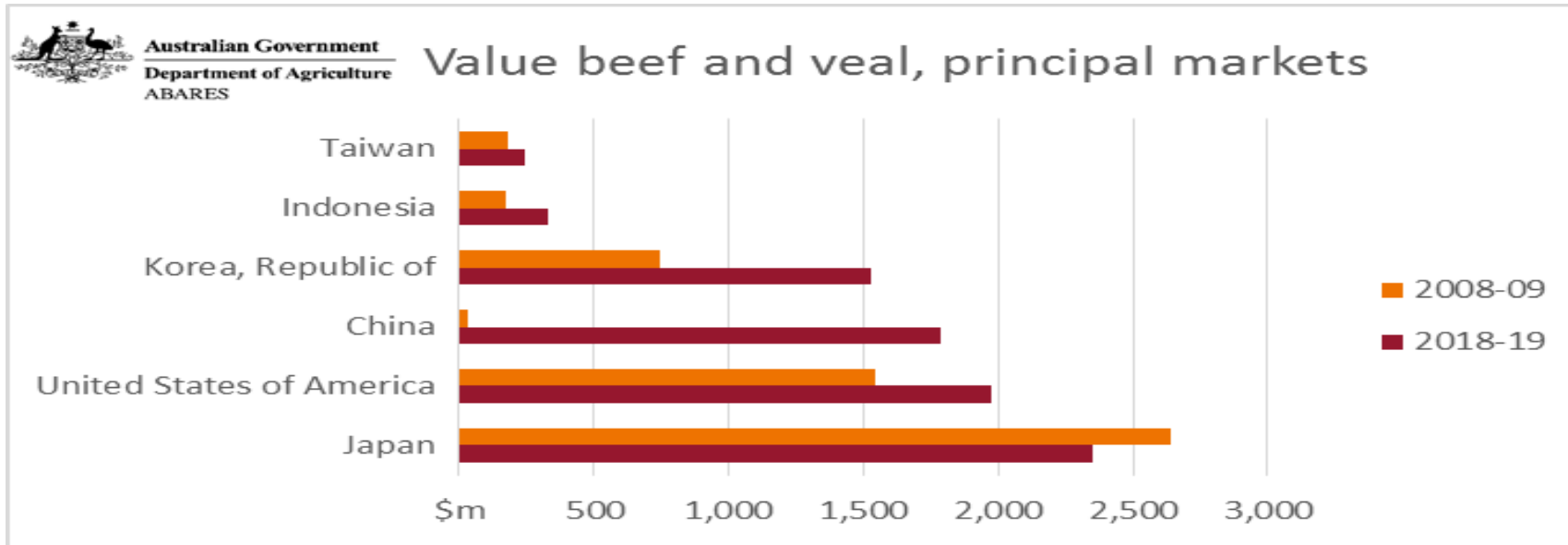


Top 6 countries with the most population

- WORLD POPULATION: 7,794,798,739

| <u>Country</u> | <u>Population</u> |
|----------------|-------------------|
| 1. CHINA | 1,439,323,776 |
| 2. INDIA | 1,380,004,385 |
| 3. USA | 331,000,000 |
| 4. INDONESIA | 273,523,615 |
| 5. BRAZIL | 211,420,000 |
| 6. PAKISTAN | 220,892,340 |

\$ VALUE OF RED MEAT - MLA

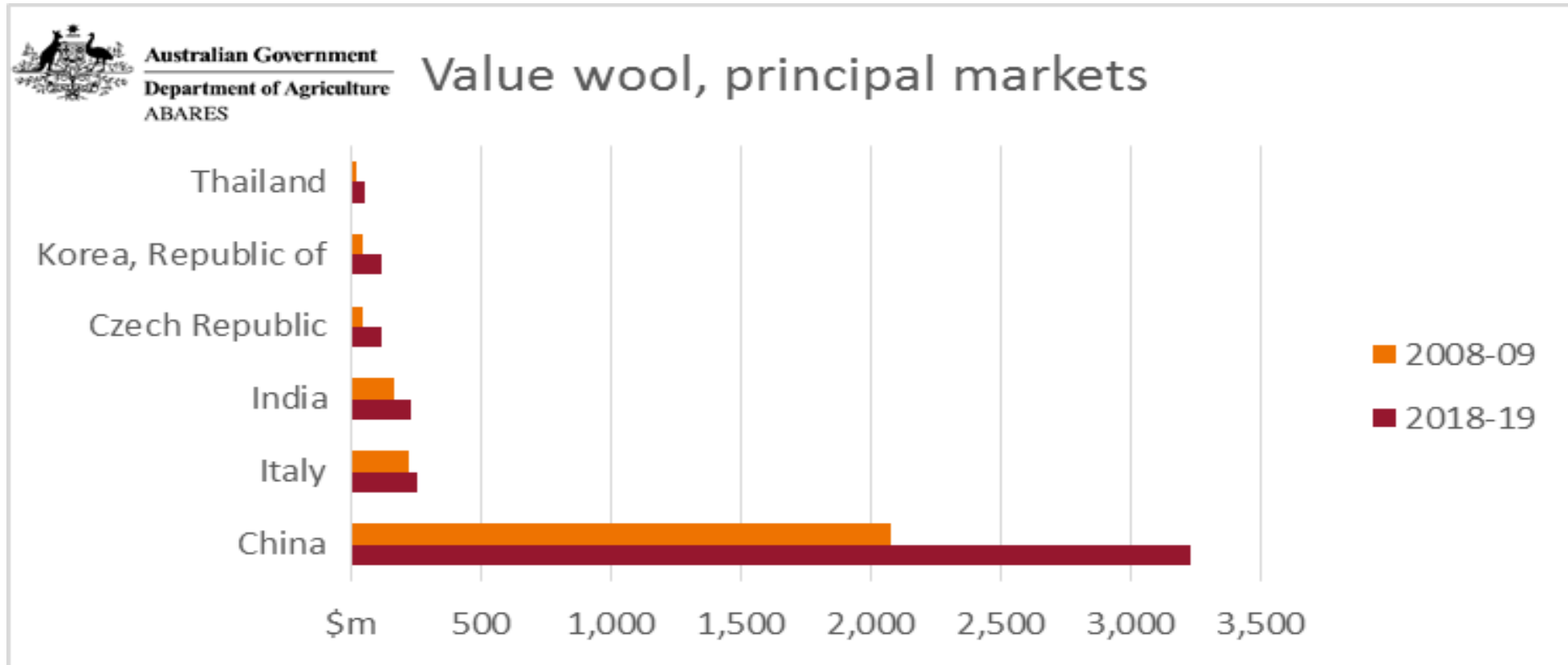


\$ VALUE OF RED MEAT - MLA

| Value beef and veal, principal markets | | | Quantity beef and veal, principal markets | | | | | | |
|--|---------|---------|---|---------|---------|--|--|--|--|
| \$m | 2008-09 | 2018-19 | kt | 2008-09 | 2018-19 | | | | |
| Taiwan | 183 | 246 | Taiwan | 31 | 30 | | | | |
| Indonesia | 175 | 329 | Indonesia | 39 | 71 | | | | |
| Korea, Republic of | 747 | 1531 | Korea, Republic of | 127 | 189 | | | | |
| China | 29 | 1784 | China | 5 | 228 | | | | |
| United States | 1546 | 1973 | United States | 284 | 241 | | | | |
| Japan | 2638 | 2352 | Japan | 369 | 303 | | | | |

Source: Australian Bureau Statistics, Information Consultancy Services, 2007, Australia, cat. No. 9920.0, Canberra

\$ VALUE OF WOOL — Source ABARES



CHANGING FACE OF EFFECTIVE AGRONOMY

- WORKING WITH PRODUCERS – varying age/expectations
- MINDSET CHANGE * NOW
 - PROFITABLE
 - SUSTAINABLE
- * PAST
 - MAXIMUM

ADVENT OF CHANGE – 80'S

- Low stocking rates – Fog grass
- Positive seasons
- Roundup herbicide
- Paterson's curse /thistle control
- Soil testing – focus on phosphorus
- Direct drilling
- Tetraploid ryegrass/grazing protocols
- RLEM
- SALINITY



90's

- Understanding of soils – liming/acidity
- Government withdrawal from advisory
- LAND CARE
- TOP CROP groups
- Herbicide resistance
- Simazine/MCPA
- Direct Drilling expansion
- 30% - 300% pasture productivity increase
- LAND VALUES
- BIOLOGICAL CONTROLS – Paterson's curse/Blackberry

2000 - 2020

- Extended dry/drought periods
- Machinery sophistication



2000 – 2020 cont

- Feedlot specification/weight not condition
- Containment areas
- MSA compliance/records
- Grazing crops – winter habit canola + grazing cereals
- Plant breeding intensity/farmer feedback

2000 – 2020 cont

- Environment fitness
- RLEM resistant sub clover
- Long life inoculants
- Herbicide specifics – Spinnaker
- Record keeping!!!/audits – time poor!
- Aerial agriculture – herbicide
fertiliser
lime



MATRIX FARMING

Practical 3 year property plan revolving around maximizing livestock nutrition, programmed pasture/crop development, weed control relative to landscape, pasture and seasonal considerations.

It is a simple but effective mechanism of protecting pasture and gaining greater longevity from them.

All methodologies of grazing are embraced.

MATRIX FARMING cont

- Balancing and understanding both native/introduced species
- Understanding aspect production variance
- Subdivision to align with aspect / soil type / water availability
- Observation of pasture species thresholds in regard to livestock requirements/grazing intensity.
- Accepting that pastures are complex and dynamic when compared to cropping systems
- Feral animal acceptance

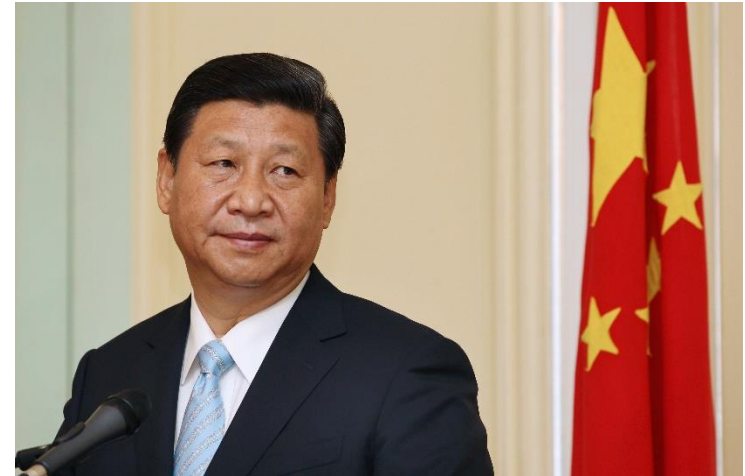
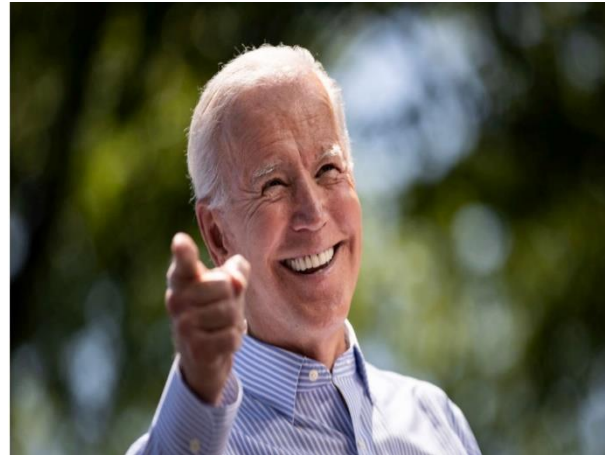
Pastures have no value unless consumed by an animal

CLIMATE CHANGE

- Drought/floods
- Historical Records
- Science
- Plant breeding for resilience
- Risk/reward
- MEDIA hype
- MEDIA sources
- FARM SMARTER- representational bodies

2020 onward

- Drought recovery – containment/on farm feedlots/mixer wagons
- AFRICAN SWINE FEVER
- Record livestock and Land prices
- Political unrest



- COVID 19 IMPACTS

BASICS – only “3 in 10 years” provide significant income to assure business profitability.

- Do you know your soil type/chemistry?

- SOIL TESTING – 20%

- ANALYSIS/Recommendation

- P/S/N/K

- pH

- ORGANIC MATTER% CARBON%

- Biological assessment

- Dr E Ingham

- Soil food web

- Do you understand your landscape?
 - Acidification – flat/hills
 - Water harvest & quality
 - Livestock grazing habits
- Do you understand your enterprise key drivers - stocking rate/genetics
 - nutritional requirements
- Planning your feed year – MATRIX FARMING
 - Winter fodder crops
 - Winter roughage
 - Mineral supplements
 - Native pastures
 - Fodder stocks

DROUGHT preparedness

➤ Working “smarter not harder”

“Plan to invest in 5-7 days per year in personal development”

➤ Planning your financial outcome

➤ Succession

➤ Holiday – your time/family time

PASTURE BREAKTHROUGH

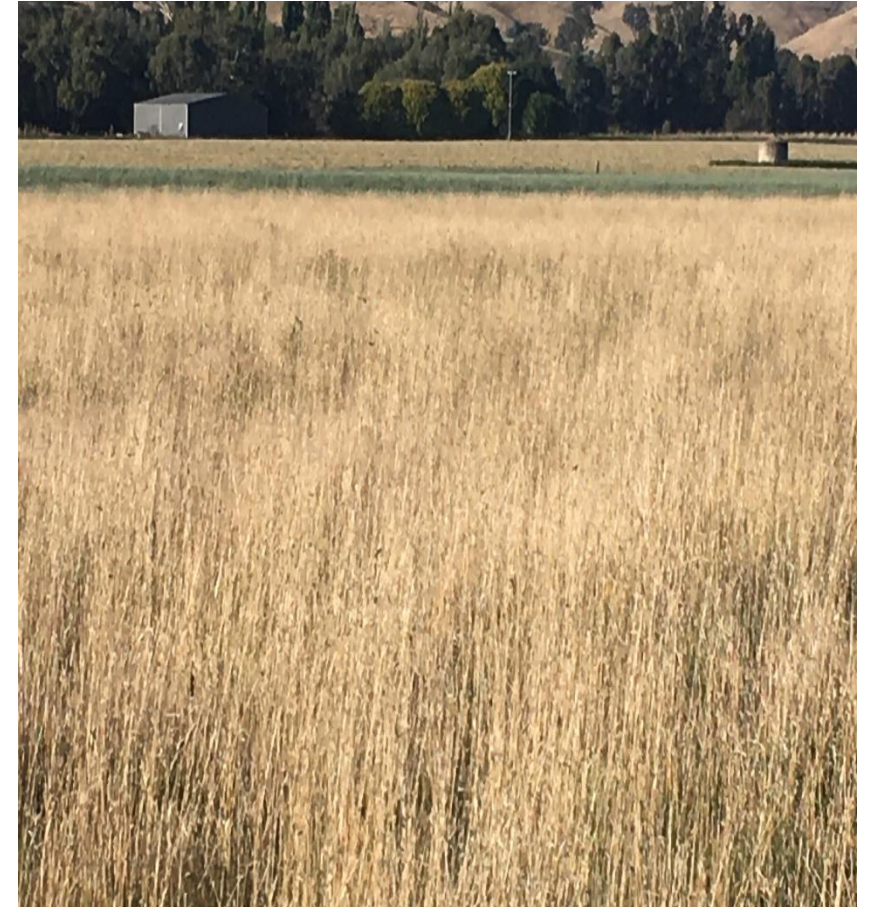
1) ESTABLISHMENT

- HERBICIDE – DIRECT DRILLING
- PROPERTY PLANNING
- FEED REQUIREMENTS
- LIVESTOCK ENTERPRISE
- SPECIES SELECTION – LONG/SHORT TERM

TETRAPLOID RYEGRASS technology southern
NSW/VICTORIA

“ The new spring is winter”

- PERENNIAL PASTURE – WINTER ACTIVITY
 - 1 IN 5 YEAR SPRING REST



BREEDING SPECIFICS

- Nitrogen application economics – self sufficiency more-so than contractors
- Grazing tolerant (GT) lucerne varieties
- RLEM tolerant sub clover/hard seed
- GRAZING CROP SPECIES – winter habit canola
 - oats/barley/wheat
- Summer dormant species
- BALANCING ANIMAL nutrition requirement over 12 months – **“knowledge is power”**

FERTILIZER

- Maintenance rate determination
- Single super
- More concentrated P/S options will expand
- NITROGEN application economics – self sufficiency
- NUTRIENT recycling

WATER

- **“Never to much and never, ever too high in quality”**
- 20-35% growth rate responsive in cattle
- Positive improvement in immune system
- Demonstrated reduction in animal health challenge
i.e. pink eye, pneumonia
- Water temperature influences feedlot lamb weight gain and reduced mortality
- EFFICIENCY AUDIT – sprinklers in yard when weaning

PASTURE SPECIES

- Perennial versus short term
- Winter active phalaris
- Summer active species – subtropicals
- Proven blend formulations
 - Germ/purity
 - Confidence

TECHNOLOGY WILL ASSIST PROFITABILITY



SUSTAINABILITY



- Aerial agriculture is pertinent to a productive 40% of slopes/tablelands productive grazing country
- Helicopter's versus aeroplanes



SOIL TARGETS

- CHEMISTRY – assess/improve / carbon / OM focus
- SUMMER COVER
- REDUCE INSECTICIDES – rlem, aphid
- RECOMMENDATIONS
 - PRODUCER ALIGNED
 - SEASON ALIGNED
- CONSIDER “COMPOST INPUTS” ON DIFFICULT SOILS/AREAS OF PADDOCKS
 - ROOT ZONE RELEVANCE
 - SOIL HEALTH INDICATORS

PASTURE SOLUTIONS

1. **ALTERNATE** legumes to sub clover

Surface trash retention

- Balansae clover
- Arrowleaf clover
- Serradella/Biserrula

2. **COMPANION GRASSES**

- Prairie grass
- Paspalum/kikuyu/digit grass
- Mediterranean fescue

3. **FERTILISER**

- Prescription rather than repeated
- Alternative to single super
- Soil test – nutrient/biology

PASTURE SOLUTIONS cont

4. PASTURE PRESERVATION – MATRIX FARMING

- 1 in 5 years – reseeding / crown / root expansion

5. NUTRITIONAL BALANCE

– when pasture not available

- Grain feeders
- Creep feeders – silage/grain



PASTURE SOLUTIONS cont

- **TOTAL MIXED RATION**
 - Superior performance
 - Reduce waste
 - On farm production



FUTURE

- Pastures are the forgotten hero's of agriculture
- Pasture and animal interface is complex
- There is a major shortage of qualified Agricultural/Science graduates across Australia

FUTURE cont:

- There is inadequate educational facilities to allow a range of agriculturalist to upskill in the world of pasture

- Sowing/establishing a pasture is simple

Maintaining & extracting profits are difficult/rewarding

- **Are you prepared for the next drought?**

FUTURE cont:

- Australia will be the world leaders in pasture productivity/landscape management if everyone pulls together
- KEY ITEMS
 - More research required
 - Less herbicide/insecticide trend
 - Biological control – Heliotrope
 - Bathurst Burr/Others

Social media – positive image