Adult Equivalent Methodology and Tools

MLA Project B.NBP.0779

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Bush AgriBusiness Pty Ltd

AE Methodology & Tools

- Why is this important?
- How was it developed?
- What does it do?
- What is an Adult Equivalent?
- How do you use it?

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Why is this important?

The term 'AE' is;

- Widely used
- Not consistently defined or applied.

- There is no clarity on the relative AE rating of animal classes or the treatment of weight gains, pregnancy or lactation.
- There is a need to have an accurate and defendable methodology for calculating grazing loads, stocking rates and detailed financial analysis.

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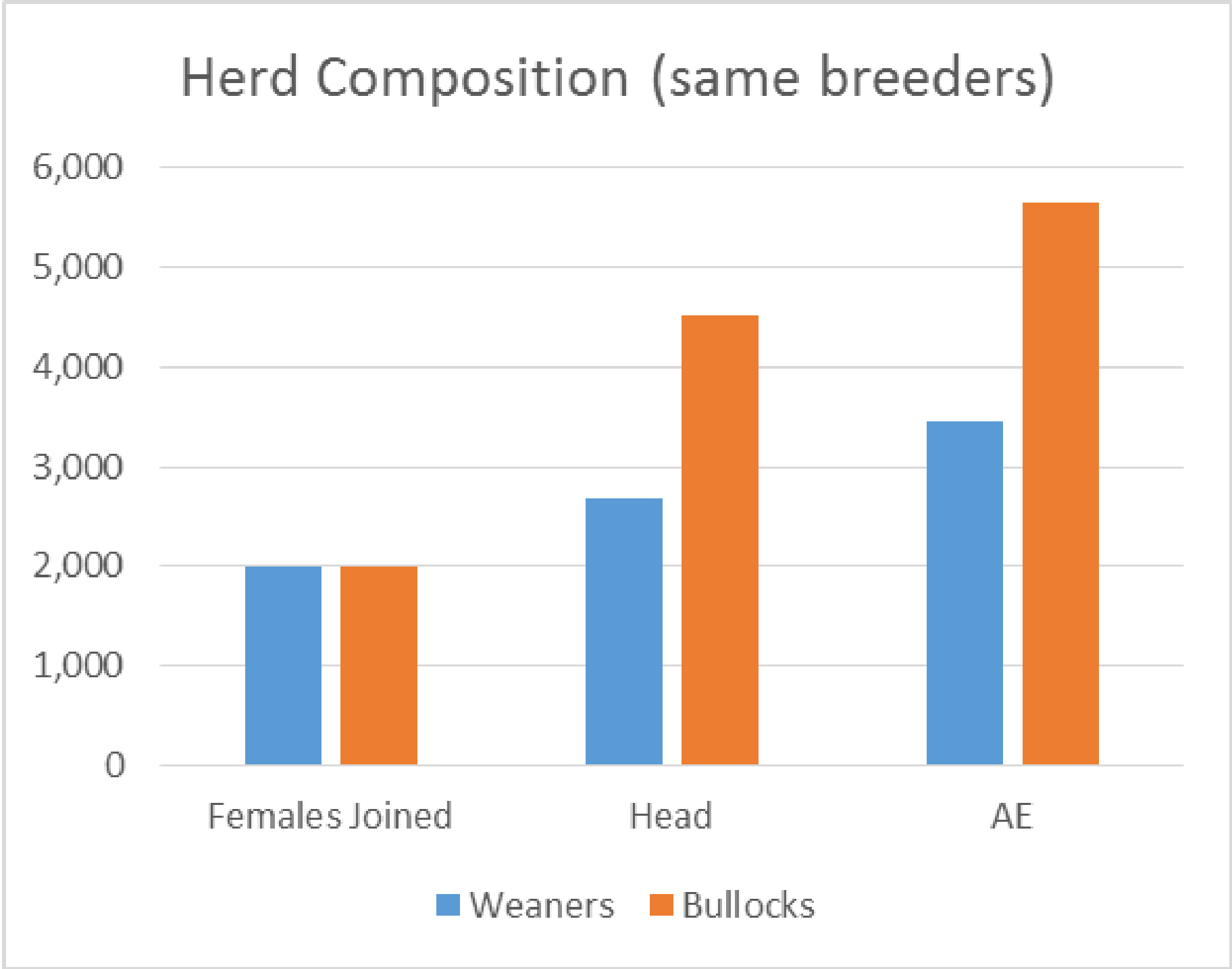
Why is this important?

Common usage of breeders or number of head describing carrying capacity or value are problematic;

1. “It will run 2,000 breeders”

   3,450 AE if selling weaners, 5,660 AE if selling bullocks

2. “It will carry 1,000 head”


Herd Composition (same breeders)
6,000
5,000
4,000
3,000
2,000
1,000
0
Females Joined
Head
AE
Weaners
Bullocks

“It will carry 1,000 head”

Hereford Bullocks, growing from 425kg-575kg over 12 months.

1.52 AE/hd = 1,520 AE

Bos taurus Table

Growing steer

Liveweight (kg)	Liveweight gain (kg/hd/day)						
	0.0	**0.2**	**0.4**	**0.6**	**0.8**	**1.0**	**1.2**
150	0.43	0.53	0.64	0.75	0.87	0.99	1.11
200	0.52	0.64	0.77	0.90	1.03	1.17	1.31
250	0.62	0.77	0.91	1.06	1.21	1.37	1.53
300	0.72	0.89	1.05	1.22	1.39	1.56	1.74
350	0.82	1.00	1.18	1.37	1.55	1.74	1.93
400	0.91	1.11	1.30	1.50	1.70	1.90	2.10
450	1.00	1.21	1.41	1.62	1.83	2.04	2.25
500	1.09	1.30	1.52	1.73	1.95	2.16	2.38
550	1.18	1.40	1.62	1.84	2.05	2.27	2.49
600	1.27	1.49	1.71	1.93	2.15	2.38	2.60
650	1.36	1.58	1.80	2.02	2.24	2.46	2.69

“It will carry 1,000 head”

Brahman Weaner Steers, growing from 175kg-325kg over 12mths.

0.82 AE/hd = 820 AE

Bos indicus Table

Growing steer

Liveweight (kg)	Liveweight gain (kg/hd/day)						
	0.0	**0.2**	**0.4**	**0.6**	**0.8**	**1.0**	**1.2**
150	0.38	0.48	0.58	0.68	0.79	0.91	1.03
200	0.46	0.58	0.69	0.81	0.94	1.07	1.20
250	0.55	0.68	0.82	0.96	1.10	1.25	1.40
300	0.64	0.79	0.95	1.10	1.26	1.43	1.59
350	0.73	0.90	1.07	1.24	1.42	1.60	1.78
400	0.81	1.00	1.18	1.37	1.56	1.76	1.95
450	0.89	1.09	1.29	1.49	1.69	1.89	2.10
500	0.97	1.18	1.39	1.60	1.81	2.02	2.23
550	1.06	1.27	1.48	1.70	1.91	2.13	2.35
600	1.14	1.36	1.57	1.79	2.01	2.23	2.45
650	1.22	1.44	1.66	1.88	2.10	2.33	2.55

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How was it developed?

- Initial concept developed privately using MAFF tables
- Discussed concept with MLA
- MLA supported development of concept, basing it on the Australian Feeding Standards.

  (Nutrient Requirements of Domesticated Ruminants, CSIRO 2007)

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How was it developed?

An AE is a unit of animal, quantified in terms of energy demand and based on animal specific variables.

It is not based on animal-pasture variables or other animal-environment interactions.

Scarnecchia

APPROACH

Minimum number of animal specific variables for maximum accuracy.

Applied to

Nutrient Requirements of Domesticated Ruminants (Feeding Standards)

To give

Energy demand of animals relative to the Animal Equivalent standard

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How was it developed?

Variables that determine energy requirements.

- Age
- Breed
- Sex
- Weight
- Weight gain
- Pregnancy status
- Lactation status
- Weaning age & weight
- Activity?
- Diet Quality?

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How was it developed?

Issues with environmental interactions

- Diet Quality

  Environmental interaction, but affects ME requirement.

  Relatively narrow range of diet quality across Northern Australia and fixing it has no material affect on absolute or relative AE ratings.

  Fixed at 7.75 MJ ME/ Kg DM for all calculations

- Distance Walked

  Affects energy required for activity

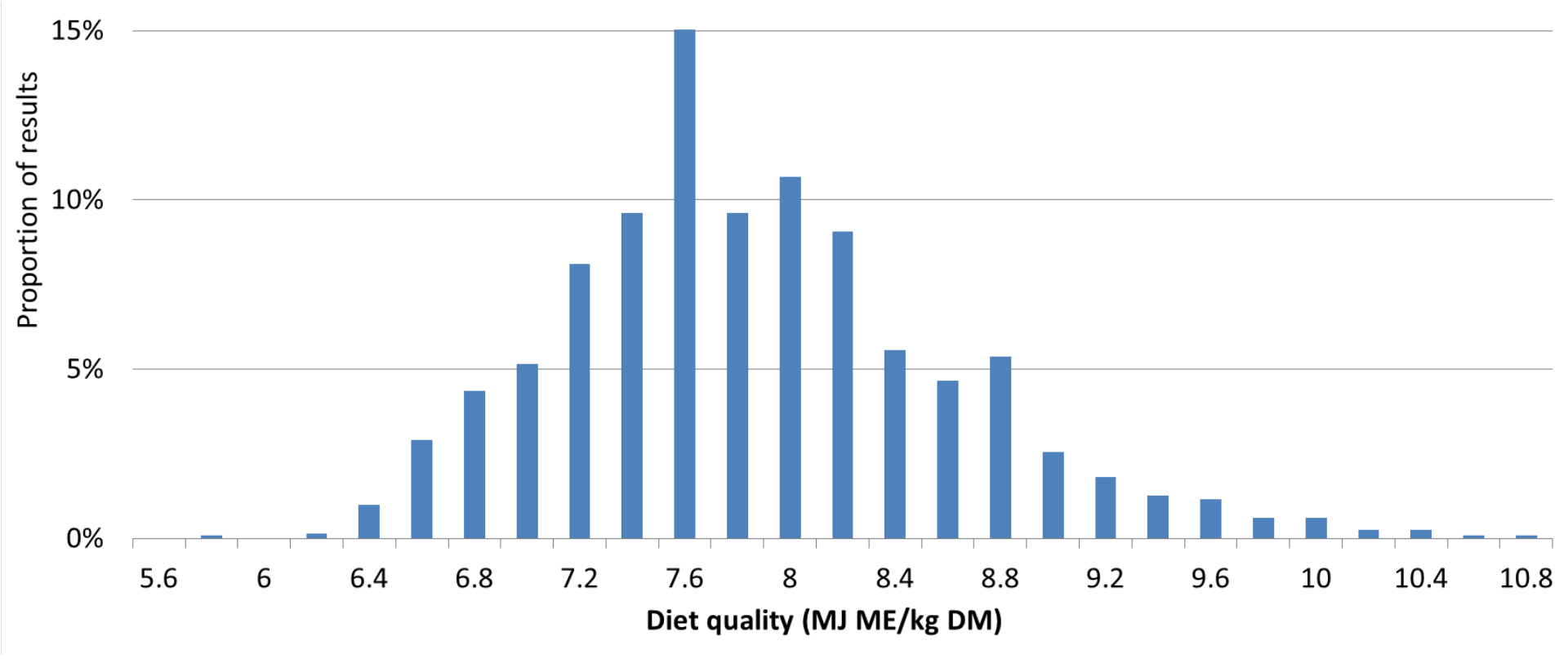
  Cattle walk a similar distance each day, irrespective of paddock size, grazing radius and number of waters

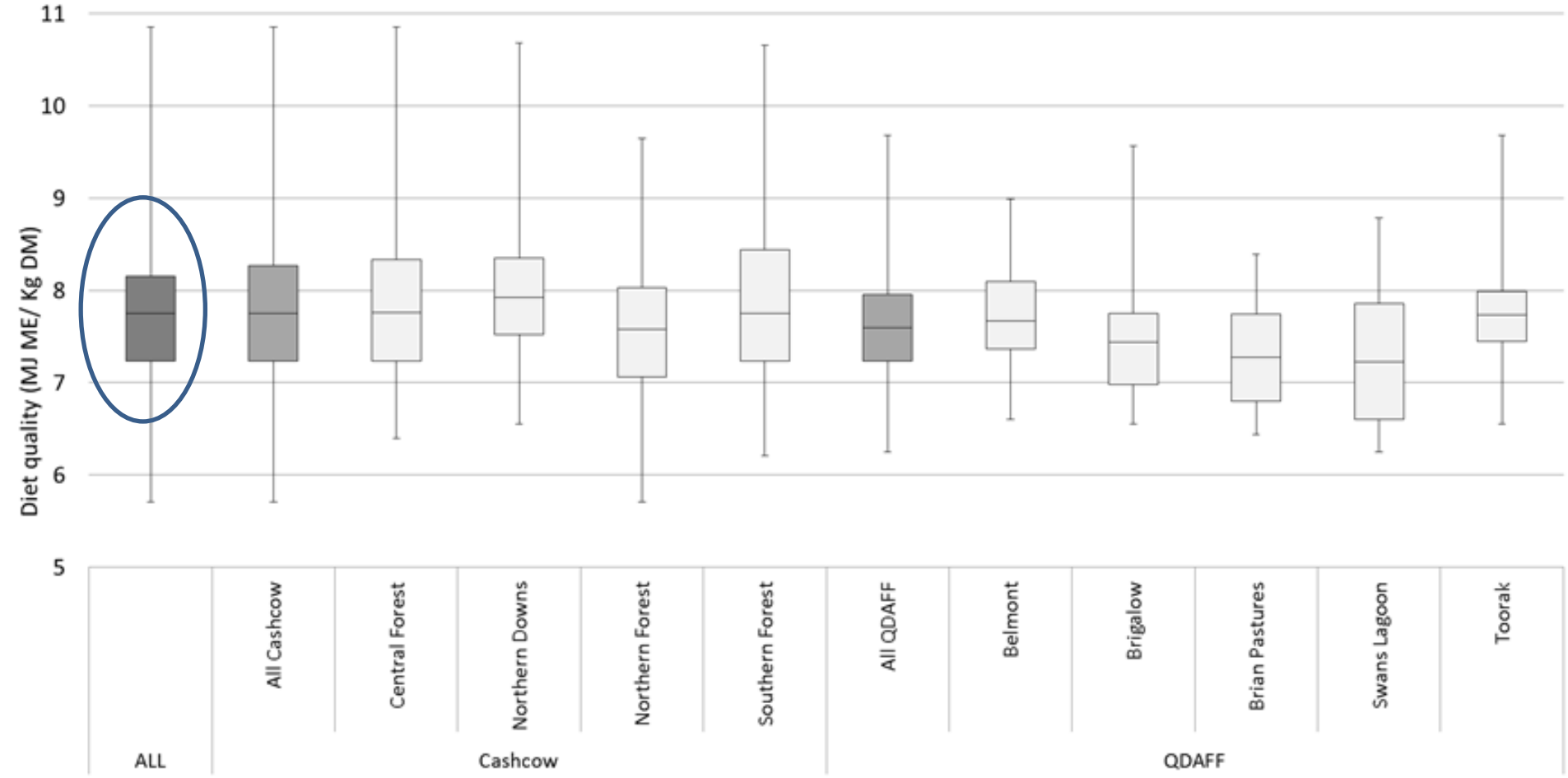
  Fixed at 7.0km /day for all calculations

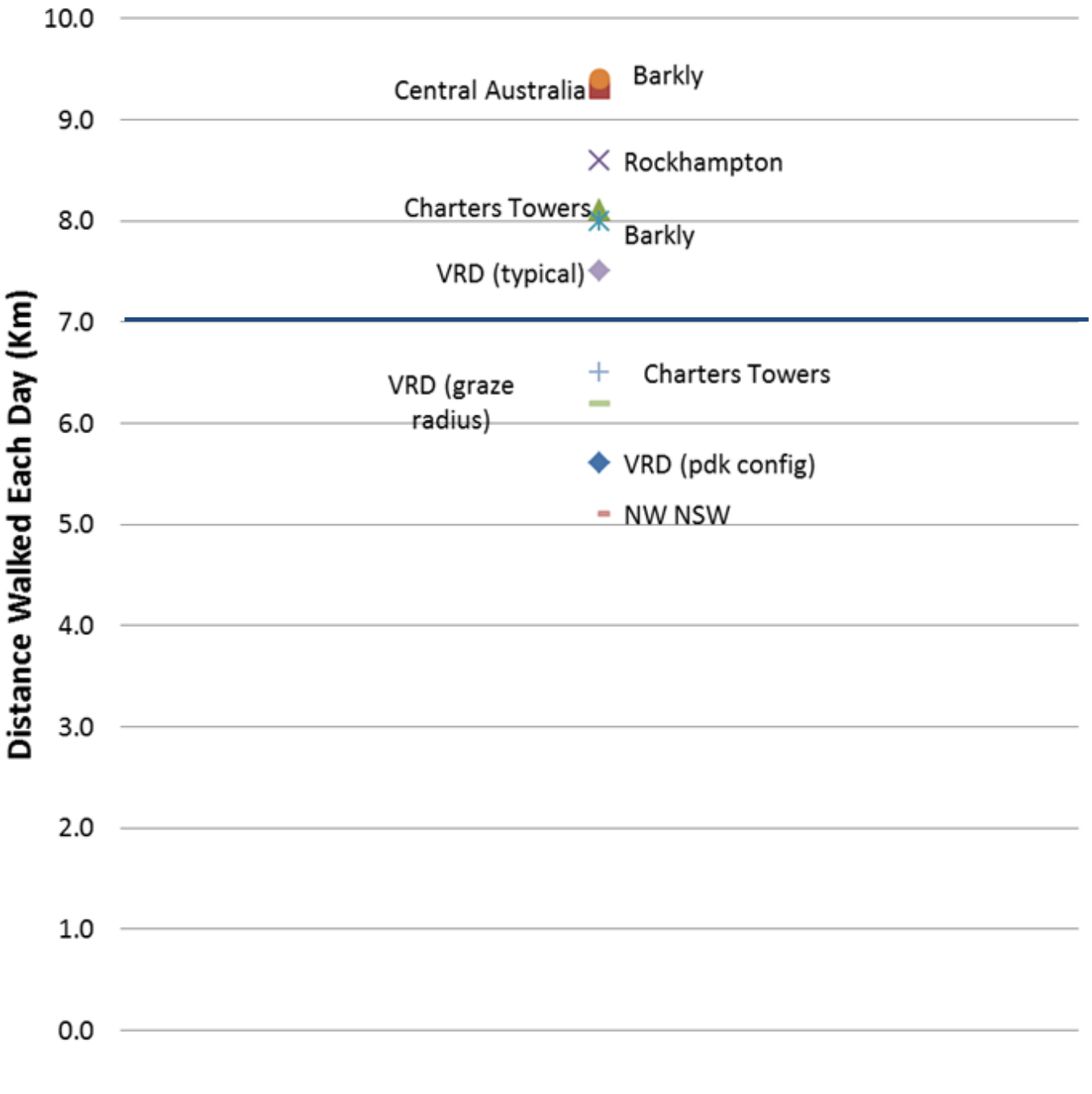
Diet Quality

2,000 NIRS samples from Cashcow project and Beef CRC/QDAFF

Q1	7.24
Median	7.75
Q3	8.15




Diet quality (MJ ME/ Kg DM)
11
10
9
8
7
6
5
ALL
All Cashcow
Central Forest
Northern Downs
Northern Forest
Southern Forest
Cashcow
All QDAFF
Belmont
Brigalow
Brian Pastures
Swans Lagoon
Toorak
QDAFF


Distance Walked Each Day (Km)
10.0
9.0
8.0
7.0
6.0
5.0
4.0
3.0
2.0
1.0
0.0
Central Australia
Barkly
Rockhampton
Charters Towers
Barkly
VRD (typical)
VRD (graze radius)
Charters Towers
VRD (pdk config)
NW NSW

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What is an Adult Equivalent?

A 2.25 y/o 450kg Bos taurus steer at maintenance, walking 7km a day & grazing on a 7.75MJ diet.

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QUESTIONS?

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What is an Adult Equivalent?

Energy Requirements of the Adult Equivalent

$ME_{maintenance}$	Eqn 1.19	54.7	MJ ME/day
$ME_{activity}$	Eqn 1.22	17.9	MJ ME/day
ME_{growth}		n/a	
$ME_{pregnancy}$		n/a	
$ME_{lactation}$		n/a	
Total		**72.6**	**MJ ME/day**

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How do you use it?

- Calculate grazing load of herd
  - In total (number of AE)
  - By class (% breeders, heifers, steers, bullocks, bulls etc.)
  - By energy usage (maintenance, growth, pregnancy, lactation)
- Calculate monthly requirements by class
  - Feed budgeting
  - Matching energy requirements to feed availability
- Decide on stocking
  - Decide on class (1,000AE =650 bullocks or 1,220 weaner steers)

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Outputs

- Whole Herd Tool
- Individual Class Tool
- AE Tables

ADULT EQUIVALENT (AE) TABLES: BOS TAURUS

AE Ratings represent energy requirements relative to the AE standard, which is a 450kg Bos taurus steer at maintenance

Growing steer

Liveweight (kg)	Liveweight gain (kg/hd/day)						
	0.0	0.2	0.4	0.6	0.8	1.0	1.2
150	0.43	0.53	0.64	0.75	0.87	0.99	1.11
200	0.52	0.64	0.77	0.90	1.03	1.17	1.31
250	0.62	0.77	0.91	1.06	1.21	1.37	1.53
300	0.72	0.89	1.05	1.22	1.39	1.56	1.74
350	0.82	1.00	1.18	1.37	1.55	1.74	1.93
400	0.91	1.11	1.30	1.50	1.70	1.90	2.10
450	1.00	1.21	1.41	1.62	1.83	2.04	2.25
500	1.09	1.30	1.52	1.73	1.95	2.16	2.38
550	1.18	1.40	1.62	1.84	2.05	2.27	2.49
600	1.27	1.49	1.71	1.93	2.15	2.38	2.60
650	1.36	1.58	1.80	2.02	2.24	2.46	2.69

Annualised breeder

Liveweight (kg)	Weaning rate						
	60%	65%	70%	75%	80%	85%	90%
350	1.18	1.21	1.24	1.27	1.31	1.34	1.37
375	1.22	1.26	1.29	1.32	1.36	1.39	1.42
400	1.27	1.30	1.34	1.37	1.40	1.44	1.47
425	1.32	1.35	1.38	1.42	1.45	1.48	1.52
450	1.37	1.40	1.43	1.47	1.50	1.53	1.57
475	1.41	1.45	1.48	1.51	1.55	1.58	1.61
500	1.46	1.49	1.53	1.56	1.59	1.63	1.66
525	1.51	1.54	1.58	1.61	1.64	1.68	1.71
550	1.56	1.59	1.62	1.66	1.69	1.72	1.76
575	1.60	1.64	1.67	1.70	1.74	1.77	1.80
600	1.65	1.69	1.72	1.75	1.79	1.82	1.85

Pregnant female

Liveweight (kg)	Days pregnant						
	0	45	90	135	180	225	270
350	0.77	0.78	0.79	0.81	0.86	0.99	1.30
375	0.82	0.82	0.83	0.85	0.91	1.03	1.34
400	0.87	0.87	0.88	0.90	0.95	1.08	1.39
425	0.92	0.92	0.93	0.95	1.00	1.13	1.44
450	0.96	0.97	0.98	1.00	1.05	1.18	1.49
475	1.01	1.02	1.02	1.05	1.10	1.22	1.53
500	1.06	1.06	1.07	1.09	1.15	1.27	1.58
525	1.11	1.11	1.12	1.14	1.19	1.32	1.63
550	1.16	1.16	1.17	1.19	1.24	1.37	1.68
575	1.20	1.21	1.22	1.24	1.29	1.42	1.73
600	1.25	1.25	1.26	1.29	1.34	1.46	1.77

Lactating female

Liveweight (kg)	Days in milk						
	0	30	60	90	120	150	180
350	1.30	1.92	1.82	1.65	1.42	1.13	0.80
375	1.34	1.96	1.86	1.70	1.47	1.18	0.84
400	1.39	2.01	1.91	1.74	1.51	1.23	0.89
425	1.44	2.06	1.96	1.79	1.56	1.28	0.94
450	1.49	2.11	2.01	1.84	1.61	1.32	0.99
475	1.53	2.16	2.05	1.89	1.66	1.37	1.03
500	1.58	2.20	2.10	1.93	1.71	1.42	1.08
525	1.63	2.25	2.15	1.98	1.75	1.47	1.13
550	1.68	2.30	2.20	2.03	1.80	1.52	1.18
575	1.73	2.35	2.25	2.08	1.85	1.56	1.23
600	1.77	2.40	2.29	2.13	1.90	1.61	1.27
plus Calf	0.00	0.0	0.2	0.3	0.5	0.7	1.0

ADULTL EQUIVALENT (AE) TABLES: BOS INDICUS

AE Ratings represent energy requirements relative to the AE standard, which is a 450kg Bos taurus steer at maintenance

Growing steer

Liveweight (kg)	Liveweight gain (kg/hd/day)						
	0.0	0.2	0.4	0.6	0.8	1.0	1.2
150	0.38	0.48	0.58	0.68	0.79	0.91	1.03
200	0.46	0.58	0.69	0.81	0.94	1.07	1.20
250	0.55	0.68	0.82	0.96	1.10	1.25	1.40
300	0.64	0.79	0.95	1.10	1.26	1.43	1.59
350	0.73	0.90	1.07	1.24	1.42	1.60	1.78
400	0.81	1.00	1.18	1.37	1.56	1.76	1.95
450	0.89	1.09	1.29	1.49	1.69	1.89	2.10
500	0.97	1.18	1.39	1.60	1.81	2.02	2.23
550	1.06	1.27	1.48	1.70	1.91	2.13	2.35
600	1.14	1.36	1.57	1.79	2.01	2.23	2.45
650	1.22	1.44	1.66	1.88	2.10	2.33	2.55

Annualised breeder

Liveweight (kg)	Weaning rate						
	60%	65%	70%	75%	80%	85%	90%
350	1.06	1.09	1.12	1.15	1.18	1.22	1.25
375	1.10	1.14	1.17	1.20	1.23	1.26	1.29
400	1.15	1.18	1.21	1.24	1.27	1.30	1.33
425	1.19	1.22	1.25	1.28	1.31	1.34	1.38
450	1.23	1.26	1.30	1.33	1.36	1.39	1.42
475	1.28	1.31	1.34	1.37	1.40	1.43	1.46
500	1.32	1.35	1.38	1.41	1.44	1.48	1.51
525	1.36	1.40	1.43	1.46	1.49	1.52	1.55
550	1.41	1.44	1.47	1.50	1.53	1.56	1.59
575	1.45	1.48	1.51	1.55	1.58	1.61	1.64
600	1.50	1.53	1.56	1.59	1.62	1.65	1.68

Pregnant female

Liveweight (kg)	Days pregnant						
	0	45	90	135	180	225	270
350	0.69	0.69	0.70	0.72	0.77	0.90	1.21
375	0.73	0.74	0.74	0.77	0.82	0.94	1.25
400	0.78	0.78	0.79	0.81	0.86	0.99	1.30
425	0.82	0.82	0.83	0.85	0.90	1.03	1.34
450	0.86	0.87	0.87	0.90	0.95	1.07	1.38
475	0.91	0.91	0.92	0.94	0.99	1.12	1.43
500	0.95	0.95	0.96	0.98	1.03	1.16	1.47
525	0.99	1.00	1.00	1.03	1.08	1.21	1.51
550	1.04	1.04	1.05	1.07	1.12	1.25	1.56
575	1.08	1.08	1.09	1.11	1.17	1.29	1.60
600	1.12	1.13	1.14	1.16	1.21	1.34	1.65

Lactating female

Liveweight (kg)	Days in milk						
	0	30	60	90	120	150	180
350	1.21	1.75	1.65	1.49	1.28	1.01	0.71
375	1.25	1.79	1.69	1.53	1.32	1.06	0.75
400	1.30	1.83	1.73	1.57	1.36	1.10	0.79
425	1.34	1.88	1.78	1.62	1.40	1.14	0.84
450	1.38	1.92	1.82	1.66	1.45	1.19	0.88
475	1.43	1.96	1.86	1.70	1.49	1.23	0.92
500	1.47	2.01	1.91	1.75	1.53	1.27	0.97
525	1.51	2.05	1.95	1.79	1.58	1.32	1.01
550	1.56	2.10	1.99	1.83	1.62	1.36	1.06
575	1.60	2.14	2.04	1.88	1.67	1.41	1.10
600	1.65	2.18	2.08	1.92	1.71	1.45	1.14
plus Calf	0.00	0.0	0.2	0.3	0.5	0.7	0.9

ADULT EQUIVALENT (AE) TABLES: CROSSBREED

AE Ratings represent energy requirements relative to the AE standard, which is a 450kg Bos taurus steer at maintenance

Growing steer

Liveweight (kg)	Liveweight gain (kg/hd/day)						
	0.0	0.2	0.4	0.6	0.8	1.0	1.2
150	0.41	0.50	0.60	0.71	0.82	0.93	1.05
200	0.49	0.61	0.72	0.84	0.97	1.10	1.23
250	0.59	0.72	0.86	1.00	1.14	1.28	1.43
300	0.68	0.83	0.99	1.15	1.31	1.47	1.63
350	0.77	0.94	1.11	1.29	1.47	1.64	1.82
400	0.86	1.05	1.23	1.42	1.61	1.80	2.00
450	0.95	1.14	1.34	1.54	1.75	1.95	2.15
500	1.03	1.24	1.45	1.66	1.87	2.08	2.29
550	1.12	1.33	1.55	1.76	1.98	2.19	2.41
600	1.20	1.42	1.64	1.86	2.08	2.30	2.52
650	1.29	1.51	1.73	1.95	2.17	2.39	2.62

Annualised breeder

Liveweight (kg)	Weaning rate						
	60%	65%	70%	75%	80%	85%	90%
350	1.11	1.15	1.18	1.21	1.24	1.27	1.30
375	1.16	1.19	1.22	1.25	1.29	1.32	1.35
400	1.21	1.24	1.27	1.30	1.33	1.36	1.40
425	1.25	1.28	1.31	1.35	1.38	1.41	1.44
450	1.30	1.33	1.36	1.39	1.42	1.45	1.49
475	1.34	1.37	1.41	1.44	1.47	1.50	1.53
500	1.39	1.42	1.45	1.48	1.51	1.55	1.58
525	1.43	1.46	1.50	1.53	1.56	1.59	1.62
550	1.48	1.51	1.54	1.57	1.61	1.64	1.67
575	1.53	1.56	1.59	1.62	1.65	1.68	1.72
600	1.57	1.60	1.63	1.67	1.70	1.73	1.76

Pregnant female

Liveweight (kg)	Days pregnant						
	0	45	90	135	180	225	270
350	0.73	0.73	0.74	0.76	0.82	0.94	1.25
375	0.78	0.78	0.79	0.81	0.86	0.99	1.30
400	0.82	0.83	0.83	0.86	0.91	1.03	1.34
425	0.87	0.87	0.88	0.90	0.95	1.08	1.39
450	0.91	0.92	0.93	0.95	1.00	1.13	1.43
475	0.96	0.96	0.97	0.99	1.04	1.17	1.48
500	1.00	1.01	1.02	1.04	1.09	1.22	1.53
525	1.05	1.05	1.06	1.08	1.14	1.26	1.57
550	1.10	1.10	1.11	1.13	1.18	1.31	1.62
575	1.14	1.15	1.15	1.18	1.23	1.35	1.66
600	1.19	1.19	1.20	1.22	1.27	1.40	1.71

Lactating female

Liveweight (kg)	Days in milk						
	0	30	60	90	120	150	180
350	1.25	1.82	1.72	1.56	1.34	1.07	0.75
375	1.30	1.87	1.77	1.60	1.38	1.11	0.80
400	1.34	1.92	1.81	1.65	1.43	1.16	0.84
425	1.39	1.96	1.86	1.69	1.48	1.21	0.89
450	1.43	2.01	1.90	1.74	1.52	1.25	0.93
475	1.48	2.05	1.95	1.78	1.57	1.30	0.98
500	1.53	2.10	1.99	1.83	1.61	1.34	1.02
525	1.57	2.14	2.04	1.88	1.66	1.39	1.07
550	1.62	2.19	2.09	1.92	1.70	1.43	1.12
575	1.66	2.24	2.13	1.97	1.75	1.48	1.16
600	1.71	2.28	2.18	2.01	1.80	1.53	1.21
plus Calf	0.00	0.03	0.16	0.31	0.49	0.69	0.92

ADULT EQUIVALENT (AE) TABLES: EUROPEAN

AE Ratings represent energy requirements relative to the AE standard, which is a 450kg Bos taurus steer at maintenance

Growing steer

Liveweight (kg)	Liveweight gain (kg/hd/day)						
	0.0	0.2	0.4	0.6	0.8	1.0	1.2
150	0.43	0.52	0.60	0.69	0.79	0.89	0.99
200	0.52	0.62	0.71	0.81	0.92	1.03	1.14
250	0.62	0.73	0.84	0.95	1.07	1.18	1.30
300	0.72	0.84	0.96	1.09	1.21	1.34	1.48
350	0.82	0.95	1.08	1.22	1.36	1.50	1.65
400	0.91	1.05	1.20	1.35	1.50	1.65	1.81
450	1.00	1.16	1.32	1.48	1.64	1.80	1.96
500	1.09	1.26	1.42	1.59	1.76	1.93	2.11
550	1.18	1.35	1.53	1.70	1.88	2.06	2.24
600	1.27	1.45	1.63	1.81	1.99	2.17	2.36
650	1.36	1.54	1.72	1.91	2.09	2.28	2.47

Annualised breeder

Liveweight (kg)	Weaning rate						
	60%	65%	70%	75%	80%	85%	90%
350	1.14	1.18	1.21	1.24	1.27	1.30	1.33
375	1.19	1.22	1.25	1.28	1.32	1.35	1.38
400	1.24	1.27	1.30	1.33	1.36	1.39	1.42
425	1.29	1.32	1.35	1.38	1.41	1.44	1.47
450	1.34	1.37	1.40	1.43	1.46	1.49	1.52
475	1.38	1.41	1.44	1.48	1.51	1.54	1.57
500	1.43	1.46	1.49	1.52	1.55	1.58	1.62
525	1.48	1.51	1.54	1.57	1.60	1.63	1.66
550	1.53	1.56	1.59	1.62	1.65	1.68	1.71
575	1.57	1.61	1.64	1.67	1.70	1.73	1.76
600	1.62	1.65	1.68	1.72	1.75	1.78	1.81

Pregnant female

Liveweight (kg)	Days pregnant						
	0	45	90	135	180	225	270
350	0.77	0.78	0.79	0.81	0.86	0.99	1.30
375	0.82	0.82	0.83	0.85	0.91	1.03	1.34
400	0.87	0.87	0.88	0.90	0.95	1.08	1.39
425	0.92	0.92	0.93	0.95	1.00	1.13	1.44
450	0.96	0.97	0.98	1.00	1.05	1.18	1.49
475	1.01	1.02	1.02	1.05	1.10	1.22	1.53
500	1.06	1.06	1.07	1.09	1.15	1.27	1.58
525	1.11	1.11	1.12	1.14	1.19	1.32	1.63
550	1.16	1.16	1.17	1.19	1.24	1.37	1.68
575	1.20	1.21	1.22	1.24	1.29	1.42	1.73
600	1.25	1.25	1.26	1.29	1.34	1.46	1.77

Lactating female

Liveweight (kg)	Days in milk						
	0	30	60	90	120	150	180
350	1.30	1.84	1.74	1.57	1.36	1.09	0.79
375	1.34	1.89	1.78	1.62	1.40	1.14	0.84
400	1.39	1.94	1.83	1.67	1.45	1.19	0.89
425	1.44	1.98	1.88	1.72	1.50	1.24	0.94
450	1.49	2.03	1.93	1.76	1.55	1.28	0.98
475	1.53	2.08	1.98	1.81	1.59	1.33	1.03
500	1.58	2.13	2.02	1.86	1.64	1.38	1.08
525	1.63	2.18	2.07	1.91	1.69	1.43	1.13
550	1.68	2.22	2.12	1.95	1.74	1.48	1.17
575	1.73	2.27	2.17	2.00	1.79	1.52	1.22
600	1.77	2.32	2.22	2.05	1.83	1.57	1.27
plus Calf	0.00	0.03	0.16	0.30	0.47	0.66	0.86

ADULT EQUIVALENT (AE) TABLES: LIMOUSIN

AE Ratings represent energy requirements relative to the AE standard, which is a 450kg Bos taurus steer at maintenance

Growing steer

Liveweight (kg)	Liveweight gain (kg/hd/day)						
	0.0	0.2	0.4	0.6	0.8	1.0	1.2
150	0.41	0.50	0.60	0.71	0.82	0.93	1.05
200	0.49	0.61	0.72	0.84	0.97	1.10	1.23
250	0.59	0.72	0.86	1.00	1.14	1.28	1.43
300	0.68	0.83	0.99	1.15	1.31	1.47	1.63
350	0.77	0.94	1.11	1.29	1.47	1.64	1.82
400	0.86	1.05	1.23	1.42	1.61	1.80	2.00
450	0.95	1.14	1.34	1.54	1.75	1.95	2.15
500	1.03	1.24	1.45	1.66	1.87	2.08	2.29
550	1.12	1.33	1.55	1.76	1.98	2.19	2.41
600	1.20	1.42	1.64	1.86	2.08	2.30	2.52
650	1.29	1.51	1.73	1.95	2.17	2.39	2.62

Annualised breeder

Liveweight (kg)	Weaning rate						
	60%	65%	70%	75%	80%	85%	90%
350	1.11	1.15	1.18	1.21	1.24	1.27	1.30
375	1.16	1.19	1.22	1.25	1.29	1.32	1.35
400	1.21	1.24	1.27	1.30	1.33	1.36	1.40
425	1.25	1.28	1.31	1.35	1.38	1.41	1.44
450	1.30	1.33	1.36	1.39	1.42	1.45	1.49
475	1.34	1.37	1.41	1.44	1.47	1.50	1.53
500	1.39	1.42	1.45	1.48	1.51	1.55	1.58
525	1.43	1.46	1.50	1.53	1.56	1.59	1.62
550	1.48	1.51	1.54	1.57	1.61	1.64	1.67
575	1.53	1.56	1.59	1.62	1.65	1.68	1.72
600	1.57	1.60	1.63	1.67	1.70	1.73	1.76

Pregnant female

Liveweight (kg)	Days pregnant						
	0	45	90	135	180	225	270
350	0.73	0.73	0.74	0.76	0.82	0.94	1.25
375	0.78	0.78	0.79	0.81	0.86	0.99	1.30
400	0.82	0.83	0.83	0.86	0.91	1.03	1.34
425	0.87	0.87	0.88	0.90	0.95	1.08	1.39
450	0.91	0.92	0.93	0.95	1.00	1.13	1.43
475	0.96	0.96	0.97	0.99	1.04	1.17	1.48
500	1.00	1.01	1.02	1.04	1.09	1.22	1.53
525	1.05	1.05	1.06	1.08	1.14	1.26	1.57
550	1.10	1.10	1.11	1.13	1.18	1.31	1.62
575	1.14	1.15	1.15	1.18	1.23	1.35	1.66
600	1.19	1.19	1.20	1.22	1.27	1.40	1.71

Lactating female

Liveweight (kg)	Days in milk						
	0	30	60	90	120	150	180
350	1.25	1.82	1.72	1.56	1.34	1.07	0.75
375	1.30	1.87	1.77	1.60	1.38	1.11	0.80
400	1.34	1.92	1.81	1.65	1.43	1.16	0.84
425	1.39	1.96	1.86	1.69	1.48	1.21	0.89
450	1.43	2.01	1.90	1.74	1.52	1.25	0.93
475	1.48	2.05	1.95	1.78	1.57	1.30	0.98
500	1.53	2.10	1.99	1.83	1.61	1.34	1.02
525	1.57	2.14	2.04	1.88	1.66	1.39	1.07
550	1.62	2.19	2.09	1.92	1.70	1.43	1.12
575	1.66	2.24	2.13	1.97	1.75	1.48	1.16
600	1.71	2.28	2.18	2.01	1.80	1.53	1.21
plus Calf	0.00	0.03	0.16	0.31	0.49	0.69	0.92

AE Methodology & Tools, B.NBP.0779

QUESTIONS?

AE Methodology & Tools, B.NBP.0779

Demonstration

- Whole Herd Model
- Individual Class: Mature Breeder
- Individual Class: Growing Steer