

Let's talk beef cows; What's driving maternal performance?

Stephen Miller, AgResearch – Invermay

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Head Shepherd

Company

Clayton Station LTD

Listed

Wed 11 May, 11:28 am

Location

Mackenzie, Canterbury

Type

Full time, Permanent

Clayton Station is 20000 su property running Sheep,Deer,Cattle . We are looking for a Head shepherd to join our team. Will be working with all classes of stock ,plus some tractor work (feeding out etc) We are looking for a motivated honest person that can work in a team and alone. Must have 3 - 4 broken in dogs . Accommodation provided

Applicants for this position should have NZ residency or a valid NZ work visa.

BEEF COW EFFICIENCY- REVISITED

T. G. Jenkins^{} and C. L. Ferrell*

*Roman L. Hruska U.S. Meat Animal Research Center, ARS, USDA,
Clay Center, Nebraska 68933-0166*

Introduction

It is comforting to address an issue with a historical signature, e.g., information addressing efficiency being presented by Armsby and Fries (1911). They observed that “type” of an animal affected the ability of that animal to convert feed to weight. Kleiber (1936) identified potential approaches that might affect the efficiency of food utilization by animals. At the symposium sponsored by the British Society of Animal Production with the topic of the relationship between size and efficiency, Robertson (1973) concluded that efficiency must be considered in terms of the function of the producing units. Dickerson (1978) aggregated components of the production cycle to

Much has been done – late last century

- Gregory, K. E., L. V. Cundiff, R. M. Koch, M. E. Dikeman, and M. Koohmaraie, 1994b. Breed effects, retained heterosis, and estimates of genetic and phenotypic parameters for carcass and meat traits of beef cattle. *J. Anim. Sci.* 72:1174.
- Jenkins, T. G., and C. L. Ferrell. 1994. Productivity through weaning of nine breeds of cattle under varying feed availabilities. I. Initial estimates. *J. Anim. Sci.* 72:278.
- Jenkins, T. G., and C. L. Ferrell. 1992. Lactation characteristics of nine breeds of cattle fed varying quantities of dietary energy. *J. Anim. Sci.* 70:1652.
- Jenkins, T. G., C. L. Ferrell, and L. V. Cundiff. 1991. Differences among breed crosses of cattle in conversion of food energy to calf weight during the preweaning interval. *J. Anim. Sci.* 69:2762.
- Jenkins, T. G., M. Kaps, L. V. Cundiff, and C. L. Ferrell. 1991. Evaluation of between- and within-breed variation in measures of weight-age relationships. *J. Anim. Sci.* 69:3118.
- Jenkins, T. G., J. A. Nienaber, and C. L. Ferrell. 1990. Heat production in mature Hereford and Simmental cows. In: C. Wenk, and M. Boessinger (Ed.) *Proc. 12th Symp. Energy Metab. Farm Anim. Kartause Ittingen, Switzerland. EAAP* 58:296.
- Kleiber, M. 1936. Problems involved in breeding for efficiency of food utilization. Page 236 in *Proc. Amer. Soc. Anim. Prod.*
- Kleiber, M. 1961. *The Fire of Life*. John Wiley and Sons, New York and London.
- Koch, R. M., L. A. Swiger, D. Chambers and K. E. Gregory. 1963. Efficiency of feed use in cattle. *J. Anim. Sci.* 22:486.
- Montaño-Bermudez, M., M. K. Nielsen, and G. H. Deutscher. 1990. Energy requirements for maintenance of crossbred beef cattle with different genetic potential for milk. *J. Anim. Sci.* 68:2289.
- Morris, C. A., R. L. Baker, S. M. Hickey, D. L. Johnson, N. G. Cullen, and J. A. Wilson. 1993. Evidence of genotype by environment interaction for reproductive and maternal traits in beef cattle. *Anim. Prod.* 56:69.
- Nelville, W. E. 1974. Comparison of energy requirements of non-lactating and

What type of cow is best?

Big vs Small?

More or Less Milk?



What type of cow is best?

At the more restricted levels of dry matter intake, there was a tendency for those breeds exhibiting greater appetite potential at the ad libitum levels to exhibit greater reproductive success.



What type of cow is best?

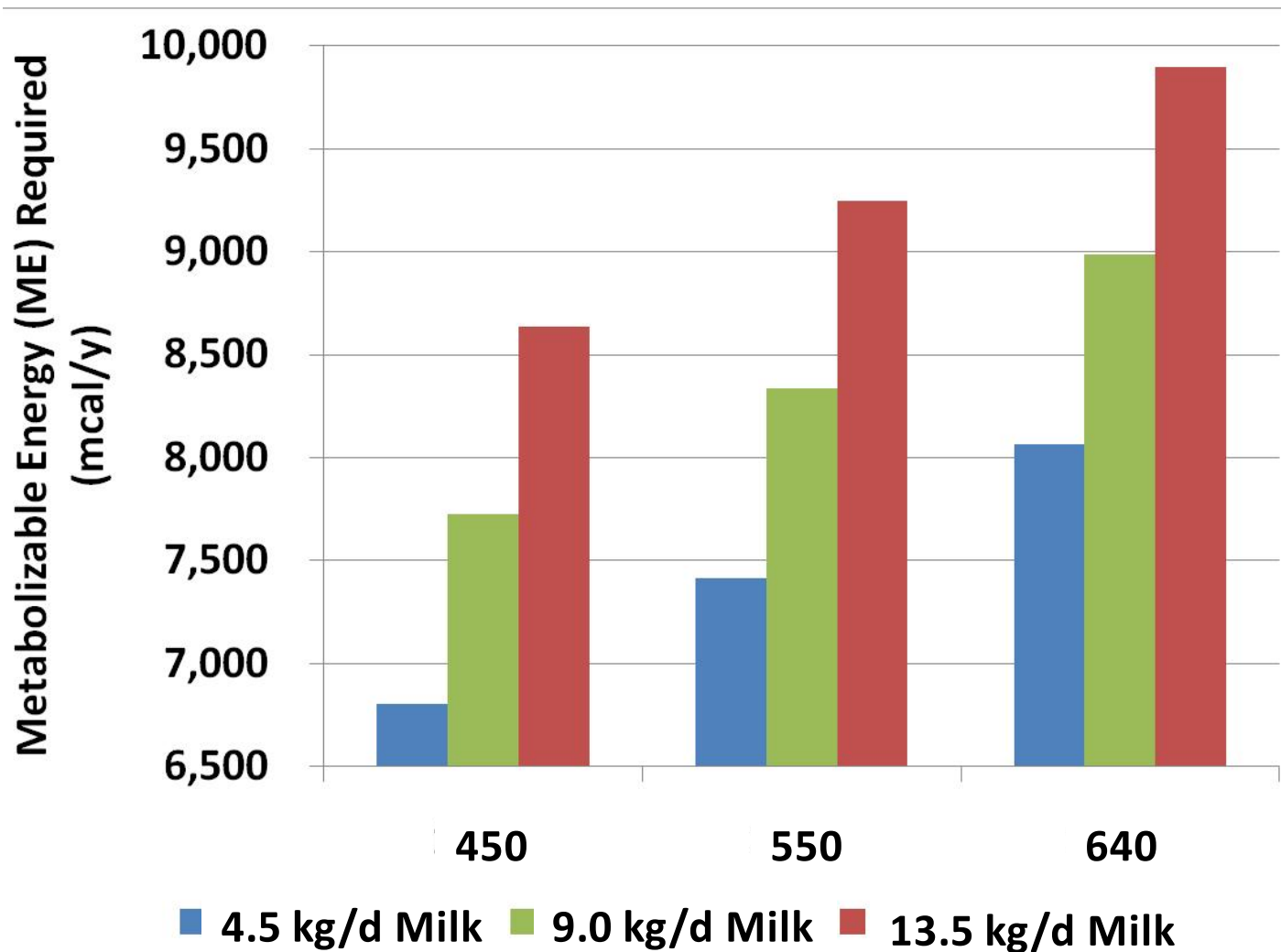
Maximum efficiencies within breeds occurred at intake levels that **did not limit reproduction** of the cows, and provided sufficient energy for milk yields to meet the growth potential of the breed as expressed in the calf.



IT ALL TURNS TO ...

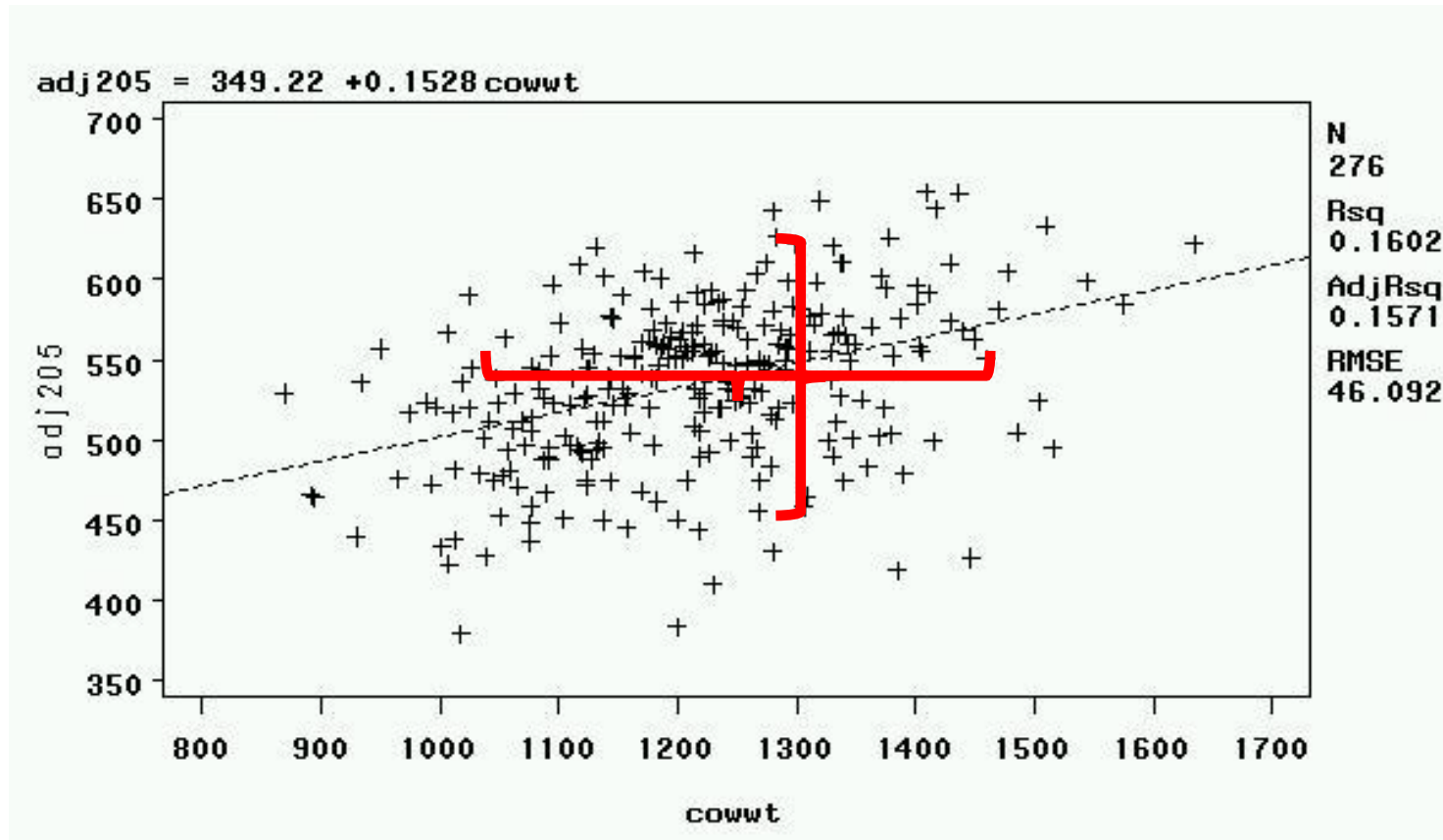


Effect of Mature Weight and Milk Potential on ME Req'd



That's
29%
more
feed for
the big
cow

Relationship Between Cow Wt. and Adj. 205d Calf Wt.- ARK



Courtesy Bob Weaver

Gadberry et al., 2006

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Beef Cow

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Your Station LTD

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Struggler's Gully

Type

Full time, Permanent

in farming ▾



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Beef Cow

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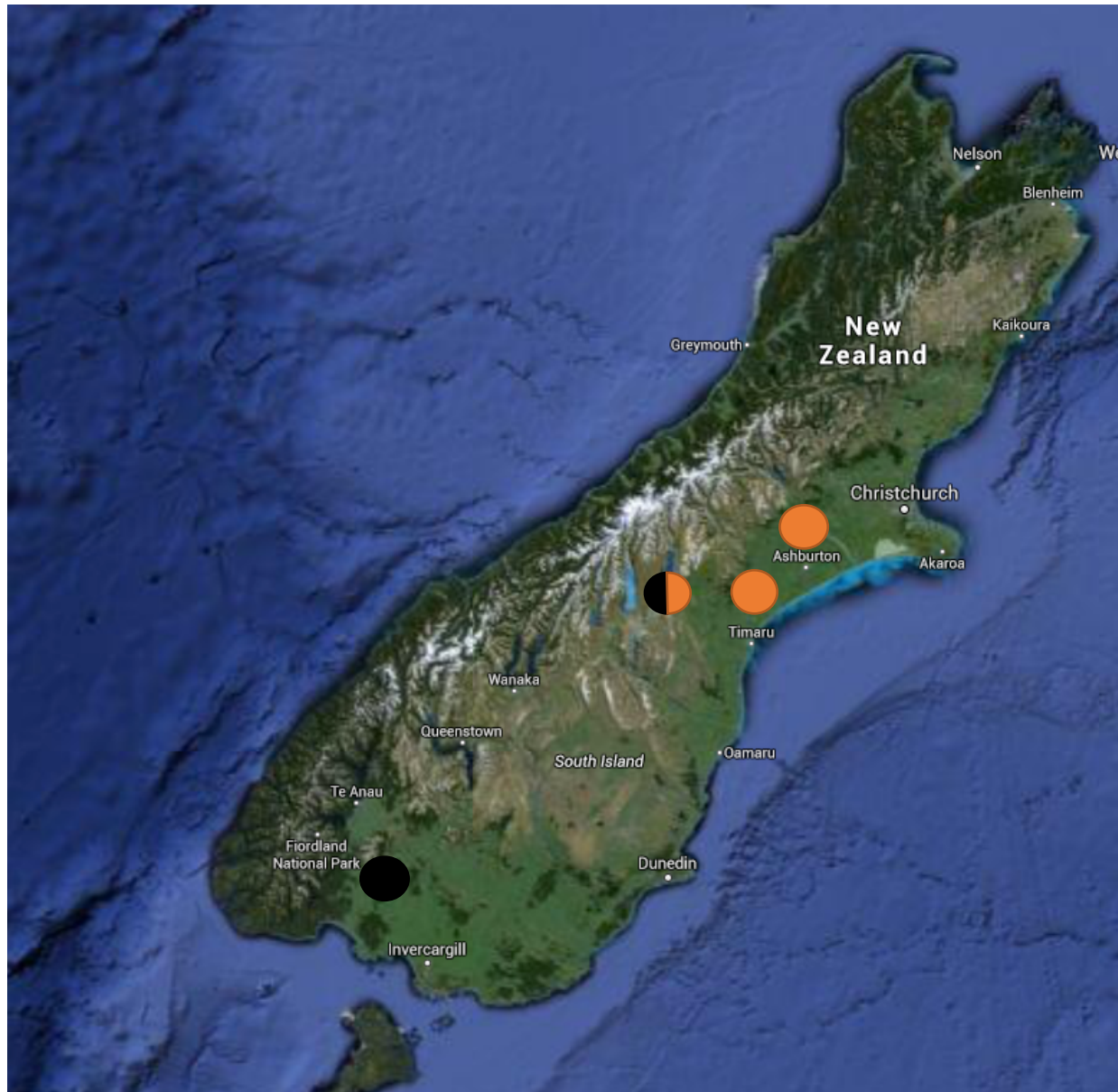
Full time, Permanent

Your Station LTD is a 10,000 SU property running sheep and cattle. We are looking for mother cows to join our herd. We are looking for cows that will cover the roughest country and clean up the roughest feed.

Applicants must work well within the herd, or when calving alone and MUST calve every year. Cows who's calves meet customer specifications preferred.

No Accommodation will be provided.

What are we up to?



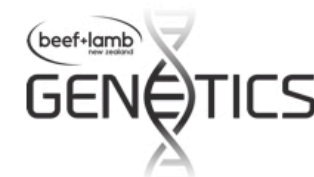
2014-2018

Goal 10,000 cows
BCS and Weight

Stud and
Commercial

Angus and
Hereford

DNA



BEEF
GENETICS
FORUM

The team



H HALDON STATION



350 Hereford – 150 Angus



**BEEF
GENETICS
FORUM**



800 Stud – 2,100 Commercial



**BEEF
GENETICS
FORUM**

A wide-angle landscape photograph of the Orari Gorge. The scene features rolling green hills with patches of darker green forest. In the foreground, a single tree with vibrant autumn foliage in shades of red and orange stands out against the green background. The sky is a pale blue with soft, white clouds.

ORARI GORGE STATION

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200 Hereford Stud



BEEF
GENETICS
FORUM

Longspur – Innes Family



200 Commercial Hereford



BEEF
GENETICS
FORUM

ML268/08

Status: Current
EID: 982000115568536
NLIS:

Loadbars not connected

Change Tag

Find Tag

Session: 23 Mar 16 - ML Stud Cows Weaning MAge

Last seen: 23 Mar 2016 02:53 p.m.

Delete

Animal

Traits

Add

Activities

Add

Life Data

Change

Live Weight

632 kg

Cattle BCS

6

Farm Mount Linton
Group MountLintonStud
Breed Angus
Sex Female

Live Weight 632
Cattle BCS 6
TSU ZG10988380

Last Note:

Add Note

1 of 538



Collect



**How long
does it take
to score,
weigh and
record a
cow?**

538 Cows
2:49

That's 19
seconds per
cow

ML300/09
Status: Current
EID: 982000139412993
NLIS:

Loadbars not connected

Change Tag **Find Tag**

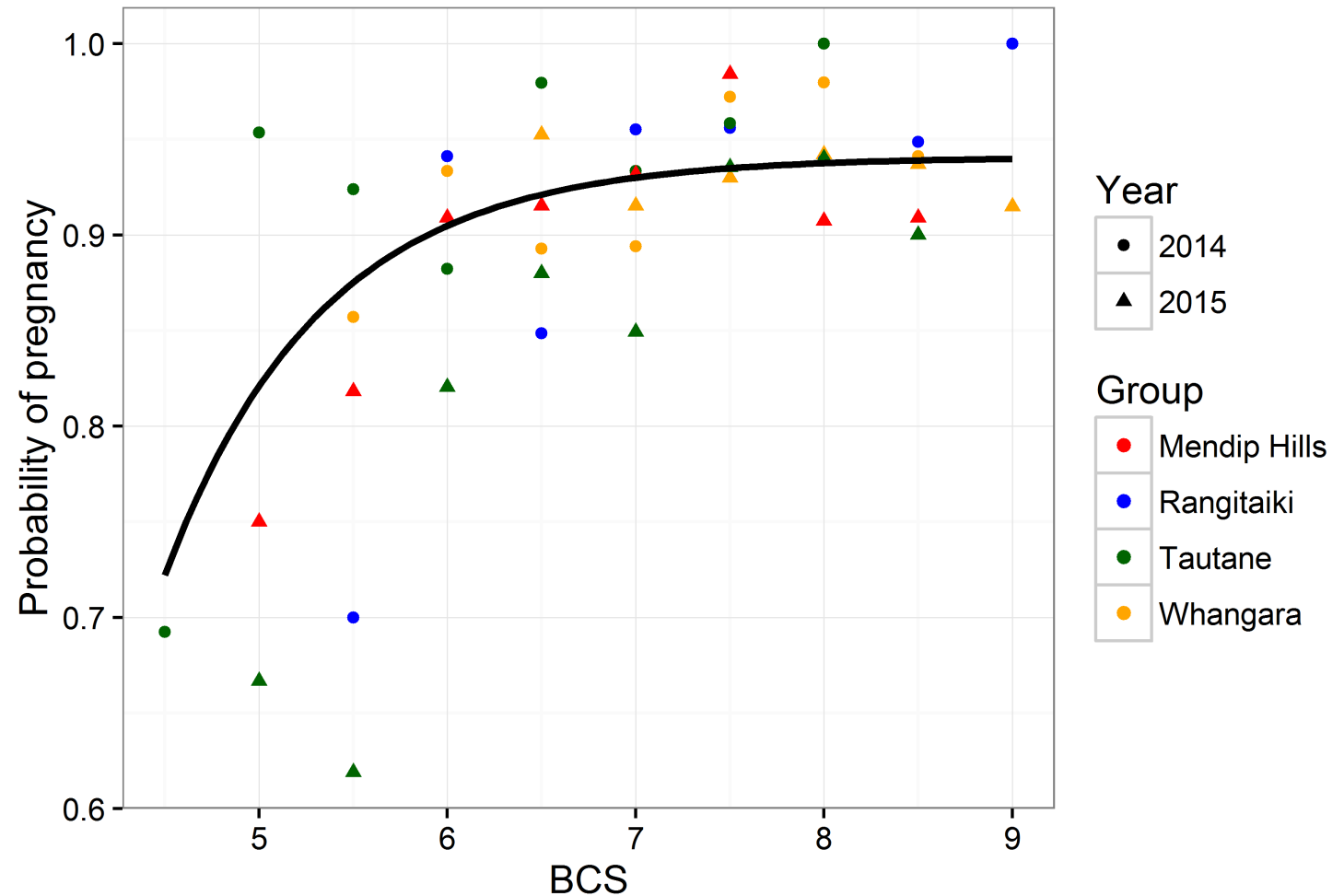
Session: 23 Mar 16 - ML Stud Cows Weaning MAge **Delete**
Last seen: 23 Mar 2016 05:42 p.m. Animal

Traits Add	Activities Add	Life Data Change
Live Weight 592 kg		Farm Mount Linton Group MountLintonStud Breed Angus Sex Female
Cattle BCS 7		Live Weight 592 Cattle BCS 7 TSU ZG10988663

Last Note: **Add Note**

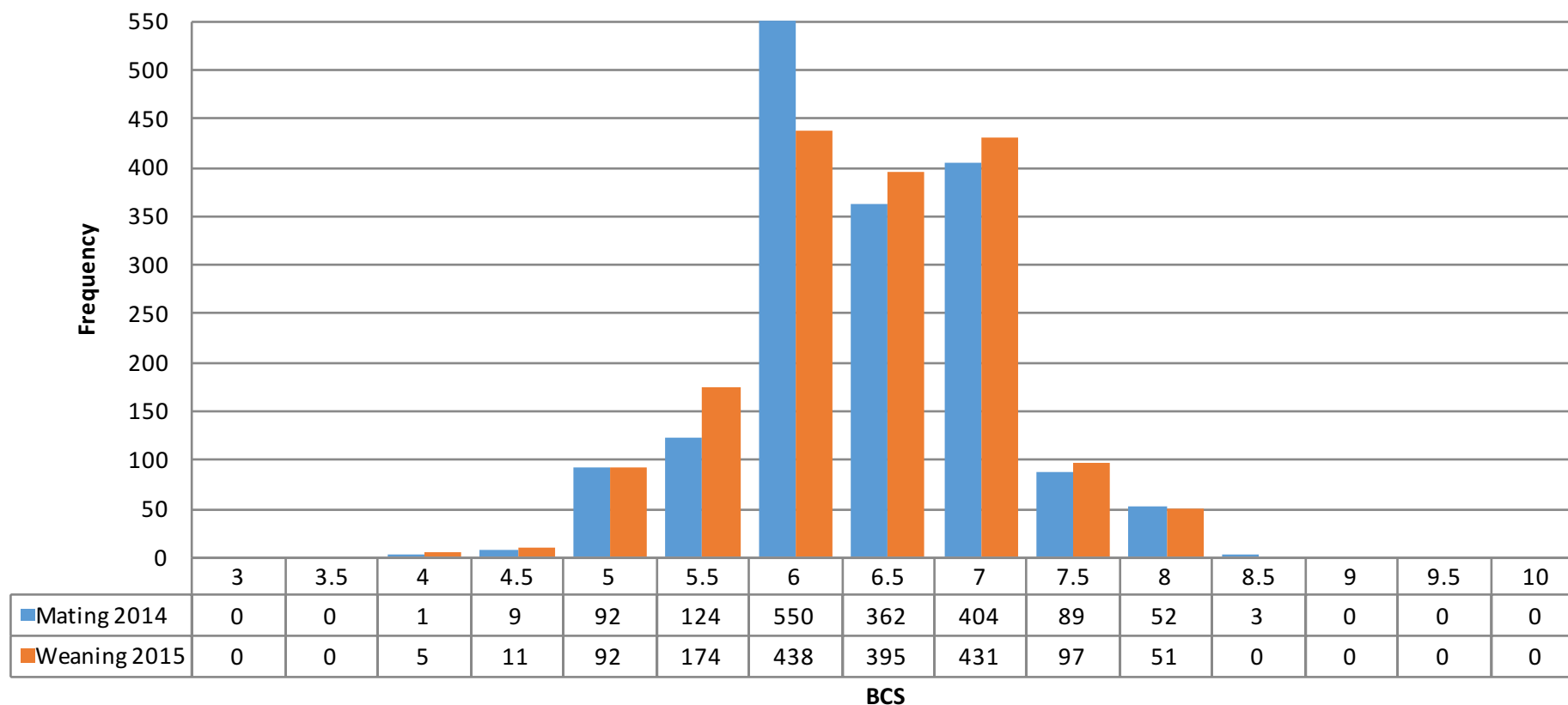
538 of 538 < > >| **Collect** A

Lower BCS cows less likely to re-breed



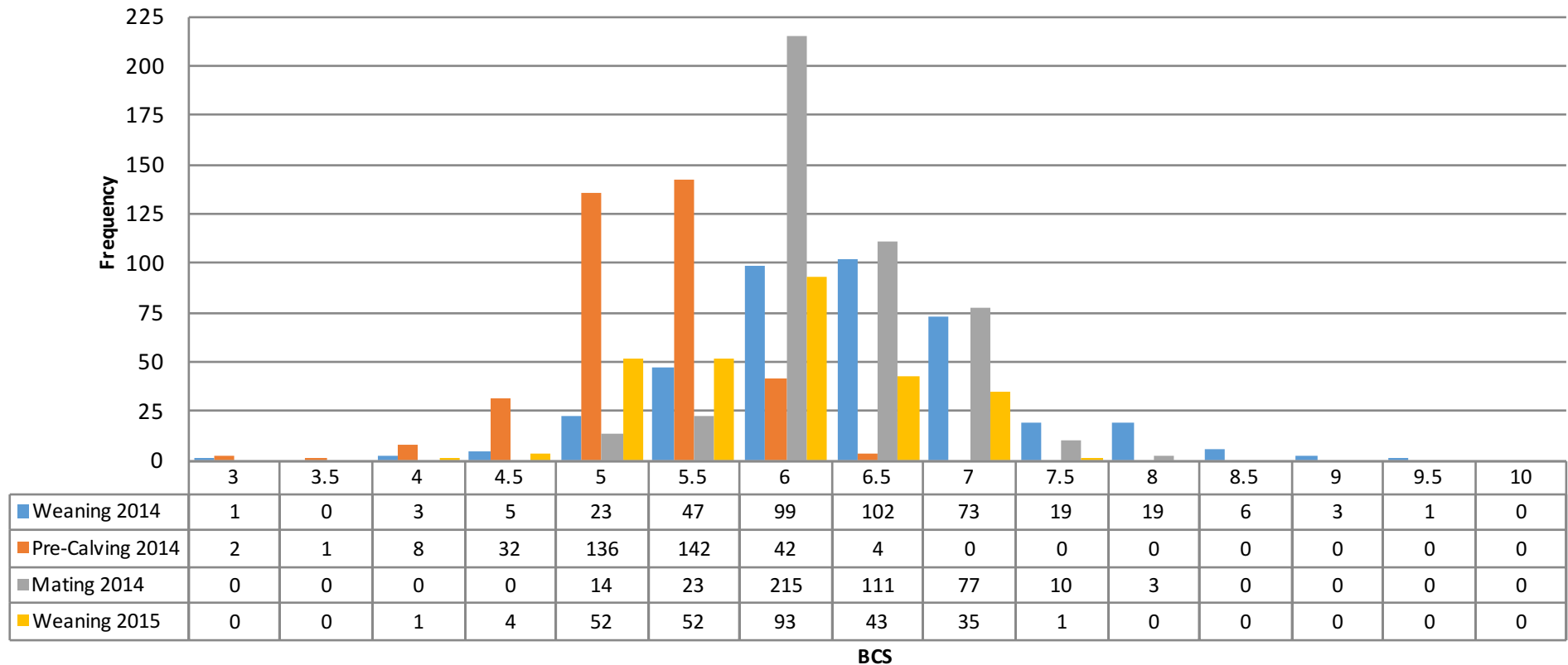
Range in Commercial Condition Scores

Graph 2. Angus Cow (2+ Years) BCS Distribution at Mating and Weaning



The dynamic cow – changing BCS with feed supply

Graph 3. Hereford Cow BCS Distribution at Weaning, Pre-Calving and Mating



Genetic Analyses of Haldon Herefords

- Weight and BCS – 7 times since Weaning 2014
- Maiden Heifers weaning 2014 and mating 2015 and 2016
- Estimation of heritability and repeatability
- Cows rearing a single calf to weaning included (x90 records)



Neil Cullen - Ruakura



Heritability and Repeatability

Time	N (var)	BCS	Live weight
Pre-calving	632 (0.28)	0.20 ± 0.09	0.40 ± 0.12
		0.34 ± 0.06	0.75 ± 0.03
Mating	850 (0.19)	0.20 ± 0.10	0.25 ± 0.11
		0.30 ± 0.07	0.71 ± 0.03
Weaning	954 (0.48)	0.27 ± 0.10	0.43 ± 0.12
		0.46 ± 0.04	0.79 ± 0.02

More variation and higher heritability at weaning

BCS - Genetic (below) and Phenotypic (above) Correlations Across time

BCS	Pre-calving	Mating	Weaning
Pre-calving		0.33 ± 0.04	0.42 ± 0.04
Mating	1.00 ± 0.14		0.69 ± 0.02
Weaning	0.96 ± 0.09	0.95 ± 0.06	

Genetic
Correlations
almost 1
between time
points



Weight - Genetic (below) and Phenotypic (above) Correlations Across time

Weight	Pre-calving	Mating	Weaning
Pre-calving		0.71 ± 0.02	0.68 ± 0.03
Mating	0.94 ± 0.05		0.83 ± 0.01
Weaning	0.88 ± 0.07	0.97 ± 0.02	

Genetic
Correlations
almost 1
between time
points





Conclusions (so far)

- Body condition score is moderately heritable (0.25 all measures)
- Appears more heritable at weaning (more variation)
- Genetic correlation between times is very high, indicating weaning may be best time to measure

Thank you.
