Net Feed Efficiency (NFE) measured in finishing Stabiliser steers

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SAC Consulting is a division of SRUC

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Background - Stabiliser NFE project

15 full batches through the system (batch 16 in unit now)

(Breeding bulls) **704 young Stabiliser breeding bulls**

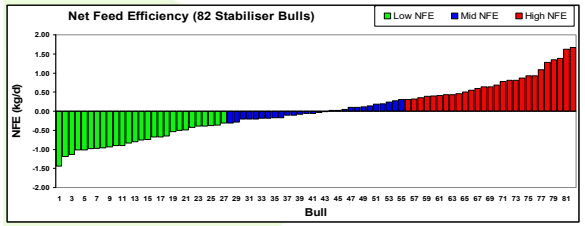
(10-13 months old) (& 39 Beef Shorthorns)

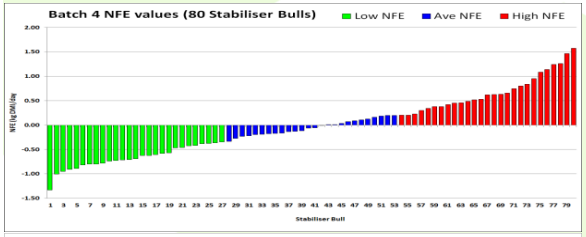
(Finishing steers) **357 Stabiliser steers (15-19 months old)**

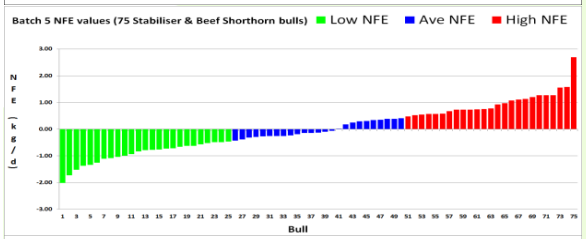
Beef industry is doing it for the financial gain

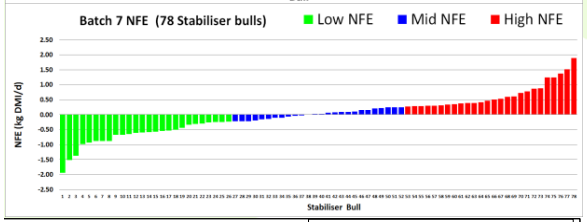
Where are we now - 15 batches of bulls & steers

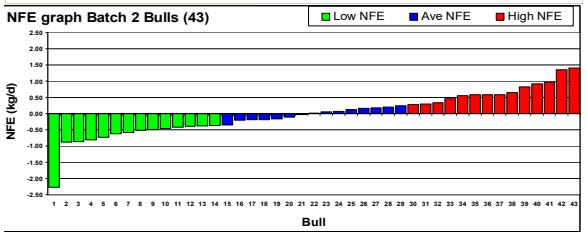
Bulls

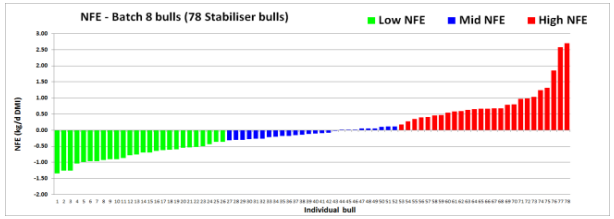


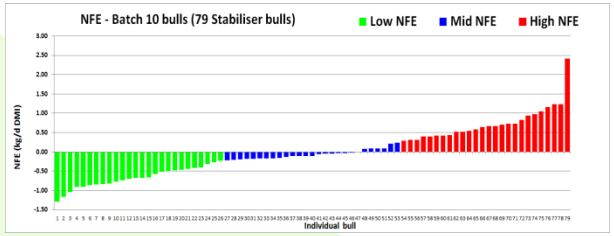


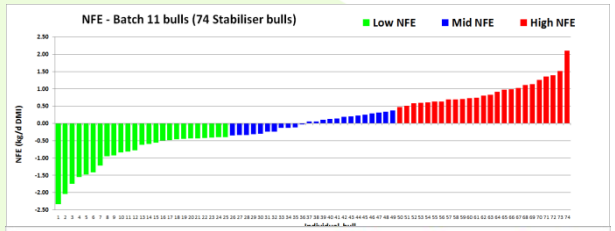


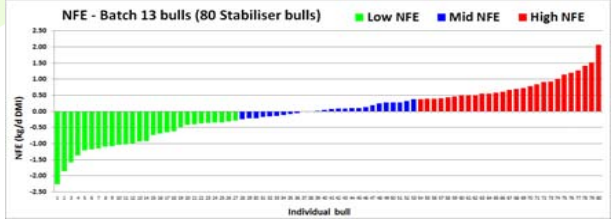










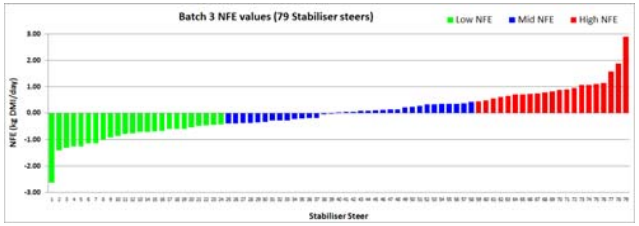


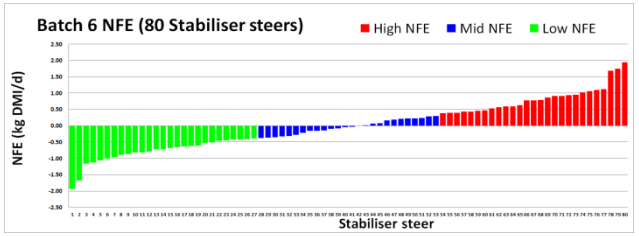
704 Stabiliser Bulls

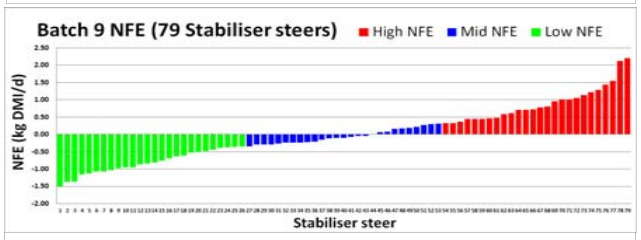
357 Stabiliser Steers

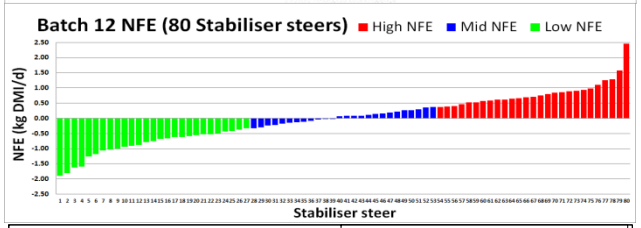
39 Beef Shorthorn Bulls

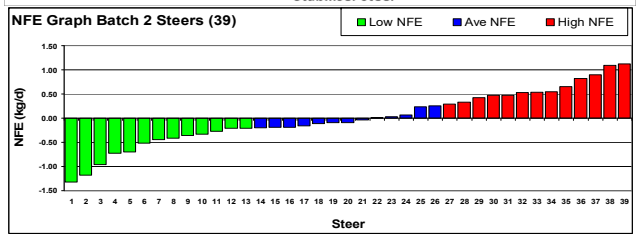
Steers











Materials & methods – Batch 6 steers

NFE – measured in 80 finishing steers (15-19 mths old)

4 weeks adaptation & 8 week NFE measurement period

Key measurements undertaken very accurately:-

- **Dry matter intake (50:50 forage:concentrate diet *ad lib*)**
- **Daily liveweight gain (regression on weekly LW)**
- **Carcass fat depth & KO proportion**

NFE calculated as normal using above ($LW^{0.75}$, DLWG, FD & KO)

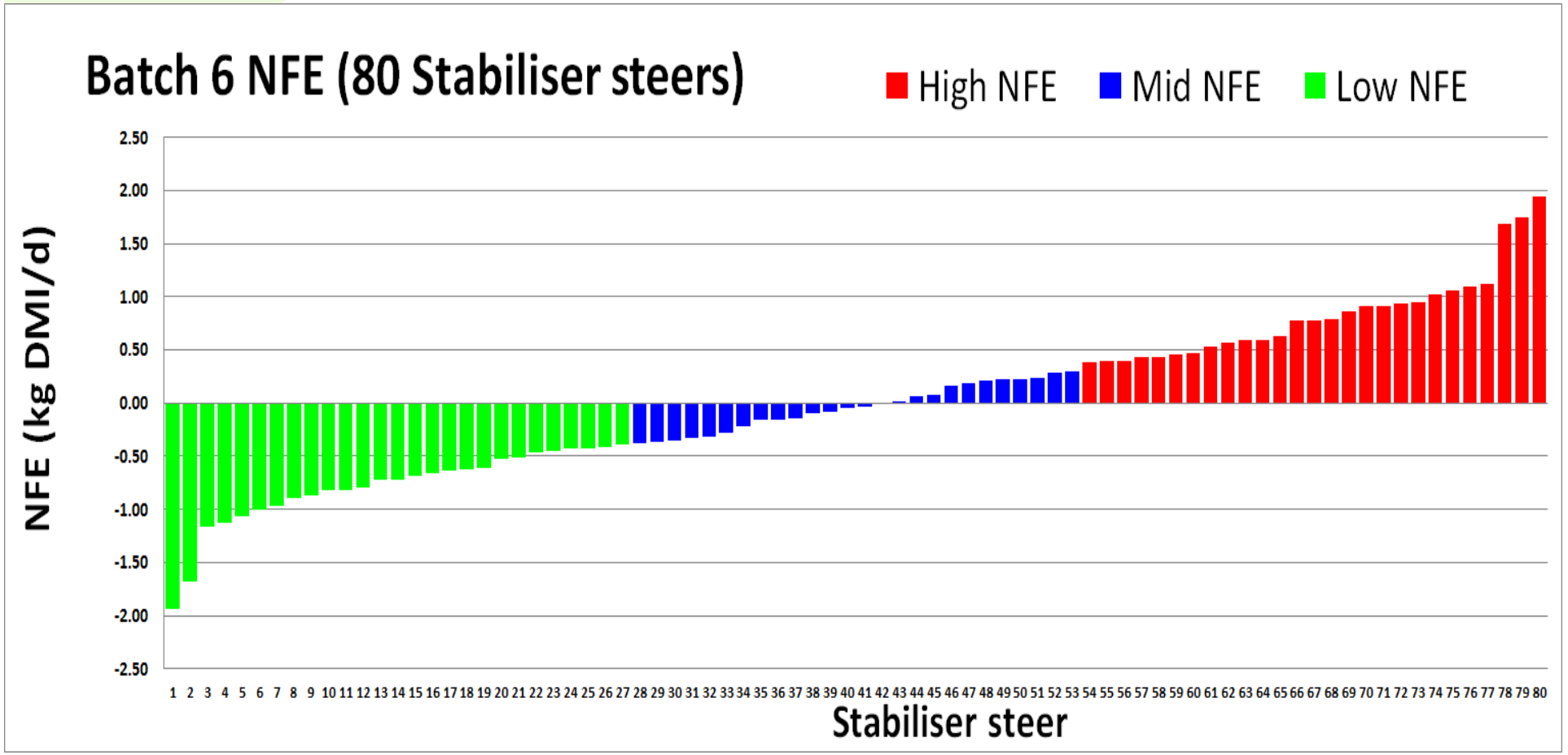
Data split into low, medium & high NFE groups- (0.5 x s.d. of NFE values)

(Differences analysed using REML in Genstat 15)

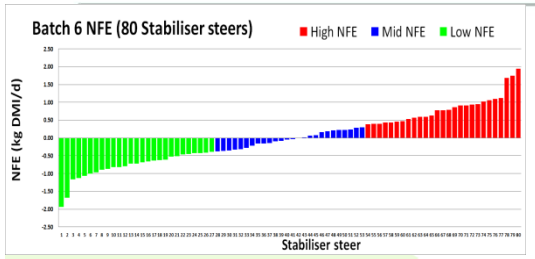
(Slaughter characteristics & MEQ study as well)

Results – Batch 6 Stabiliser steers

NFE (kg DMI/day) – 80 Stabiliser steers



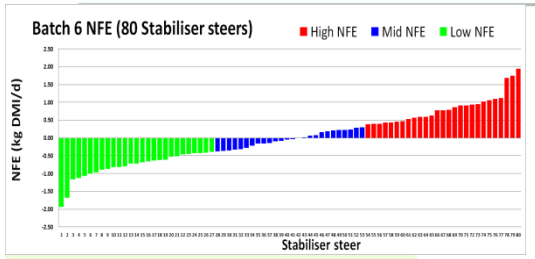
NFE results – Batch 6 (80 Stabiliser steers)



NB: @ feed cost of £165/t DM - 12 weeks on Wold farm NFE test

	Low NFE	Average	High NFE	sed	Sig
DMI (kg/d)	12.3^{a}	13.2^{b}	13.7^{b}	0.29	**
DMI (g/kgLW)	20.8^{a}	22.2^{b}	23.5^{c}	0.33	***
DMI (g/kgLW$^{0.75}$)	102^{a}	109^{b}	116^{c}	1.79	**
Cost deviation from average	- £15	0	+ £7		

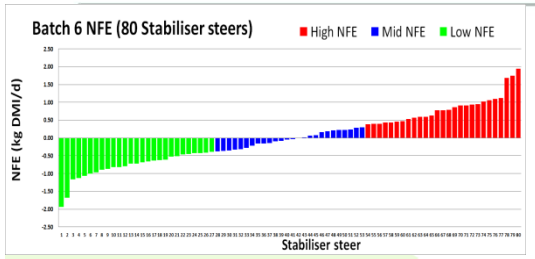
NFE results – Batch 6 (80 Stabiliser steers)



NB: @ feed cost of £165/t DM - 12 weeks on Wold farm NFE test

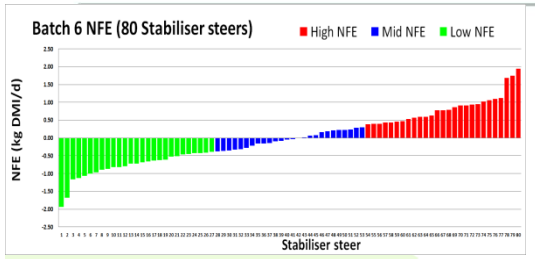
	Low NFE	Average	High NFE	sed	Sig
Mean LW (kg)	592	595	581	7.0	ns
Mean $LW^{0.75}$	120	120	118	1.1	ns
DLWG (kg/d)	1.82	1.87	1.80	0.042	ns
FCR (DMI:LWG)	6.74^{a}	7.10^{a}	7.62^{b}	0.222	*
NFE (kg/d)	-0.79^{a}	-0.04^{b}	$+0.83^{c}$	0.122	***
Cost deviation from average	- £15	0	+ £7		

NFE results – Batch (80 Stabiliser steers) - ultrasound



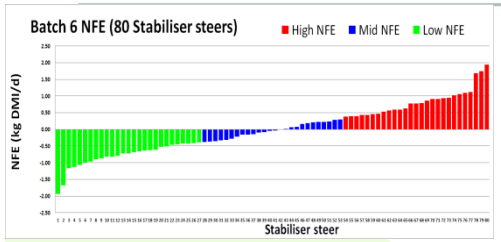
	Low NFE	Average	High NFE	sed	Sig
Fat Depth (mm)	7.1	7.1	7.1	0.44	ns
Muscle Depth (mm)	74	73	71	1.52	ns
EMA (cm^2)	83	83	80	2.2	ns
IMF (%)	4.9	5.0	5.3	0.24	ns

NFE results – Batch 6 (80 Stabiliser steers) - slaughter



	Low NFE	Average	High NFE	sed	Sig
Sale LW (kg)	648	651	636	10.1	ns
CCW (kg)	343.3	345.6	337.8	4.76	ns
KO (g/kg)	531	532	531	5.8	ns
Fat score (1-15)	8.64	8.92	8.50	0.319	ns
Conf score (1-15)	7.94	7.77	7.88	0.281	ns

Wold Farm NFE project results



Key findings for Batch 6 steers:-

For same size animals, same DLWG, same fat depth & KO:-

low NFE beef cattle

eat 12 % less feed

were 13 % more efficient

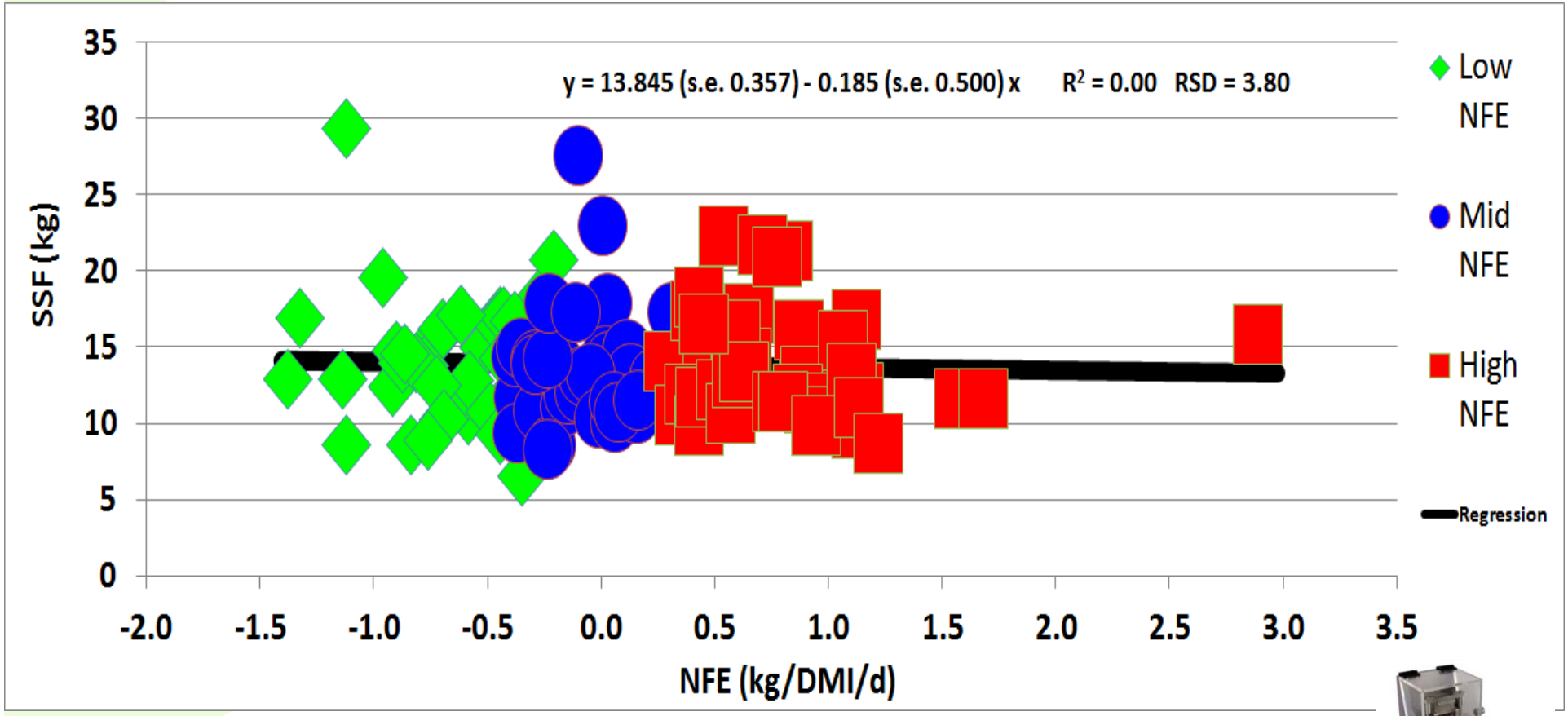
cost £22 less to feed over a 12 week period

compared to high NFE beef cattle

Batch 6 steers – no sig effect on slaughter or eating quality parameters

NFE & MEQ (113 steers from 4 batches)

Does selecting for NFE impair MEQ ?



No evidence of NFE values having any influence on MEQ

Heritability of net feed efficiency (NFE)

- Net feed efficiency h^2 = 0.37 (±0.11)
  - Wold farm NFE unit, 2016
- Average from around the world:-
  - h^2 = 0.37 (±0.08)
  - Range in h^2 = 0.18 – 0.50 (±0.03 - ±0.13)

Acknowledgements

Project Partners

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