Cut and Carry: Investigating higher proportions of fresh grass in the diets of high yielding cows

P. Hargreaves, M. Lee and D. Roberts

Cut and Carry? Why we are interested?

- Cut and Carry or Zero Grazing – taking the grass to the cow
- More cows are being housed during the summer months
- Reduce feed costs
- Utilising grassland more efficiently

Grazing cows - grass consumption

Time grazing 10 hours	600 mins
Bites / minute	60
Intake / bite g DM	0.4
Intake kg DM/day	14.4
M+	20 litres

Grazing cows can eat approximately 100 kg of fresh grass a day

Two experiments - SRUC Dumfries, SW Scotland

April to August 2014 –
TMR Replacement

June to August 2015 –
Grazing Comparison

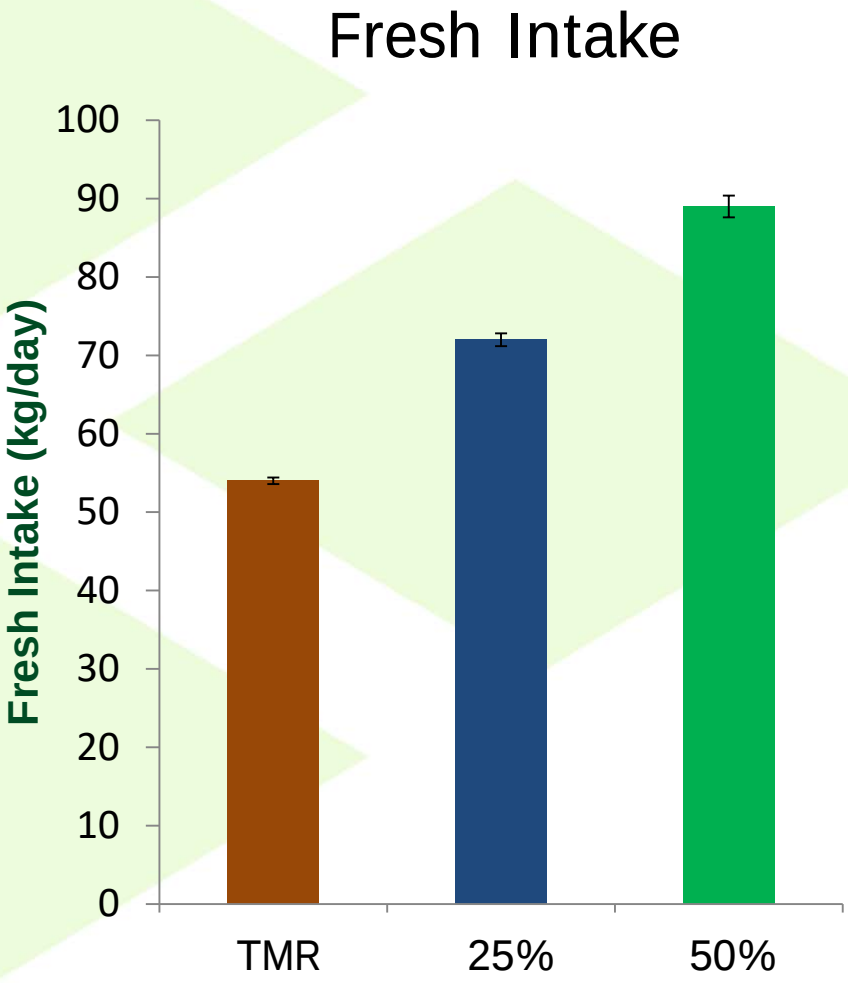
2014 – TMR Replacement experiment

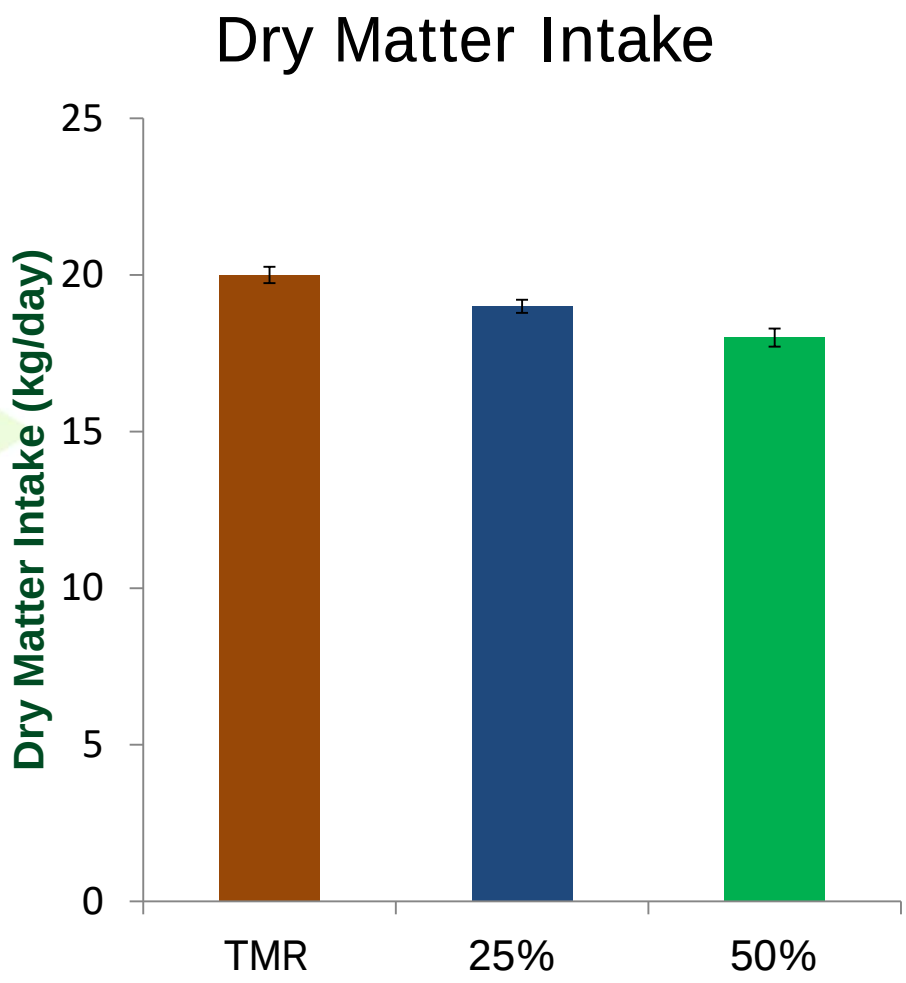
Three diets:

- **0% fresh grass: 100% TMR (control)**
- **25% fresh grass: 75% TMR**
- **50% fresh grass: 50% TMR**

- 48 cows – 3 groups of 16 (balanced for liveweight, calving date, milk yield and composition)
- Grass ‘folded’ in the TMR mix
- 16 week experiment
- Housed in three groups during this period
- Milked three times a day (07:30, 15:30 and 19:00 hrs)

2014 - Mean fresh and DM intakes over 16 weeks





2014 – Mean milk production

	0% fresh grass: 100% TMR	25% fresh grass: 75% TMR	50% fresh grass: 50% TMR
Milk yield (kg/cow/d)	35.7[a]	30.2[b]	31.4[b]
Protein (%)	3.00[a]	2.98[a]	2.89[a]
Butterfat (%)	3.34[a]	3.51[a]	3.40[a]

2014 – Feed analysis

	0% fresh grass: 100% TMR	25% fresh grass: 75% TMR	50% fresh grass: 50% TMR
DM (%)	36.7^{a}	26.9^{b}	20.7^{c}
Crude Protein (g kg-1 DM)	167^{a}	177^{a}	173^{a}
ME (MJ)	11.8^{a}	11.8^{a}	11.7^{a}

2014 – Conclusions

- Cows fed 25% grass had similar milk yields as 50% grass fed
- Feeding grass reduced milk production compared to 100% TMR
- No differences in milk quality, cow condition or liveweights between the 25%, 50% grass-fed and 100% TMR-fed group

Now need to consider how feeding cut and carry compared to grazing.

2015 – Grazing comparison

Three diets:

- **TMR: Control**
- **Cut and Carry: Fresh grass and TMR**
- **Grazed: Fresh grass and TMR**

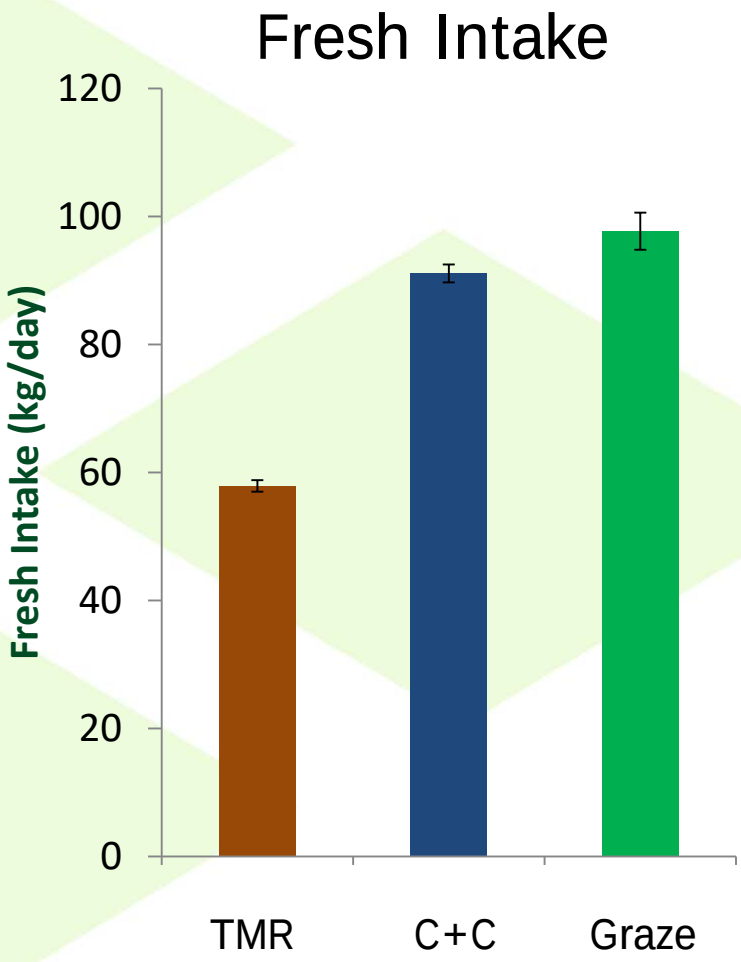
(Two windows - morning and afternoon with TMR *ad-libitum* at night)

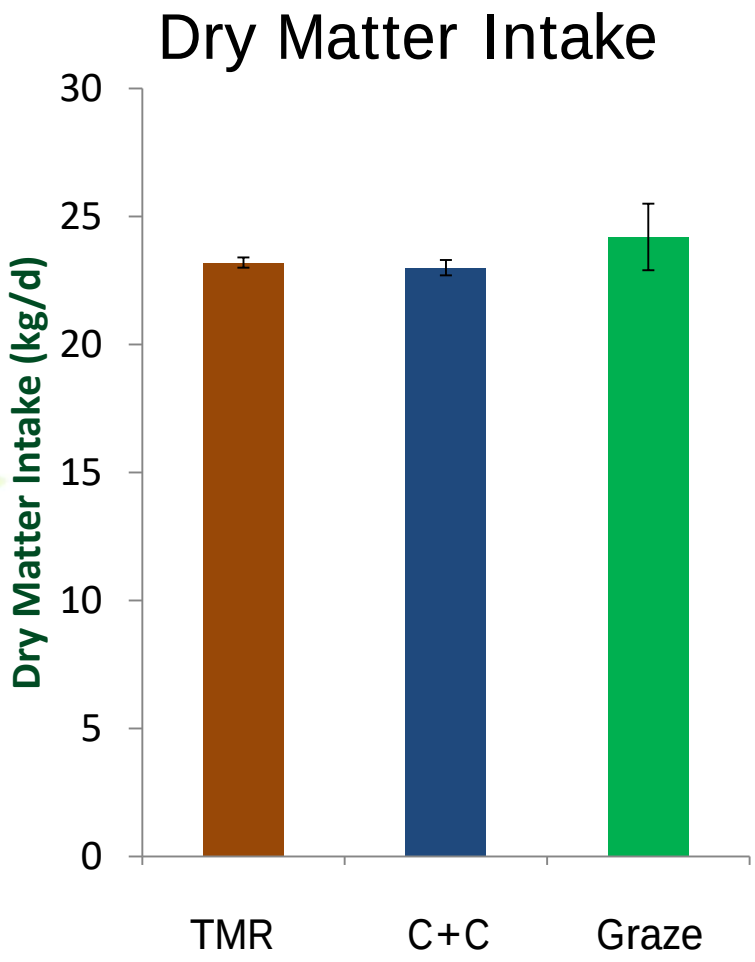
- Groups balanced on milk yield, liveweight and parity
- Grazed - housed at night
- TMR and Cut and Carry – housed continually

2015 – Cut and Carry

- Cut and carry aim for 50% grass
- Grass fed separately
- TMR fed at night

2015 - Mean fresh and DM intakes over 12 weeks





2015 – Mean milk production

	TMR Housed	Cut and Carry – fresh cut grass (TMR at night)	Grazed – fresh grass (TMR at night)
Milk yield (kg/cow/d)	36.3[a]	34.9[b]	34.7[b]
Protein (%)	3.28[a]	3.37[b]	3.15[c]
Butterfat (%)	3.85[a]	3.81[a]	3.37[b]

2015 - Conclusions

- Feeding grass either grazed or cut and carry reduced milk production compared to 100% TMR
- Cut and carry gave the greater protein content and butterfat was similar to %TMR
- Cost lower than TMR
- Grazing grass should be lowest cost if done efficiently

Conclusions

- Cows fed 25% grass had similar milk yields as 50% grass fed
- No differences in milk quality, cow condition or liveweights between the 25%, 50% grass-fed and 100% TMR-fed groups
- Feeding grass either grazed or cut and carry reduced milk production compared to 100% TMR
- Cut and carry gave the greater protein content and butterfat was similar to %TMR
- As milk prices decline - cut and carry systems become more attractive

Questions?

Worked funded by AHDB Dairy