

Calving two-year-old heifers

Rebecca Hickson

Institute of Veterinary and Animal Sciences, Massey University

Outline

- Why calve heifers at 2
- Factors to consider
 - Preparing your heifers
 - Selecting a bull
 - Feeding your heifers
 - Management at calving
- Industry performance

Why calve heifers at two?

Beef cows use 70% of feed eaten for maintenance

Increasing efficiency

- Relative size
 - Bigger calves from smaller cows by thinking about breed and EBVs for 200d weight, mature size and milk yield
- Number of calves
 - National calving percentage stagnant
 - Average 82% → high performing herd >92%
 - Mating yearling heifers increases number of calves weaned far more than any tweaking of calving percentage from mature cows

How much more will she eat?

- Assume heifers are 346 kg at 15 months (joining), 484 kg at 31 months (weaning)
 - Calves are 34 kg at birth, 232 kg at weaning at 208 days of age; 6 kg milk/day
 - Pasture is 11 MJ ME per kg DM
-
- Non pregnant heifer eats 2565 kg DM
 - Heifer and calf eat 3713 kg DM
 - An extra 1149 kg DM (45%) over empty heifer

 - At 12c/kg DM this is an extra \$138 in feed eaten

So is it worth it?

232 kg weaner at \$2.20/kg = \$510

- R2 heifers are there anyway
- Reduce total cow numbers to accommodate the extra feed, but more calves produced

Farmer opinion - why?

331 farmers in charge of 16,000 heifers

- Important reasons behind decision to calve 2-year-old heifers:
 - Increased profit
 - Shorter unproductive period of heifers
 - More calves per cow over her lifetime
 - Increased rate of genetic gain
 - Earlier selection of replacements

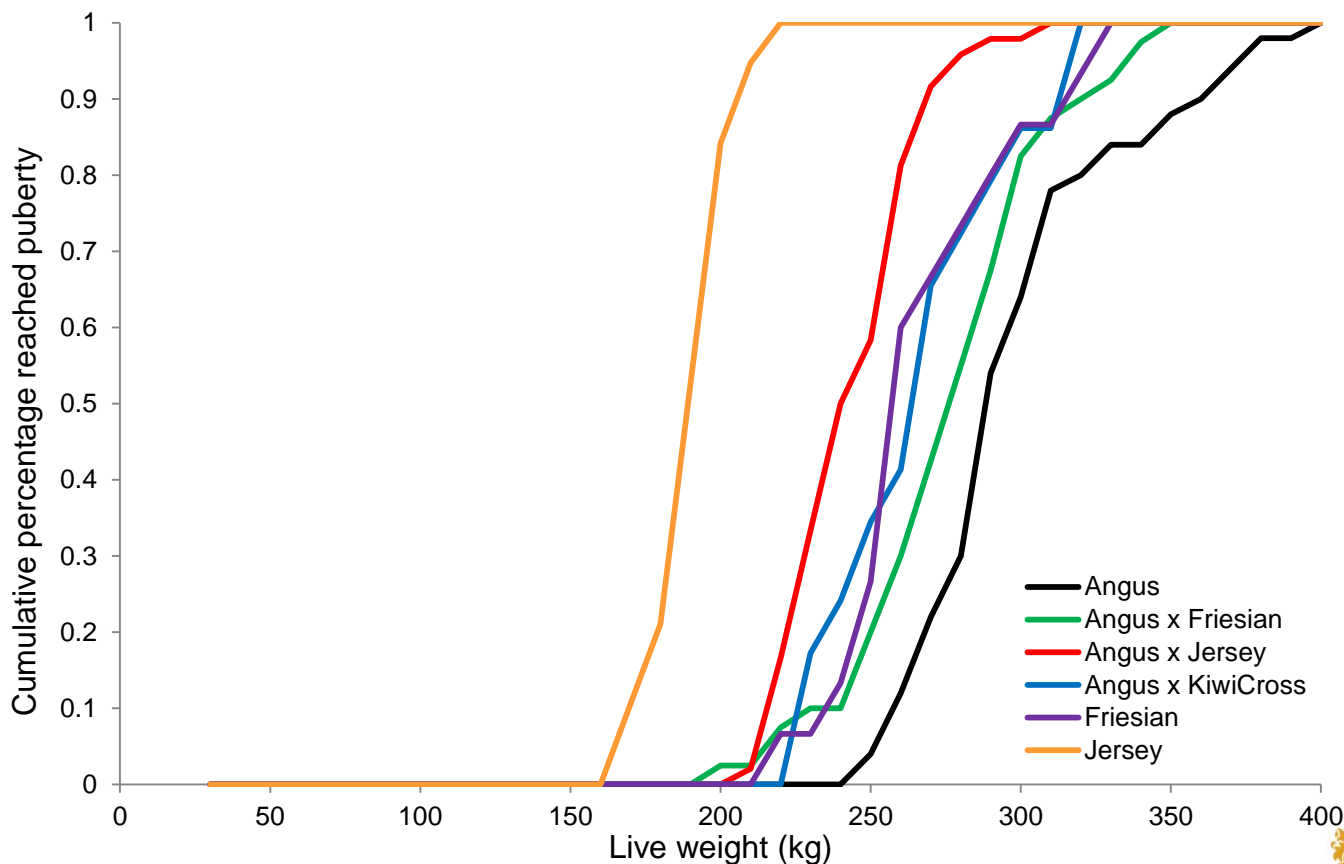
Farmer opinion – why *not*?

331 farmers in charge of 16,000 heifers

- Important reasons behind decision *not* to calve 2-year-old heifers:
 - Concerned about rebreeding of 2yo heifers
 - Need a buffer mob (empty R2 heifers)
 - Stunting of heifer's mature size
 - Concerned about dystocia in 2yo heifers
 - Requires different management skills
 - Want a higher pregnancy rate than can be achieved at 15 months

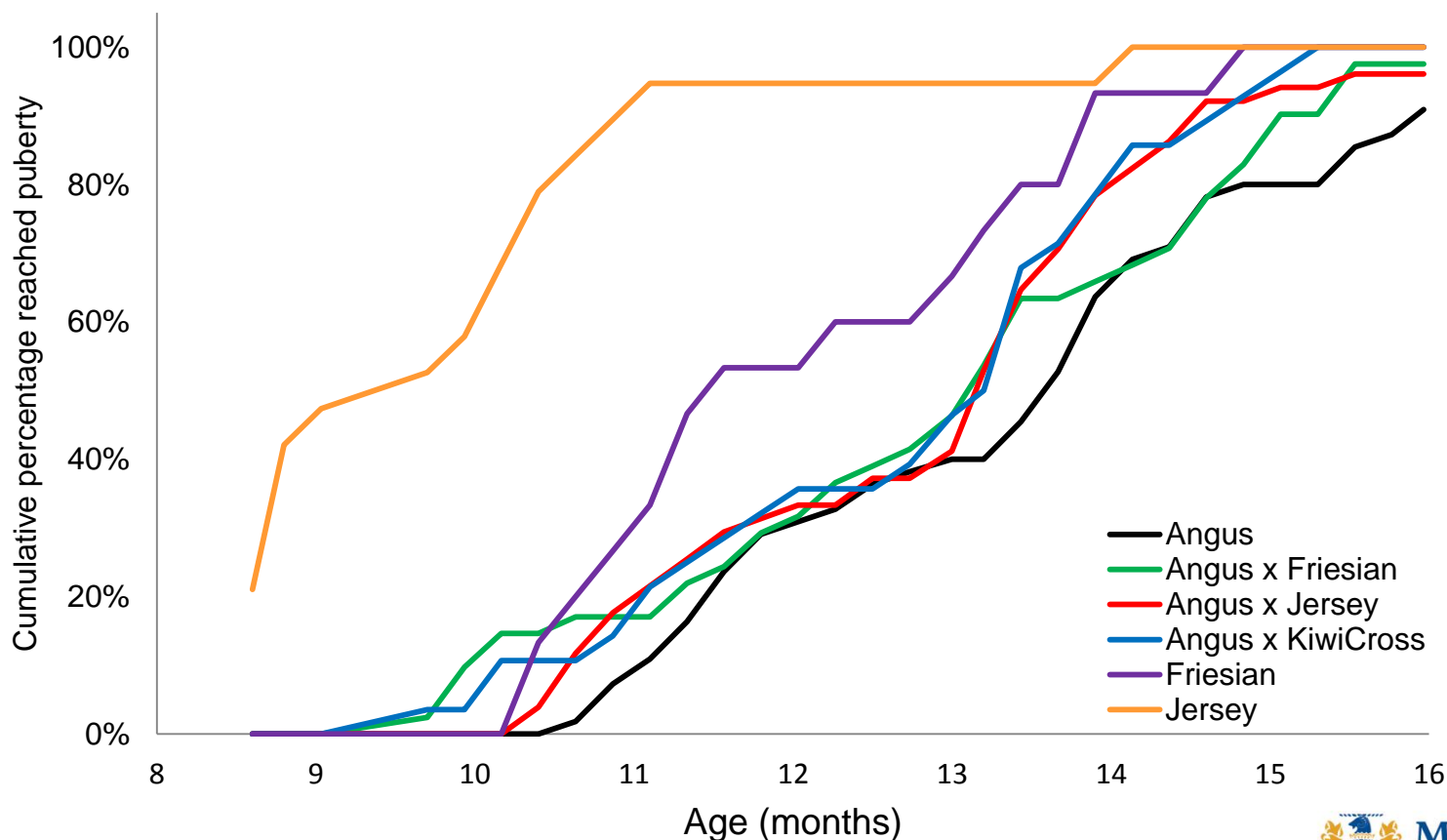
Get the heifers ready: Grow them!

- Reach puberty (mean live weight 297 kg for Angus heifers)
- Get a 'head start' on the calf – reduce dystocia



Get the heifers ready: Grow them!

- Reach puberty (mean live weight 297 kg for Angus heifers)
- Get a 'head start' on the calf – reduce dystocia



Feeding a pregnant heifer

- Feeding in early and mid pregnancy has little effect on birth weight
- Heifers that are restricted in late pregnancy
 - May have smaller calves, but from smaller heifers
 - Do not have less dystocia
 - Produce less milk
 - Are harder to get back in calf
- Feed heifers moderately well throughout pregnancy

Select the right bulls

- Birth weight key driver of dystocia
- Highly heritable – select on EBV
- EBVs estimate the genetic value of a bull – this is what you'll see in his progeny
- EBVs based on performance of the bull and his relatives
 - Buy from a breeder who is measuring the traits you are interested in

EBV - Traits

- For dystocia
 - Birth weight
 - Calving ease direct – more positive is better!
- “Calving ease daughters” when selecting a bull to father your future heifers
- Traits that drive profit
 - Perhaps self-replacing Index, with threshold limits for birth weight?

EBV – what to look at

NZ Angus Lot Details
Lot: 15 - Totoranui Angus Yearling Bull Sale
TOTARANUI 13005

[View Animal Details](#) [View Catalogue](#) [Search Site Catalogue](#)

[First Previous Next Last](#)

[Home](#) [Animal Enquiry](#) [EBV Enquiry](#) [Maternal Predictors](#) [Member Enquiry](#) [Sale Catalogues](#) [Season Catalogues](#) [Download Files](#) [Online Transactions](#)

Identifier: 12922013005
Sex: Male
Birth Date: 02/08/2013
Registration Status: Pending
Genetic Test Status: AMFU NHFU CAS21% DDS6%
[\(Click for explanation\)](#)

View right on pair average. Low for dam line. Above average growth.

- [E A F FOCUS OF ER \(IMP USA\)](#)
- [MYTTY IN FOCUS \(IMP USA\)](#)
- [MYTTY COUNTRY 606](#)
- **Sire: [CONNELLY IN SURE 8574 \(IMP USA\)](#)**
- [CONNELLY ONWARD](#)
- [ENTRENA OF CONANGA 657](#)
- [ENTY OF CONANGA 5657](#)
- Animal: **TOTARANUI 13005**
- [LAWBONS ANGUS NZ FUTURE DIRECTION A05913 \(ET\)](#)
- [TOTARANUI 811](#)
- [TOTARANUI 117](#)
- **Dam: [TOTARANUI 84](#)**
- [BON VIEW NEW DESIGN 208 \(IMP USA\)](#)
- [TOTARANUI 501](#)
- [TOTARANUI 118](#)

September 2014 Angus BREEDPLAN EBVs

EBV	Calving Ease	Calving Ease	Gestation Length	Birth Wt	200 Day Wt	400 Day Wt	600 Day Wt	Stain Cov	Stain Milk	Stain Sire	Days to Calving	Eye Muscle Wt	Rib Area	Rib Fat	Beef Yield	IMF	
	DIR (%)	DPRS (%)		(kg)	(kg)	(kg)	(kg)	(%)	(%)	(%)	(days)	(kg)	(sq cm)	(mm)	(%)	(%)	
EBV	+4.4	+2.7	-6.2	+1.4	+43	+79	+100	+75	+18	+2.9	-	+57	+4.7	+0.2	-0.1	+0.6	+1.7
Acc	47%	35%	83%	73%	67%	67%	63%	57%	46%	70%	-	55%	24%	24%	50%	67%	67%
Breed Avg. EBVs for 2012 Born Calves Click for Parameters																	
EBV	-0.4	+0.0	-3.1	+4.4	+58	+72	+84	+13	+1.6	-3.2	+51	+4.1	-0.1	-0.2	+0.4	+1.3	

Train Observed: GL,CE,BWT,200WT,400WT,600WT,SL,FATLEMA,IMF

SELECTION INDEX VALUES

Market Target	Index Value	Breed Average
Self Replacing Index (\$)	+5 152	+5 92
Angus Pure Index (\$)	+5 172	+5 110

[Explanation of Index Values](#)

Sale Date
Tuesday 23rd September 2014
Email info@totaranui.co.nz john@totaranui.co.nz
Dumfries and Tully 06 376 8400

Sale Location
Totoranui, 82318 SBE, Palmetta South
Homepage www.totaranui.co.nz
[Reference Sites](#)

John and Mary-Anne Phons 01 573 8401



Online Content [127 Angus](#)

Site Designed & Supported by [ASIS](#) +4 4 44 Dumfries

8 September 2014

[New Zealand Angus Association](#)

© Copyright 2014. All Rights Reserved



EBV – what to look at

September 2014 Angus BREEDPLAN EBVs																	
	Calving Ease DIR (%)	Calving Ease DTRS (%)	Gestation Length (days)	Birth Wt. (kg)	200 Day Wt (kg)	400 Day Wt (kg)	600 Day Wt (kg)	Mat Cow Wt (kg)	Milk (kg)	Scrotal Size (cm)	Days to Calving (days)	Carcase Wt (kg)	Eye Muscle Area (sq cm)	Rib Fat (mm)	Rump Fat (mm)	Retail Beef Yield (%)	IMF (%)
EBV	+4.4	+2.7	-6.2	+1.4	+43	+79	+100	+75	+18	+2.9	-	+57	+4.7	+0.2	-0.1	+0.6	+1.7
Acc	47%	35%	83%	73%	67%	67%	63%	57%	46%	70%	-	55%	54%	54%	55%	50%	47%
Breed Avg. EBVs for 2012 Born Calves Click for Percentiles																	
EBV	-0.4	+0.0	-3.1	+4.4	+39	+72	+94	+84	+13	+1.6	-3.2	+51	+4.1	-0.1	-0.2	+0.4	+1.3

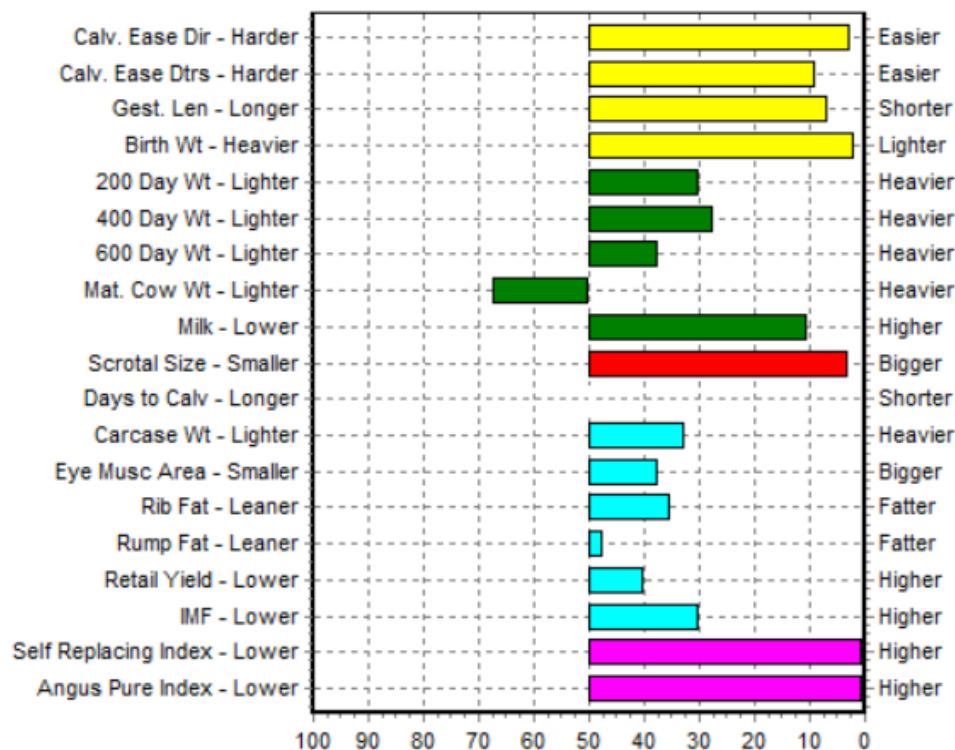
Traits Observed: GL,CE,BWT,200WT,400WT,SS,FAT,EMA,IMF

SELECTION INDEX VALUES		
Market Target	Index Value	Breed Average
Self Replacing Index (\$)	+\$ 152	+\$ 93
Angus Pure Index (\$)	+\$ 172	+\$ 110
Explanation of \$Index Values		

- How do the EBVs for the important traits and the indexes compare to breed average?
- What is the accuracy for the important traits?
- What traits have actually been measured on the bull?

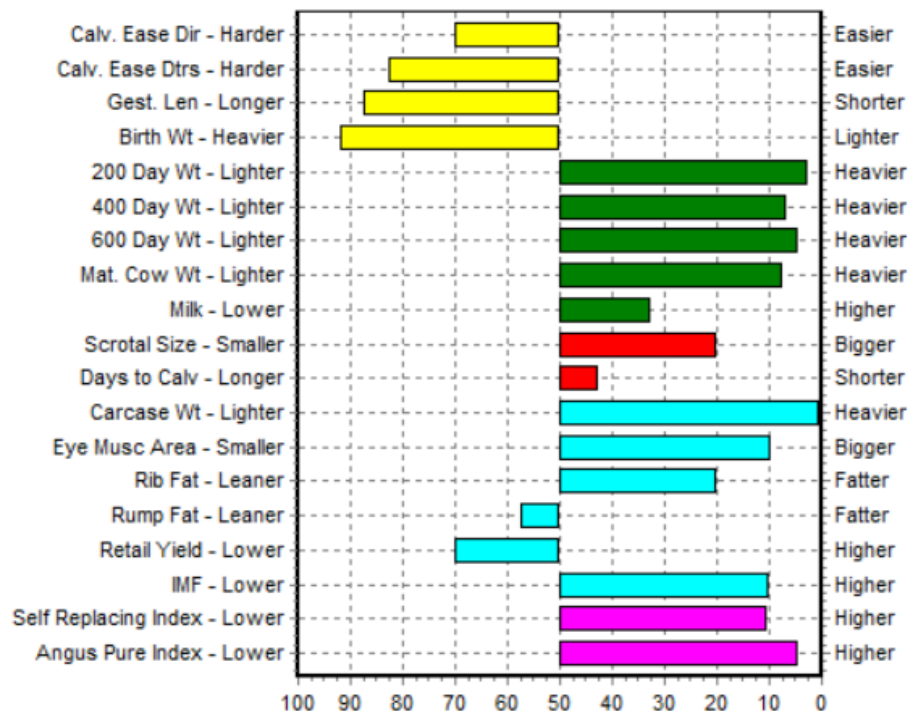
EBV – how does a bull compare?

EBV Percentiles for TOTARANUI 13005



50th Percentile is the Breed Avg. EBVs for 2012 Born Calves

EBV Percentiles for TOTARANUI 13066



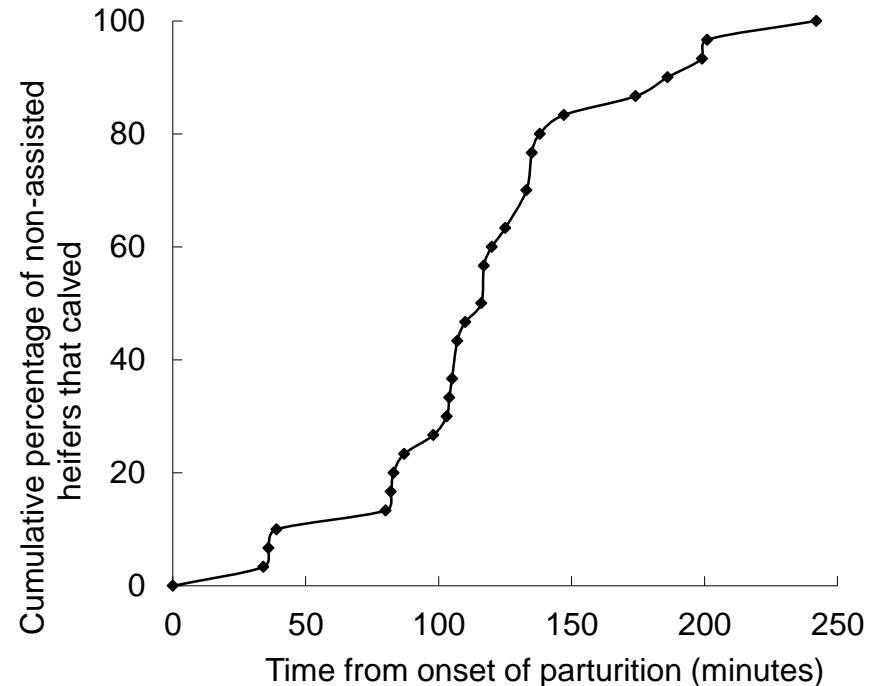
50th Percentile is the Breed Avg. EBVs for 2012 Born Calves

EBV - Percentile bands

Percentile Band	Calving Ease DIR (%)	Calving Ease DTRS (%)	Gestation Length (days)	Birth Wt. (kg)	200 Day Wt (kg)	400 Day Wt (kg)	600 Day Wt (kg)	Mat Cow Wt (kg)	Milk (kg)	Scrotal Size (cm)	Days to Calving (days)	Carcase Wt (kg)	Eye Muscle Area (sq cm)	Rib Fat (mm)	Rump Fat (mm)	Retail Beef Yield (%)	IMF (%)	Self Replacing Index (\$)	Angus Pure Index (\$)
Top Value	+7.2	+6.0	-15.0	-2.4	+66	+121	+161	+172	+30	+5.8	-11.2	+93	+16.4	+7.4	+8.9	+4.8	+5.2	+187	+213
Top 1%	+5.1	+4.2	-8.3	+1.0	+53	+95	+128	+129	+23	+3.3	-7.2	+74	+9.8	+2.4	+2.8	+2.3	+3.3	+148	+169
Top 5%	+3.9	+3.2	-6.5	+2.0	+50	+88	+118	+115	+20	+2.7	-6.1	+68	+8.1	+1.6	+1.8	+1.7	+2.7	+135	+154
Top 10%	+3.1	+2.6	-5.6	+2.6	+47	+85	+113	+108	+18	+2.5	-5.6	+65	+7.1	+1.2	+1.4	+1.4	+2.4	+126	+144
Top 15%	+2.6	+2.1	-5.1	+2.9	+46	+83	+109	+103	+17	+2.3	-5.2	+62	+6.5	+0.9	+1.1	+1.2	+2.2	+120	+138
Top 20%	+2.1	+1.8	-4.7	+3.2	+45	+81	+107	+99	+16	+2.2	-4.9	+60	+6.0	+0.7	+0.9	+1.0	+2.0	+115	+132
Top 25%	+1.7	+1.4	-4.3	+3.5	+44	+79	+104	+96	+16	+2.0	-4.6	+59	+5.6	+0.5	+0.7	+0.9	+1.9	+110	+128
Top 30%	+1.3	+1.2	-4.0	+3.7	+43	+78	+102	+94	+15	+1.9	-4.4	+57	+5.2	+0.4	+0.5	+0.8	+1.7	+106	+123
Top 35%	+0.9	+0.9	-3.8	+3.9	+42	+77	+100	+91	+15	+1.8	-4.1	+56	+4.9	+0.2	+0.3	+0.7	+1.6	+103	+120
Top 40%	+0.6	+0.6	-3.5	+4.1	+41	+75	+98	+89	+14	+1.7	-3.9	+55	+4.6	+0.1	+0.1	+0.6	+1.5	+99	+116
Top 45%	+0.2	+0.4	-3.3	+4.2	+41	+74	+96	+86	+14	+1.6	-3.7	+53	+4.3	+0.0	+0.0	+0.5	+1.4	+96	+113
Top 50%	-0.1	+0.1	-3.1	+4.4	+40	+73	+95	+84	+13	+1.5	-3.4	+52	+4.1	-0.1	-0.2	+0.4	+1.3	+93	+109
Top 55%	-0.5	-0.2	-2.8	+4.6	+39	+71	+93	+82	+13	+1.5	-3.2	+51	+3.8	-0.3	-0.3	+0.3	+1.2	+89	+106
Top 60%	-0.8	-0.4	-2.6	+4.8	+38	+70	+91	+80	+12	+1.4	-3.0	+49	+3.5	-0.4	-0.5	+0.2	+1.1	+86	+102
Top 65%	-1.2	-0.7	-2.4	+4.9	+37	+69	+89	+77	+12	+1.3	-2.7	+48	+3.2	-0.5	-0.6	+0.1	+1.0	+82	+99
Top 70%	-1.6	-1.0	-2.1	+5.1	+36	+67	+87	+75	+11	+1.2	-2.4	+46	+2.9	-0.7	-0.8	+0.0	+0.9	+79	+95
Top 75%	-2.1	-1.4	-1.9	+5.3	+35	+66	+84	+72	+10	+1.1	-2.1	+44	+2.6	-0.8	-1.0	-0.1	+0.8	+75	+91
Top 80%	-2.6	-1.7	-1.5	+5.6	+34	+64	+82	+69	+10	+1.0	-1.7	+42	+2.2	-1.0	-1.2	-0.2	+0.6	+71	+87
Top 85%	-3.3	-2.2	-1.2	+5.8	+32	+62	+78	+66	+9	+0.8	-1.2	+40	+1.8	-1.2	-1.4	-0.4	+0.5	+66	+82
Top 90%	-4.1	-2.8	-0.7	+6.2	+31	+59	+74	+61	+8	+0.7	-0.5	+37	+1.3	-1.5	-1.7	-0.5	+0.3	+60	+75
Top 95%	-5.5	-3.7	+0.1	+6.7	+28	+54	+68	+54	+7	+0.4	+0.5	+32	+0.4	-1.8	-2.2	-0.8	+0.1	+52	+67
Top 99%	-8.4	-5.9	+1.8	+7.8	+22	+45	+54	+40	+4	-0.2	+2.5	+22	-0.9	-2.6	-3.2	-1.4	-0.4	+38	+52
Low Value	-24.5	-13.9	+8.1	+11.4	+4	+17	+10	-5	-3	-3.3	+8.4	+2	-8.1	-5.4	-6.9	-3.4	-2.2	-6	+22

Supervision at calving

- More looking = more assisting
- Assisting too late = more deaths
- We use:
 - No calf after 4 hrs
 - No progress for 2 hrs
 - Malpresentation
- Calves mostly lived
- Heifers got back incalf



Industry – production

108 herds calving 7100 two-year-old heifers in 2007

- Pregnancy rate for herds that used PD: 86%
- Calves alive at marking per heifer joined: 78%
- Calves alive at marking per heifer calved: 94%
- 84% of heifers that calved at 2 in 2006 calved again at 3 in 2007

Industry – dystocia

376 assisted calvings in industry herds

- Heifers assisted:
 - 7.0% in 2006, 9.6% in 2007
- Vets attended 6% of assisted births, on 17% of farms
- 30% of assisted calves were dead at birth and a further 6% died within 4 weeks of birth
- 11% of assisted heifers died within 4 weeks of calving (only 3% were dead at calving)

Summary

- Done right, heifer mating is worthwhile
- Grow the heifers
- Choose the right bull
- Timely assistance