

#### FEED CONVERSION TRIAL 2006/07 Ardlethan NSW

#### Feed Conversion Ratio (FCR)

- Is driver of profitability in all systems
- Improvement will lead to an increase in returns
- Because of many factors affecting FCR, no single value is the benchmark or standard
- More than likely a consequence of your selection criteria

#### Factors affecting FCR

- Body weight and condition
- Genetics
- Breed
- Changes in body maintenance eg.
   Temperature, distance to feed, pregnancy
- Feed digestibility
- Nutritional balance

#### Background

- Plenty data on Cattle, Poultry & Pigs, even Atlantic Salmon. Very little on sheep
- Flock management geared to efficiency? How much variation? Is selection working?
- Selection of most efficient young sires
- Methodology, difficult to measure
- Instinctive curiosity, research background

#### Set Up

Feb/March 2006, 40 young ram lambs from 20 sire lines. May/June drop, 50-80Kg
Lot fed for 6-7 weeks, weighed weekly
Individually penned and feed monitored
Checked when returned to feed lot



#### Feed Lot

#### Individual Pens



#### Feed Lot to Pens and back

#### Feed Analysis



# Crude Protein13.1%Digestibility75%Met. Energy11.6%

#### Effect of stress?



#### Results 2006



### Highlights



- Variation between individual young sires
- Sire lines consistent
- Look for a pattern/indicator of FCR?

#### What is driving FCR

Weight gain has seemingly no relationship to feed consumption



#### Correlations

+'ve correlation between muscling and FCR



#### Also between Fat and FCR



#### PWwt



#### Adjusted PWwt

## PWwt corrected for weight gain effect on ASBV within test group



#### Water



#### Temperament



#### Body Length



#### Feed Consumption



#### Body weight



#### Still looking for Correlations



#### Conclusions

- Percentage increase in body weight per unit of time is good indicator of Feed Conversion Ratio, NOT total Body weight therefore not absolute growth rate
- Slight correlation between Muscling and Feed Conversion Ratio with thicker type of sheep more efficient
  - Bigger eaters are generally less efficient

#### Visual comparisons

- Rams at front and back were 2 leading rams for FCR
- Rams in centre were below average for FCR



#### Breed Effects



#### 2<sup>nd</sup> Trial Jan 2007

- 50 ram lambs of varying ages (May-August)
- 24 sire lines, more diverse, multiple births
- Greater range of initial weights and ages
- Some lambs sired by sires from previous trial



#### Initial Observations

- These rams were more unsettled than those from previous trial, more aggressive eaters
- Consumed more feed per day (3.11 compared to 2.32Kg/head/d)
- Despite lower quality feed, weight gain not that different (237 compared to 254gms/d)

#### Feed Lot to Pens and back

Feed analysis from the second trial not done
 Estimate slightly lower Protein and digestibility



#### Feed Conversion 2<sup>nd</sup> trial



#### Same Relationships



#### Same Relationships



## Feed Conversion V's Age



## Feed Conversion V's Birth Type



#### Ratio of FC in Feedlot v's Paddock



#### Questions?



#### Relative Feed Intake (RFI)

RFI is a calculation used to cancel effects of animal size on feed consumed

Used the same principle for weight gain over the duration of the trial (RWG)



#### Using Relative calculations



#### RFC v's FC



#### RWG; Paddock v's Feedlot



#### Relative effect within 1st trial



#### 1<sup>st</sup> trial



#### What's Next?

- Examine why lighter lambs are just that!
   Suspect Feed Conversion similar
- Find relationship to growth curve, does relative feed conversion change with age and/or growth potential.
- Investigate reason for better feed conversion to weight, is it muscle or fat?
   Paddock V's Feedlot

