

Performance testing of rams on  
concentrate diets is not in the best  
interest of the commercial lamb  
producer

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# Problems to be considered

- Impact of concentrate feeds on rumen development and its consequences
- Possible Genotype x Environment interactions

# Rumen development

- Rumen and its microvilli develop in first few months of post-natal life
- Microvilli increase surface area
  - essential for efficient absorption of VFAs from rumen fermentation
- Compromising development at this critical time → lasting effects on feed efficiency - especially forage digestion

# The effect of concentrate feeding



Healthy rumen  
wall - ideal for  
high feed  
efficiency



Rumen wall of lamb  
fed high  
concentrates -  
permanently  
damaged

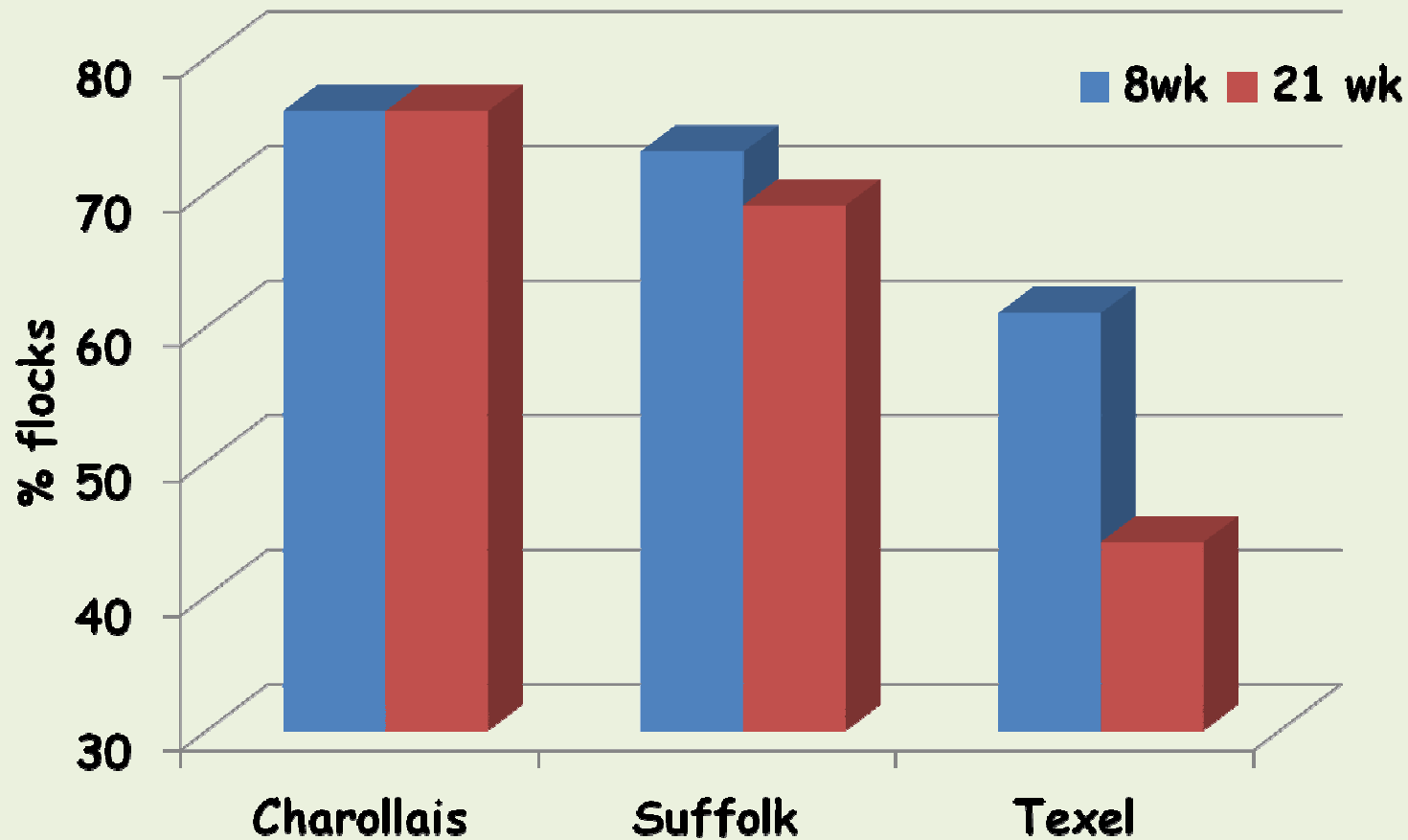
**A little bit of what you fancy does  
you no harm?**



**OR**

**Like feeding candy to a baby / whisky  
to an alcoholic?**

## Flocks with >70% DMI from concentrates (2011 Eblex Terminal Sire flock survey)



Levels likely to compromise rumen development?

# The high concentrate fed ram lamb



# The high concentrate fed ram lamb



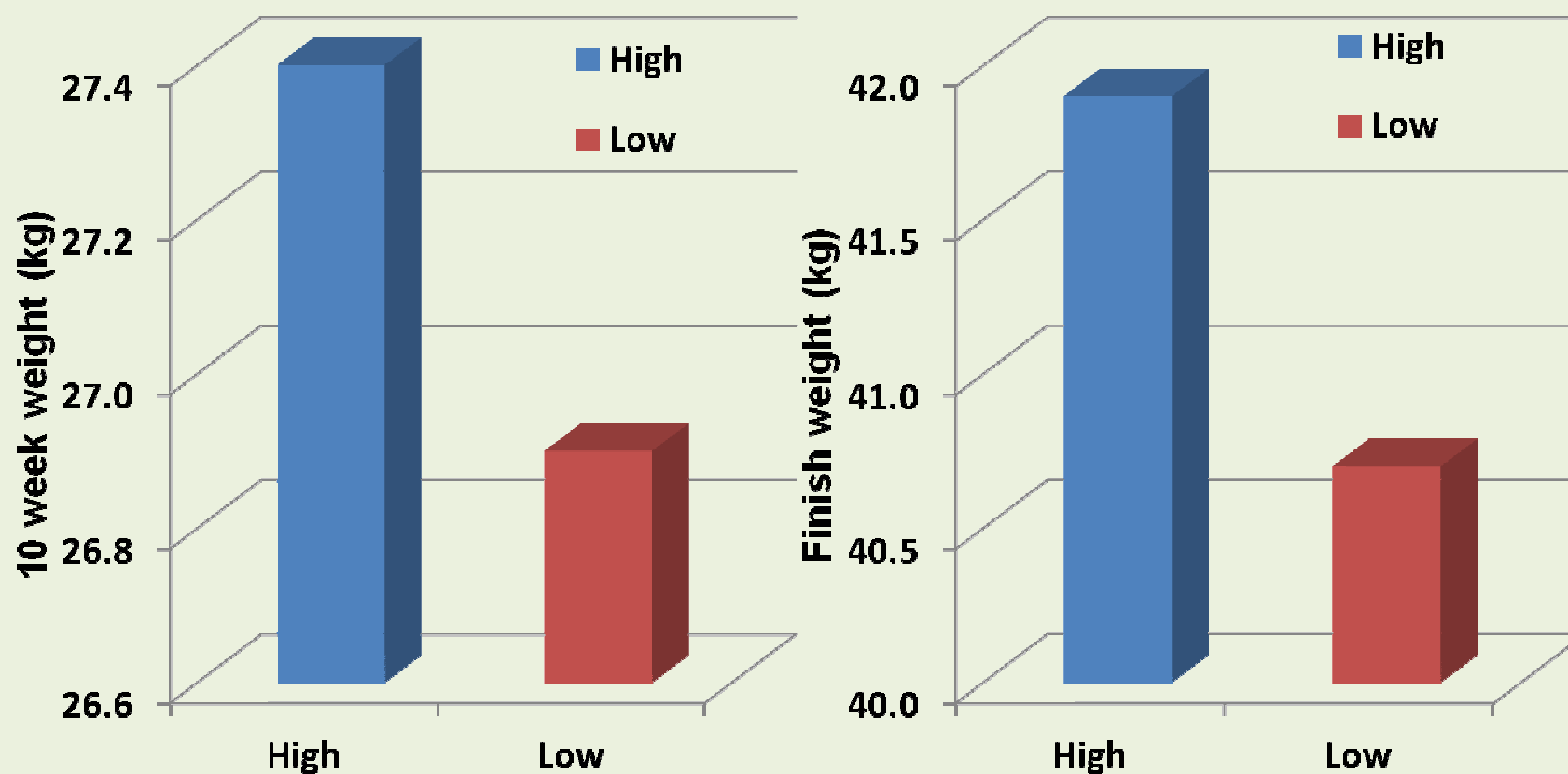
How many will be like this - or even dead - after only one mating season in a commercial flock!



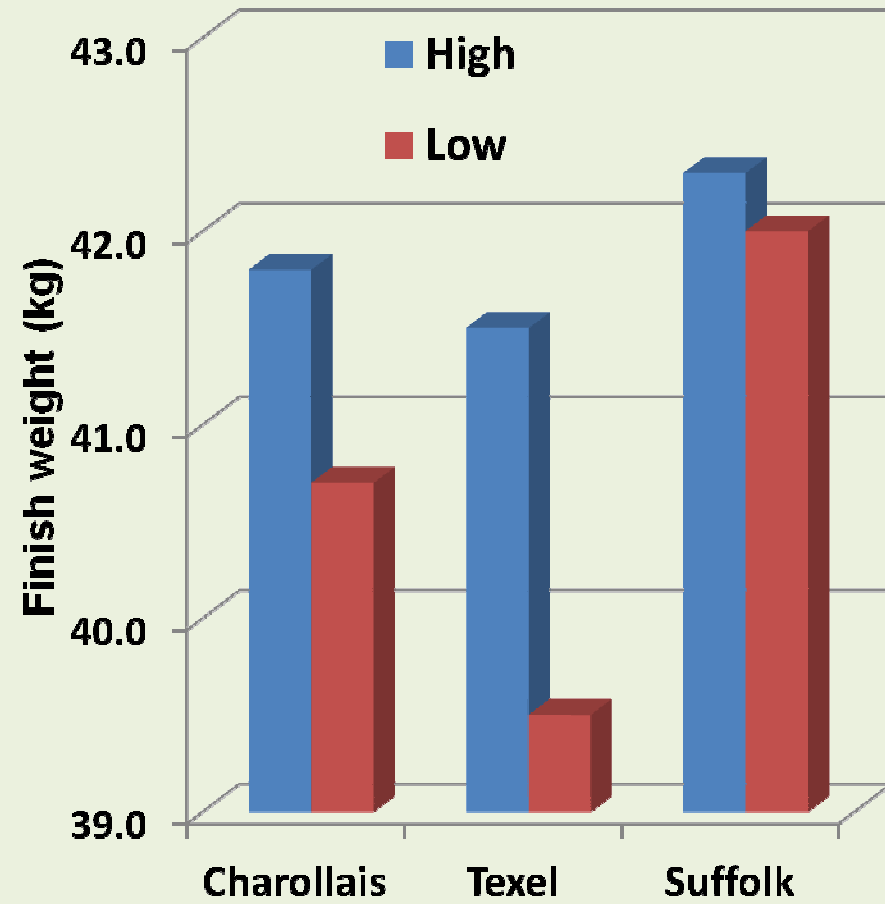
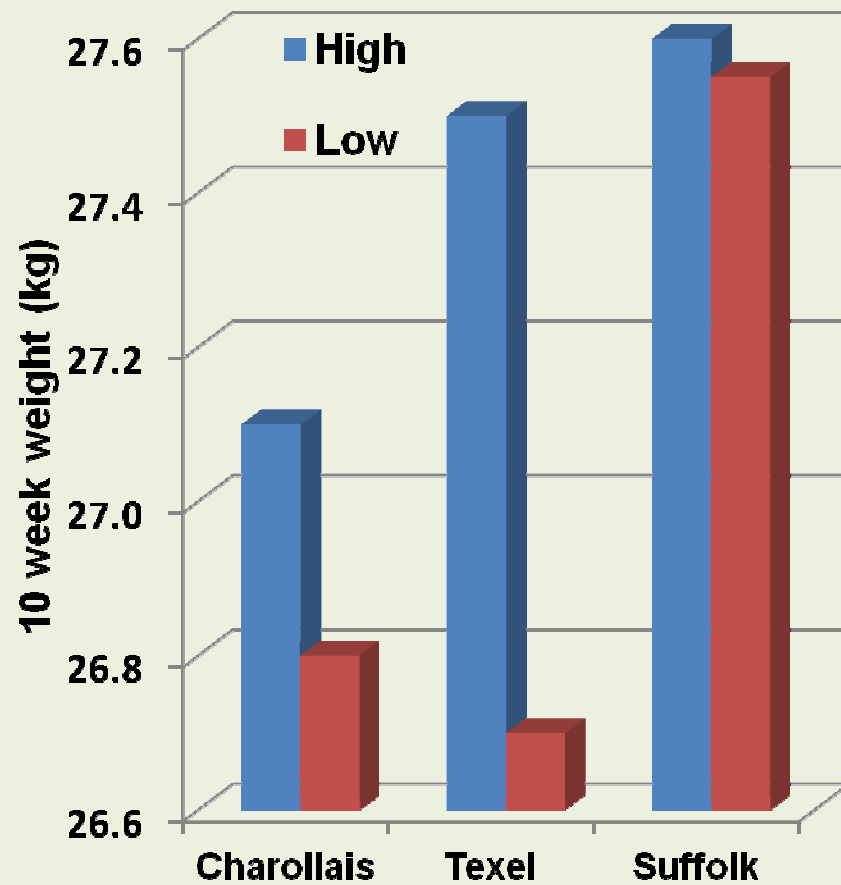
# Genotype x Environment interaction?

Results from the High-Low project  
(1999-2001 mating years)

# Results from the High-Low trial (S,T & C sired lambs out of Mule ewes: 45 H and 45 L rams, >6,000 total progeny)



# High-Low project within-breed comparisons (15 high and 15 low index rams/breed)



## Why the between-breed differences?

- $G \times E$  interaction?
- Historically majority of Suffolk flocks:
  - sold ram lambs
  - used high level concentrate feeding (and have done so for decades)
- For many generations selection of Suffolk sheep was done in very different nutritional environment from commercial production

## Why the between-breed differences?

- Most of Suffolks used in High-Low project were ram lambs ('pushed hard')
- High proportion of shearlings for other two breeds (not 'pushed hard')
- Therefore *possible* that between-breed differences observed were due to  $G \times E$  interaction

# Conclusions

- Eblex survey (earlier slide) indicates increasing number Texel and Charollais flocks now moving to high level concentrate feeding of ram lambs
  - beware of the potential consequences!
- Commercial producer is 'our market'
- *If G x E is responsible then must produce and select sheep under conditions similar to commercial production*
  - forage-based systems