



**AI SERVICES**  
– NORTHERN IRELAND –



**Beef Farm Walk**



***“On-farm research to investigate the role of synchronisation and AI for beef heifers”***

at the farm of:

Robert and Sam Chesney

49 Inishargy Road, Kircubbin, Co Down



**Tuesday 10<sup>th</sup> September 2013**



## Research to underpin improved production efficiency

Today's farm walk is aimed at providing you with tools and information to help you make improvements with your beef enterprise

### Topics for discussion include:

1. Rearing heifer to calve at 24 months
2. Synchronisation and AI
3. Bull selection - Estimated Breeding Values
4. Preparing for winter

## Robert and Sam Chesney & family, Kircubbin.

- Farm Area: 190 acres grassland
  - 130 Lim X suckler herd
  - 50 ewes
- Aims:**
- Block grazing
    - 1200 kg live weight/ hectare in 2013
    - Stocking rate 3.0 LU /hectare



- Select breeding stock for market requirements
- Continually improve suckler fertility
- High health status – to avail of market for heifer
- Efficient suckler cow production regardless of breed

## Robert and Sam Chesney & family, Kircubbin.

### ◆ Cows/maiden heifers

- Vaccinated for BVD, Lepto & SBV
- Screened for BVD, Johnes & vitamin/minerals

### ◆ Calves

- Birth                    Provita protect & scour capsule  
                                  BVD tissue tag
- Dehorning            Blackleg vaccine
- Mid summer        Pour on wormer
- September        IBR marker live & Pneumonia vaccine
- October            Pneumonia booster vaccine  
                                  Long acting pour on wormer
- November        Fluke drench



## Bovine Information System (BovIS)

	RCF farms (11/12) <sup>1</sup>	NI average <sup>2</sup>
Age at first calving (months)	24	31
Calving interval (d)	368	400
Calves per cow per year	0.95	0.83
Females not calved (%)	4.0	10.7
% of heifers calved 22-26 months of age	72	18
% of herd calving within 90 days	75	68

<sup>1</sup>Based on four out of the six RCF farms as two had yet to complete the calving season when reports created

<sup>2</sup>Based on approximately 250 Northern Ireland suckler herds

### Tools now available:

- ◆ To benchmark physical and financial performance (CAFRE benchmarking and BovIS)
- ◆ Help producers easily monitor performance (BovIS growth monitoring tool)

## Age at first calving

<b>Age at first calving (months)</b>	24	31	36
Total replacements <sup>1</sup>	40	52	60

<sup>1</sup> based on a 100 cow herd with 20% replacement rate

- ◆ 31 month calving increases groups of stock and complicates management by making
  - compact calving impossible
  - health and vaccination policy more difficult to implement
  - Grazing management more difficult
- ◆ 2 year old calving reduces requirements for land, feed and fertiliser, labour and capital
- ◆ 2 year old calving increases margin by £45 for EVERY cow in the herd relative to 3 year old calving

## Age at first calving – CAFRE experience

	2 year calving <sup>1</sup>	Mature cows
Weight at weaning (kg) <sup>2</sup>	576	666
Calf gain (kg/d)	1.01	1.10
200d weight (kg)	245	264
Weaning efficiency <sup>3</sup>	42.5	40.3
Percentage back in calf (%)	93	94

<sup>1</sup> Easy calving sire used

<sup>2</sup> 2yo and 3yo heifers attain similar mature weights

<sup>3</sup> Calf weight at 200 days per 100kg cow weight

- ◆ CAFRE has been successfully calving heifers at 2 years of age since 2007  
2 year old heifers are consistently the most efficient age group in the herd

## Target weights for rearing replacements

Mature cow weight 650 kg

Bulling weight  
60% mature  
weight at  
14 months

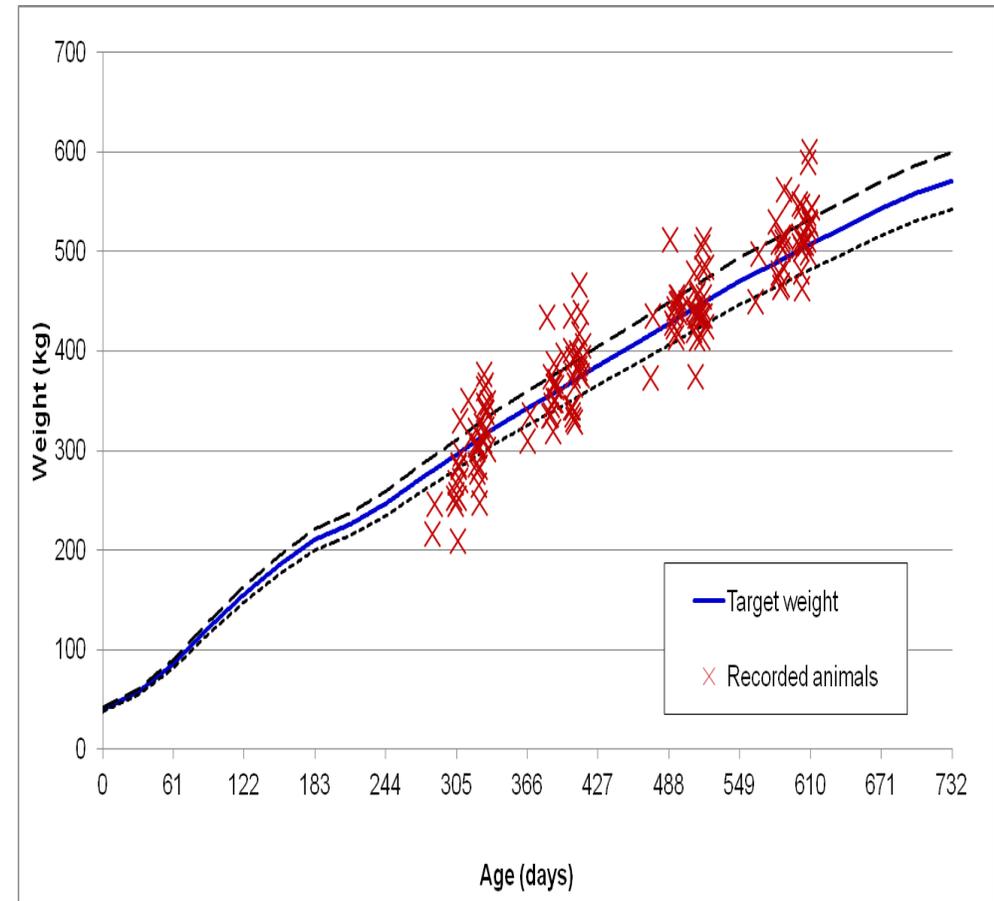
Calving weight  
90% mature  
weight at  
24 months

Age (months)	Weight (kg)	Growth rate (kg/d)
3	110	0.90
6	215	
9	280	
12	330	0.74
14	390	
18	480	
21	532	0.57
24	585	

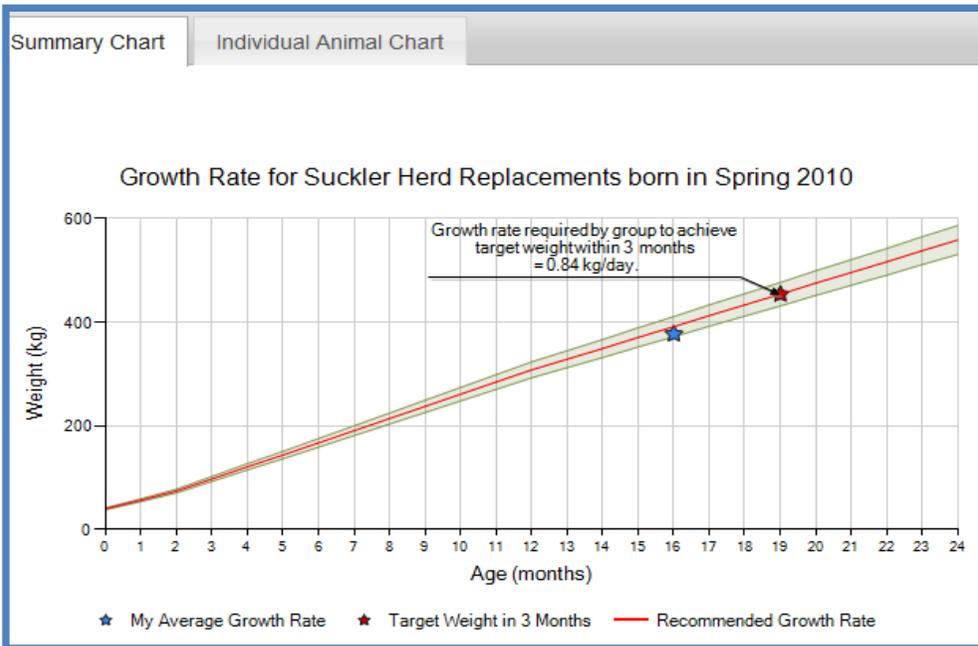
Key is to monitor performance – online tool being developed to help with this

## Robert and Sam Chesney family, Kircubbin.

SUMMARY	Spring 2010
Mature cow weight	635 kg
Target weight at 1 <sup>st</sup> calving	572 kg
Target weight at breeding	381 kg
No. of animals	31
Age	19.5 months
Live weight	515 kg
DLWG required	0.70 kg/d
DLWG achieved	0.80 kg/d



- ◆ Online tool to aid growth monitoring
- ◆ Animal list and ages supplied by APHIS
- ◆ Weights automatically plotted against target



Animal Type: Suckler Herd Replacements

Age at first calving: 24 months

Mature Cow Weight:  kg

Calving Weight:  kg

Animal Tag No	Sex	Breed	Date of Birth	Age (months)	Weight (kg)
UK 9 390002 8274 4	F	Aberdeen-Angus	10/02/2011	17.2	400
UK 9 390002 8282 5	F	Charolais	15/02/2011	17.0	440
UK 9 390002 8284 7	F	Charolais	20/02/2011	16.9	405
UK 9 390002 8286 2	F	Aberdeen-Angus	28/02/2011	16.6	395
UK 9 390002 8290 6	F	Aberdeen-Angus	09/03/2011	16.3	350
UK 9 390002 8291 7	F	Stabiliser	11/03/2011	16.2	300
UK 9 390002 8292 1	F	Charolais	12/03/2011	16.2	410
UK 9 390002 8294 3	F	Aberdeen-Angus	14/03/2011	16.1	390
UK 9 390002 8295 4	F	Aberdeen-Angus	19/03/2011	16.0	305
UK 9 390002 8296 5	F	Charolais	20/03/2011	15.9	350
UK 9 390002 8297 6	F	Charolais	22/03/2011	15.9	350
UK 9 390002 8300 2	F	Stabiliser	23/03/2011	15.8	430
UK 9 390002 8707 3	F	Charolais	10/04/2011	15.2	395
UK 9 390002 8708 4	F	Charolais	12/04/2011	15.2	410
UK 9 390002 8711 7	F	Stabiliser	22/04/2011	14.9	400
UK 9 390002 8710 6	F	Stabiliser	26/04/2011	14.7	300

## Potential benefits

### Synchronisation

- Controlled breeding
- Ensure heifers produce their first calf early in the season
- Batch calving of heifers
- Bull selection – can use AI (superior genetics)
- Time/labour – heat detection

### AI

- Bull selection
- Proven sire with high Estimated Breeding Values

## Pilot study

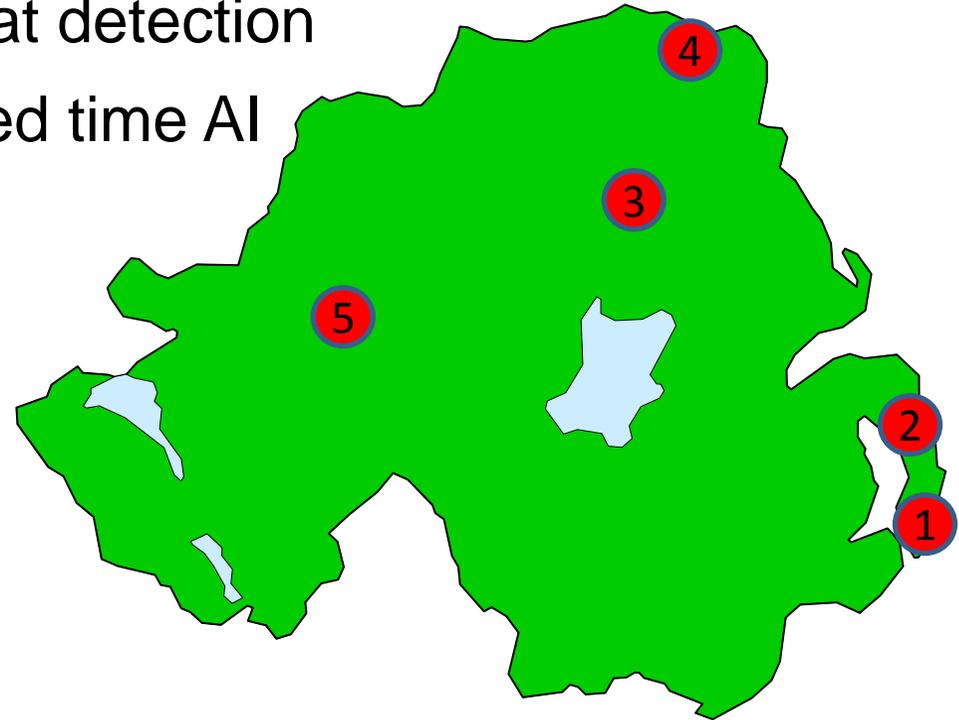
140 beef heifers (approx 15 months old)

5 farms located throughout NI

- 2 \* synchronisation using heat detection
- 3 \* synchronisation using fixed time AI

### Bull selection

- Aberdeen Angus
- Limousin
- Simmental
- Stabiliser



## Synchronisation programmes

Day		Programme A (With heat detection)	Programme B (Fixed time AI)
0	Mon 3/6/13	Veterinary examination Insert CIDR Inject GnRH *	Veterinary examination Insert CIDR Inject GnRH *
5	Sat 8/6/13		Remove CIDR Inject PGF2α *
7	Mon 10/6/13	Inject PGF2α *	
8	Tues 11/6/13	Remove CIDR	Inject GnRH * Fixed time AI
9-11	Wed – Fri 12-14/6/13	Heat detect AI on standing heat (days 10 – 11)	
* Deep intramuscular injection using a 1.5 inch 18 gauge needle			
Conception to first service (%)		58	57

Key is fully follow the protocol discussed with vet/breeding advisor

## Results

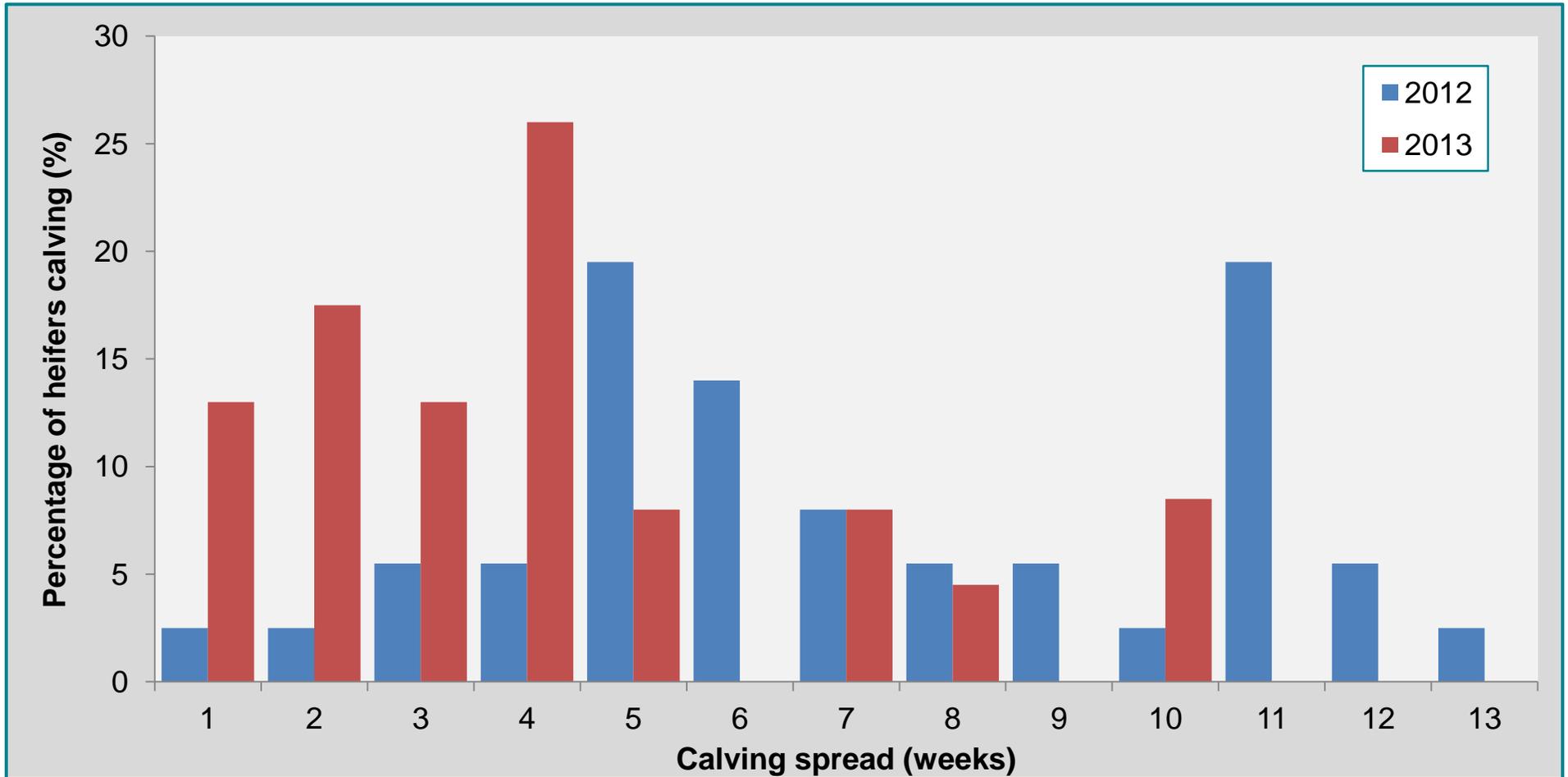
	Farm A	Farm B	Farm C	Farm D1	Farm D2	Farm E
Conception (%)						
First service	66	59	40	65	55	50

- Farm to farm variation
- Bull did not catch all heifers

## Guidelines to success

- Heifer selection
  - 60%+ mature weight at 14 months
  - Temperament
- Heifer nutrition
  - Common diet
- Heifer health status
  - Vaccinations complete pre synchronisation
- Follow protocol in a timely manner & plan ahead
  - Vet & AI technician
  - Correct needle size

## Can synchronisation reduce calving spread?

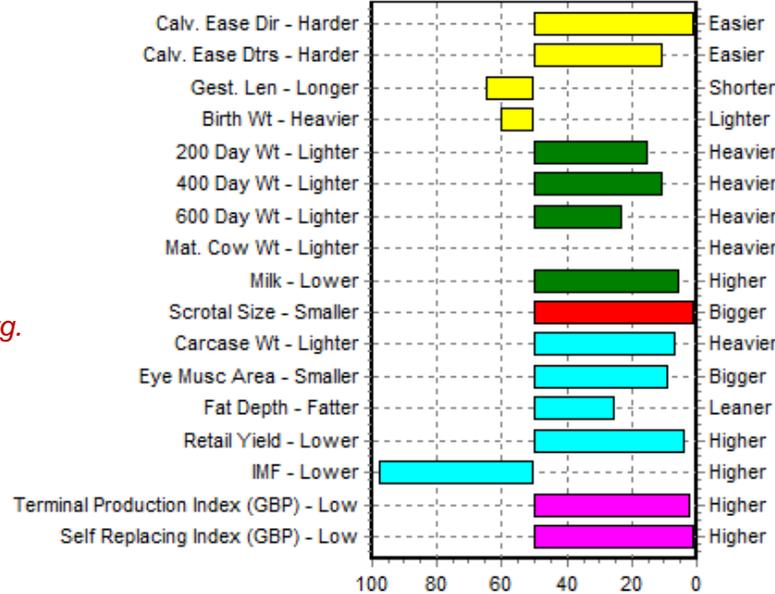


Heifer calving spread reduced with synchronisation

## Table of percentiles

Percentile Band	Calving Ease DIR (%)	Calving Ease DTRS (%)	Gestation Length (days)	Birth Weight (kg)	200 Day Weight (kg)	400 Day Weight (kg)	600 Day Weight (kg)	Mat Cow Weight (kg)	Milk (kg)	Scrotal Size (cm)	Carcase Weight (kg)	Eye Muscle Area (sq cm)	Fat Depth (mm)	Retail Beef Yield (%)	IMF (%)	Terminal Production Index (GBP)	Self Replacing Index (GBP)
Top value	+14.9	+10.8	-4.1	-3.3	+52	+96	+99	+105	+14	+3.6	+67	+6.3	-2.0	+2.6	+0.9	+114	+128
Top 1%	+7.4	+5.4	-2.2	-0.6	+42	+78	+83	+85	+11	+1.7	+54	+4.7	-1.1	+1.6	+0.4	+92	+101
Top 5%	+4.9	+3.3	-1.3	+0.4	+38	+69	+74	+77	+9	+1.2	+48	+4.0	-0.7	+1.2	+0.3	+81	+91
Top 10%	+3.7	+2.5	-0.9	+0.8	+35	+65	+70	+72	+8	+1.0	+45	+3.6	-0.5	+1.0	+0.2	+77	+86
Top 15%	+2.9	+1.9	-0.7	+1.1	+34	+62	+68	+69	+7	+0.8	+43	+3.4	-0.4	+0.8	+0.2	+73	+82
Top 20%	+2.3	+1.4	-0.5	+1.3	+33	+60	+66	+67	+7	+0.7	+42	+3.3	-0.3	+0.7	+0.1	+71	+79
Top 25%	+1.9	+1.0	-0.4	+1.5	+32	+58	+64	+65	+6	+0.6	+41	+3.2	-0.2	+0.6	+0.1	+68	+76
Top 30%	+1.4	+0.7	-0.3	+1.6	+31	+57	+62	+63	+6	+0.5	+40	+3.1	-0.1	+0.5	+0.1	+66	+73
Top 35%	+0.9	+0.4	-0.1	+1.7	+30	+55	+61	+61	+5	+0.5	+38	+3.0	-0.1	+0.5	+0.1	+64	+71
Top 40%	+0.5	+0.1	+0.0	+1.9	+30	+54	+59	+60	+5	+0.4	+38	+2.9	+0.0	+0.4	+0.0	+62	+69
Top 45%	+0.1	-0.2	+0.1	+2.0	+29	+53	+58	+58	+5	+0.4	+37	+2.8	+0.0	+0.3	+0.0	+61	+67
Top 50%	-0.4	-0.5	+0.2	+2.1	+28	+51	+57	+57	+4	+0.3	+36	+2.7	+0.1	+0.3	+0.0	+59	+65
Top 55%	-0.8	-0.8	+0.3	+2.2	+28	+50	+55	+55	+4	+0.3	+35	+2.6	+0.1	+0.2	+0.0	+57	+63
Top 60%	-1.2	-1.1	+0.4	+2.3	+27	+49	+54	+54	+4	+0.2	+34	+2.6	+0.2	+0.2	+0.0	+56	+62
Top 65%	-1.7	-1.4	+0.5	+2.5	+27	+47	+52	+52	+3	+0.2	+33	+2.5	+0.2	+0.1	-0.1	+54	+59
Top 70%	-2.2	-1.7	+0.6	+2.6	+26	+46	+51	+51	+3	+0.1	+32	+2.4	+0.3	+0.0	-0.1	+53	+57
Top 75%	-2.8	-2.1	+0.7	+2.8	+25	+45	+49	+49	+3	+0.1	+31	+2.3	+0.3	+0.0	-0.1	+51	+56
Top 80%	-3.5	-2.4	+0.9	+3.0	+24	+43	+48	+47	+2	+0.0	+30	+2.2	+0.4	-0.1	-0.2	+49	+53
Top 85%	-4.2	-2.9	+1.0	+3.2	+23	+41	+46	+45	+2	-0.1	+29	+2.1	+0.5	-0.1	-0.2	+47	+51
Top 90%	-5.3	-3.5	+1.2	+3.5	+22	+39	+43	+42	+1	-0.2	+27	+2.0	+0.6	-0.2	-0.3	+44	+48
Top 95%	-7.1	-4.5	+1.5	+3.9	+20	+35	+39	+37	+0	-0.4	+25	+1.7	+0.7	-0.4	-0.4	+40	+43
Top 99%	-10.3	-6.3	+2.2	+5.0	+16	+28	+32	+29	-2	-0.7	+19	+1.1	+1.1	-0.8	-0.6	+30	+32
Low value	-17.7	-11.0	+4.6	+7.0	+3	+1	+8	+0	-7	-2.2	-3	-1.4	+1.9	-1.7	-1.2	-8	-6

## Breedplan



50<sup>th</sup> Percentile is the Breed Avg.  
EBVs for 2011 Born Calves

### August 2013 Simmental BREEDPLAN

	Calving Ease DIR (%)	Calving Ease DTRS (%)	Gestation Length (days)	Birth Weight (kg)	200 Day Weight (kg)	400 Day Weight (kg)	600 Day Weight (kg)	Mat Cow Weight (kg)	Milk (kg)	Scrotal Size (cm)	Carcase Weight (kg)	Eye Muscle Area (sq cm)	Fat Depth (mm)	Retail Beef Yield (%)	IMF (%)
EBV	+8.2	+2.2	+0.5	+2.3	+34	+64	+64	-	+9	+2.0	+47	+3.7	-0.2	+1.3	-0.5
Acc	94%	93%	94%	98%	+97%	+97%	95%	-	93%	93%	90%	78%	86%	84%	79%
Breed Avg. EBVs for 2011 Born Calves Click for Percentiles															
EBV	-0.6	-0.5	+0.2	+2.1	+29	+52	+57	+57	+4	+0.4	+36	+2.8	+0.1	+0.3	+0.0

Traits Observed: BWT, 200WT, 400WT (x2). Statistics: Number of Herds: 74, Progeny Analysed: 595, Scan Progeny: 127, Number of Dtrs: 104

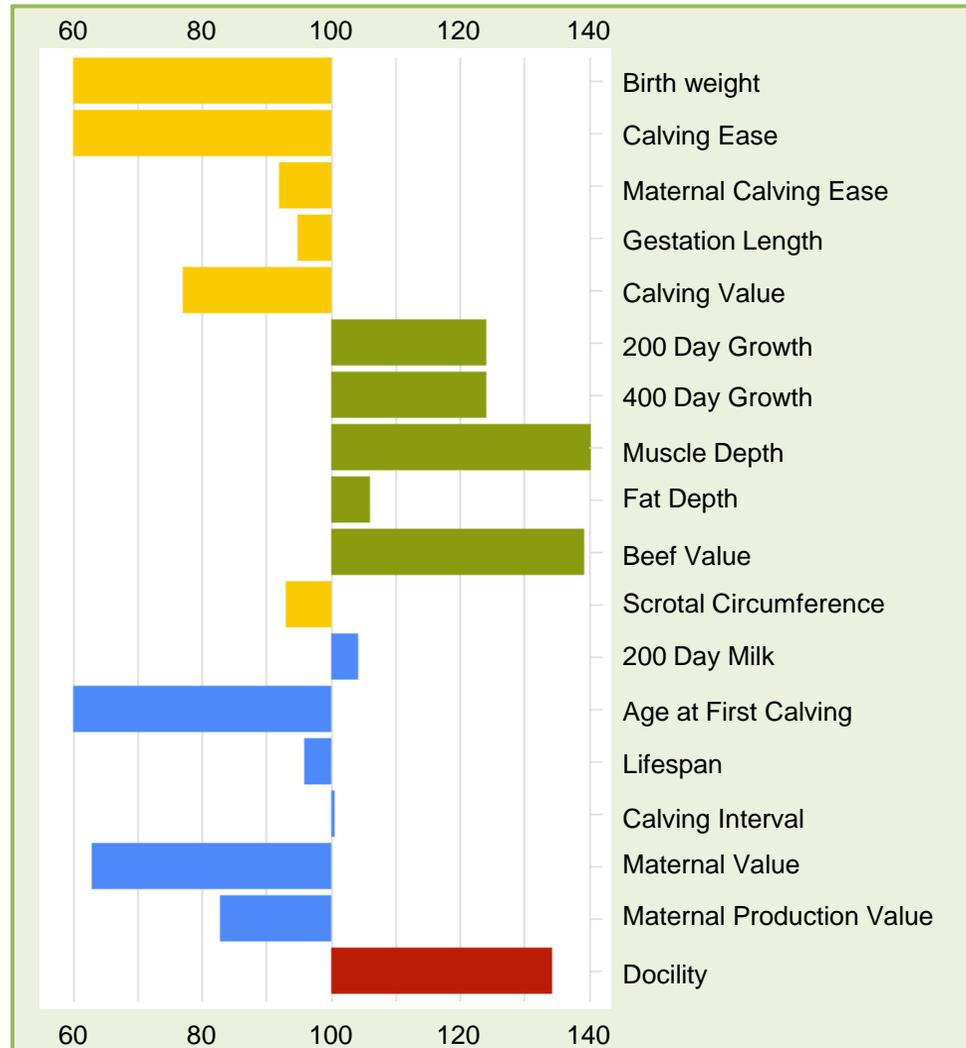
### SELECTION INDEX VALUES

Market Target	Index Value	Breed Average
Terminal Production Index (GBP)	+88	+60
Self Replacing Index (GBP)	+116	+66

## BASCO – Limo Duke

Analysis date: 23/07/2013

	EBV	accuracy
Birth weight	4.20	76%
Calving Ease	-11.60	70%
Maternal Calving Ease	0.20	56%
Gestation Length	1.00	77%
Calving Value	-3.00	75%
200 Day Growth	40.00	77%
400 Day Growth	68.00	76%
Muscle Depth	9.30	76%
Fat Depth	-0.20	71%
Beef Value	47.00	78%
Scrotal Circumference	0.20	73%
200 Day Milk	0.00	60%
Age at First Calving	0.29	61%
Life Span	0.30	52%
Calving Interval	1.50	45%
Maternal Value	-26.00	54%
Maternal Production Value	-14.00	64%
Docility	7.20	58%



## Making the most of grass/grass silage

### 0 – 12 months

- ◆ Weaned at 8 months of age 300 kg (approx)
- ◆ Good grass silage plus 1-2 kg meal/d
- ◆ Early turnout to pasture

Analysis	RCF farmers
Dry matter (%)	27.8
ME (MJ/kg DM)	10.6
D Value	66
Protein (%)	11.7

### 12 – 20 months

- ◆ Good grassland management – rotational grazing
- ◆ Bullied at 60-65% mature weight and CS 3
- ◆ Careful monitoring of weight/CS

Requirements until point of calving	RCF farmers
Total silage fed	5.5 t
Total meal fed	373 kg

### 20 – 24 months

- ◆ Housed on good silage alone with min/vit
- ◆ Careful monitoring of weight/CS

## 2013 silage analysis (Hillsborough Feed Information System)

### Practical Feeding Information

	1 <sup>st</sup> cut	2 <sup>nd</sup> cut
Dry matter (%)	38.0	32.3
pH	4.2	4.0
Ammonia (% total N)	7.0	5.0
Protein (% DM)	13.7	12.4
ME (MJ/kg DM)	11.9	11.3
D-value (% DM)	74	70
HFIS intake (g/kg W 0.75)	94	83

### Growing cattle feeding report

	1 <sup>st</sup> cut			2 <sup>nd</sup> cut		
	0	2	4	0	2	4
Concentrate feed level (kg/day)						
LWG for 300 kg steer	0.95	1.12	1.20	0.77	1.00	1.13
LWG for 500 kg steer	1.01	1.13	1.20	0.82	0.99	1.11

### Suckler cow feeding report

	1 <sup>st</sup> cut			2 <sup>nd</sup> cut		
	Pregnant cow	Early lactation	Late lactation	Pregnant cow	Early lactation	Late lactation
Concentrate to sustain body weight (kg/day)	0.00	0.00	0.00	0.00	0.00	0.00
Potential LWG(kg/day)	1.10	0.53	0.92	0.74	0.17	0.55

