

Research Challenge Beef Farm Walk

“On-farm research to underpin improvements in the carbon footprint of beef production”

at the farm of:

Hugh McCollum

42 Spallon Road, Limavady



Thursday 26th July, 2012

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. How to the reduce the age at first calving and the impact
2. Pain free performance monitoring
3. Grassland management in good and bad weather
4. The economics of suckler beef production

Hugh McCollum, Ballykelly

- Farm area: 400 acres
- 100 cow suckler unit – mainly Aberdeen Angus
- Progeny finished through AAQB scheme

Aims

- Efficient use of labour
- Continuous monitoring of performance to enable informed management decisions
- Compact calving season
- Maximises grazing season (early turnout)



Recent Farm Developments & Technology include:

- Regular weighing of cattle to monitor growth
- Modifying diets in line with animal performance
- Winters cows and calves on an outdoor paddock

Representation:

- Chairman of the AAQB

Target weights for rearing replacements

Mature cow weight 650 kg

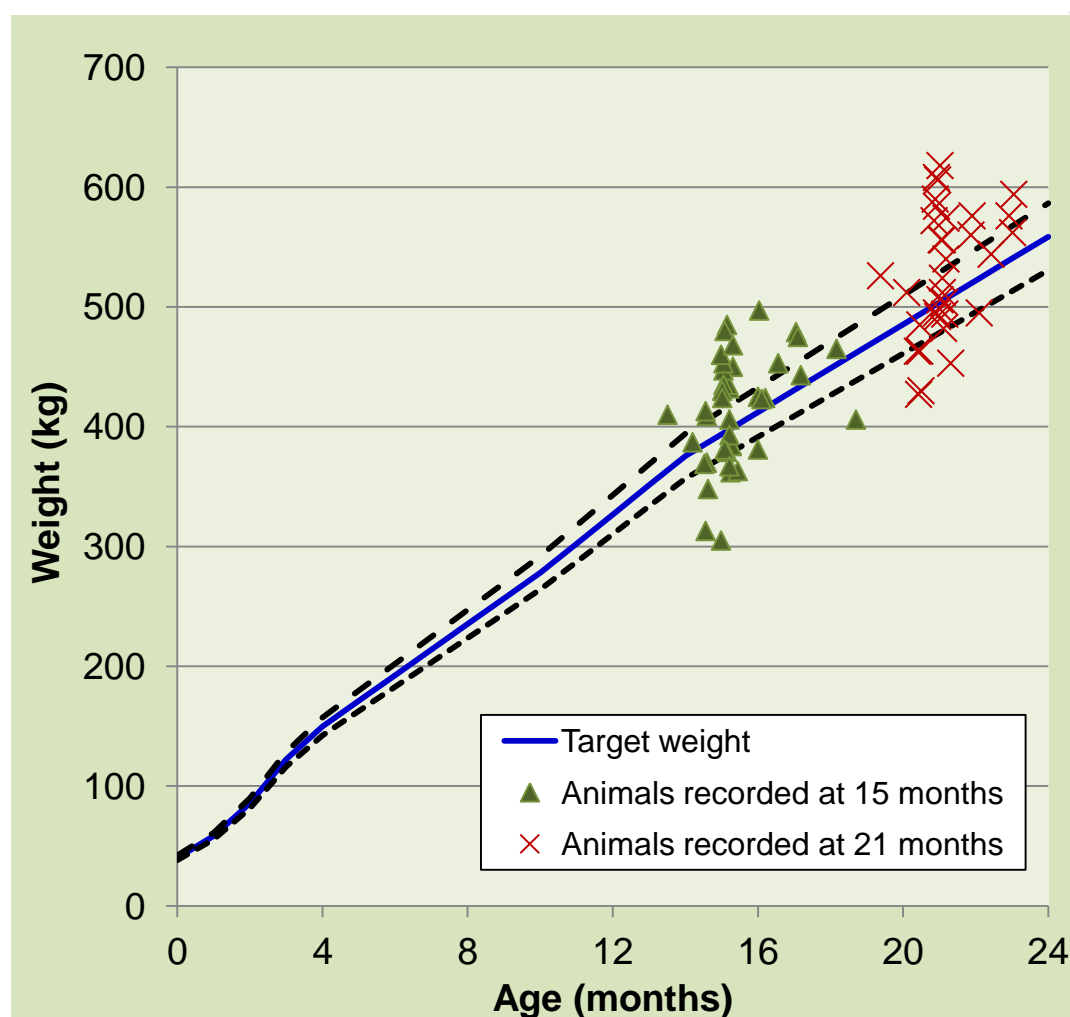
Bulling weight
60% mature
weight at
14 months

Calving weight
90% mature
weight at
24 months

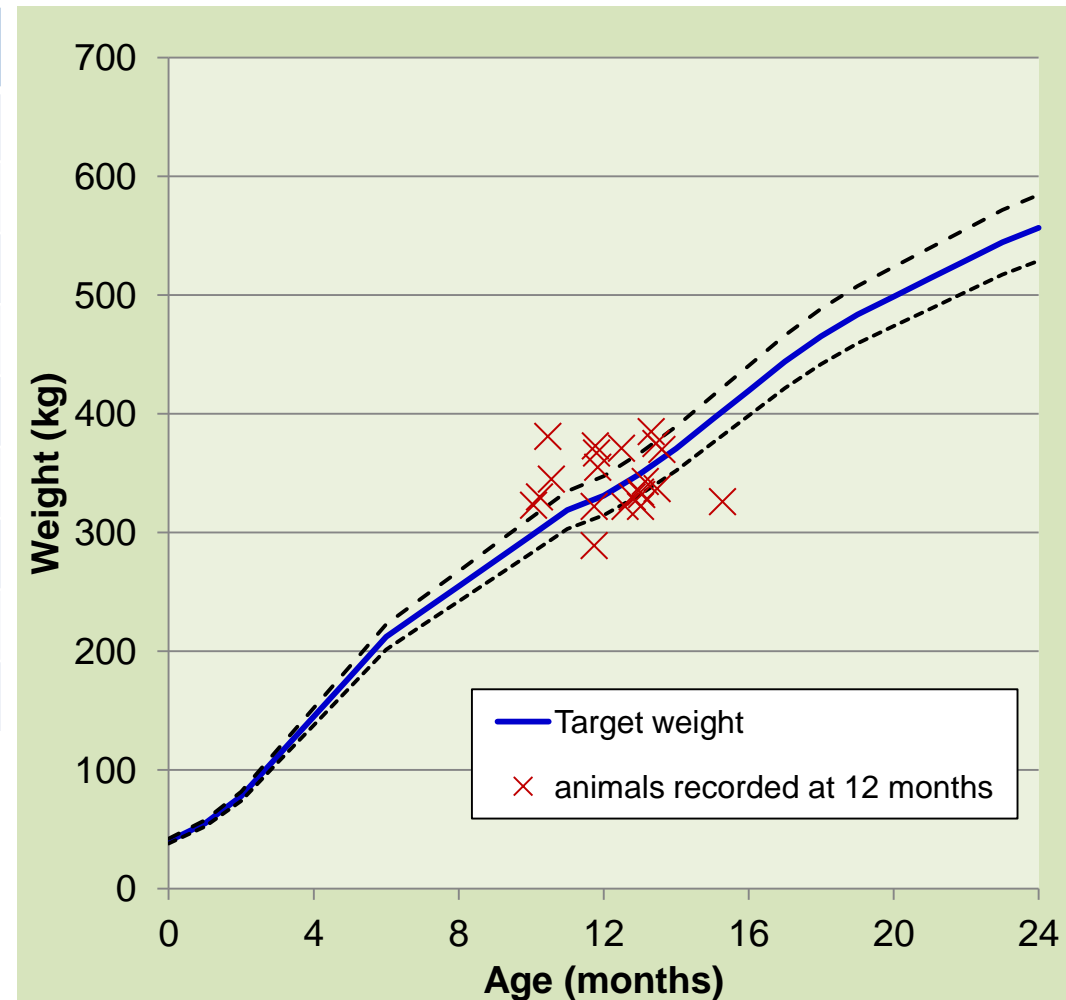
Age (months)	Weight (kg)	Growth rate (kg/d)
3	110	0.90
6	215	
9	280	
12	330	0.74
14	390	
18	480	
21	532	0.57
24	585	

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

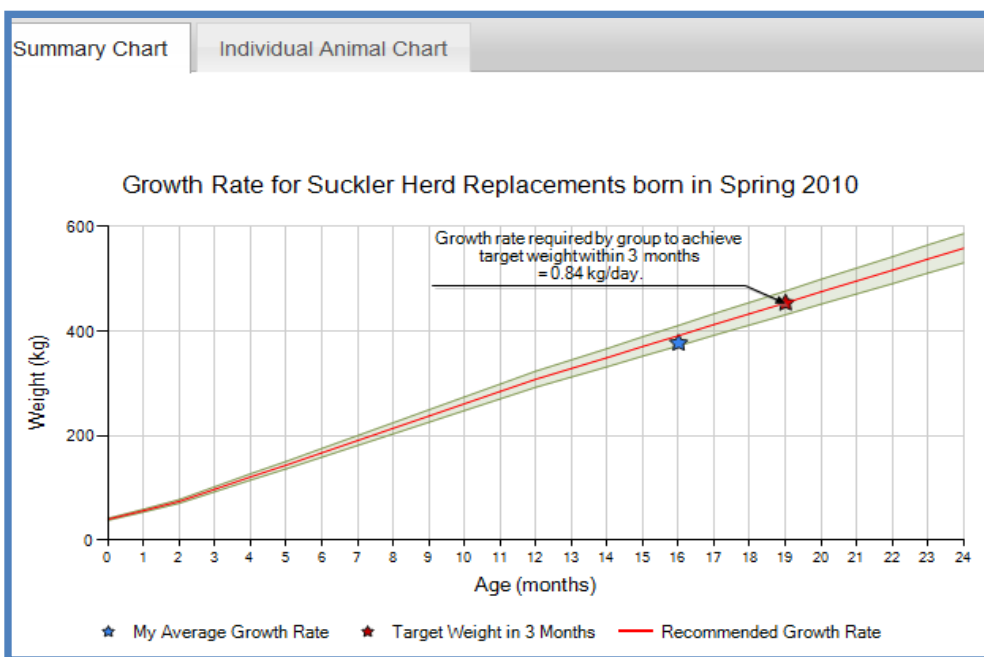
SUMMARY	Spring 2010
Mature cow weight	620 kg
Target weight at 1 st calving	560 kg
Target weight at breeding	370 kg
No. of animals	41
Age	15 months
Live weight	415 kg
DLWG achieved	0.79 kg/d
No. of animals	34
Age	21 months
Live weight	531 kg
DLWG achieved	0.76 kg/d



SUMMARY	Spring 2011
Mature cow weight	620 kg
Target weight at 1 st calving	560 kg
Target weight at breeding	370 kg
No. of animals	21
Age	12 months
Live weight	344 kg
DLWG achieved	0.79 kg/d
DLWG required to bulling	0.50 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	<input type="text" value="400"/>
UK 9 390002 8282 5	F	Charolais	15/02/2011	17.0	<input type="text" value="440"/>
UK 9 390002 8284 7	F	Charolais	20/02/2011	16.9	<input type="text" value="405"/>
UK 9 390002 8286 2	F	Aberdeen-Angus	28/02/2011	16.6	<input type="text" value="395"/>
UK 9 390002 8290 6	F	Aberdeen-Angus	09/03/2011	16.3	<input type="text" value="350"/>
UK 9 390002 8291 7	F	Stabiliser	11/03/2011	16.2	<input type="text" value="300"/>
UK 9 390002 8292 1	F	Charolais	12/03/2011	16.2	<input type="text" value="410"/>
UK 9 390002 8294 3	F	Aberdeen-Angus	14/03/2011	16.1	<input type="text" value="390"/>
UK 9 390002 8295 4	F	Aberdeen-Angus	19/03/2011	16.0	<input type="text" value="305"/>
UK 9 390002 8296 5	F	Charolais	20/03/2011	15.9	<input type="text" value="350"/>
UK 9 390002 8297 6	F	Charolais	22/03/2011	15.9	<input type="text" value="350"/>
UK 9 390002 8300 2	F	Stabiliser	23/03/2011	15.8	<input type="text" value="430"/>
UK 9 390002 8707 3	F	Charolais	10/04/2011	15.2	<input type="text" value="395"/>
UK 9 390002 8708 4	F	Charolais	12/04/2011	15.2	<input type="text" value="410"/>
UK 9 390002 8711 7	F	Stabiliser	22/04/2011	14.9	<input type="text" value="400"/>
UK 9 390002 8710 6	F	Stabiliser	26/04/2011	14.7	<input type="text" value="300"/>

Bovine Information System (BovIS)

	RCF farms (11/12) ¹	NI average ²
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

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

²Based 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)

Farm	No. calved	Calves born dead/dead within 24 hrs	Calf birth weight (kg)	No. of veterinary assisted calvings
A	33	1	36	2
B	11	0	32	0
C	31	3	37	0
D	16	1 (twin)	42	1
E	10	1	36	0
F	36	4	38	3
Hillsborough	21	1	36	0

On average 4% of heifers required veterinary assistance at calving

CAFRE EXPERIENCE

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

¹ Easy calving sire used

² 2yo and 3yo heifers attain similar mature weights

³ Calf weight at 200 days per 100kg cow weight

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

Performance of RCF producers

RCF project Farm	Age at calving (2011/12)
A	23
B	27 (purchased heifers)
C	25
D	26 (24)
E	27 (25)
F	23
Hillsborough	25

RCF herd age at first calving has decreased by 3.3 months since starting the project

Improved efficiency of production is key!

What are the greenhouse gases associated with agriculture?

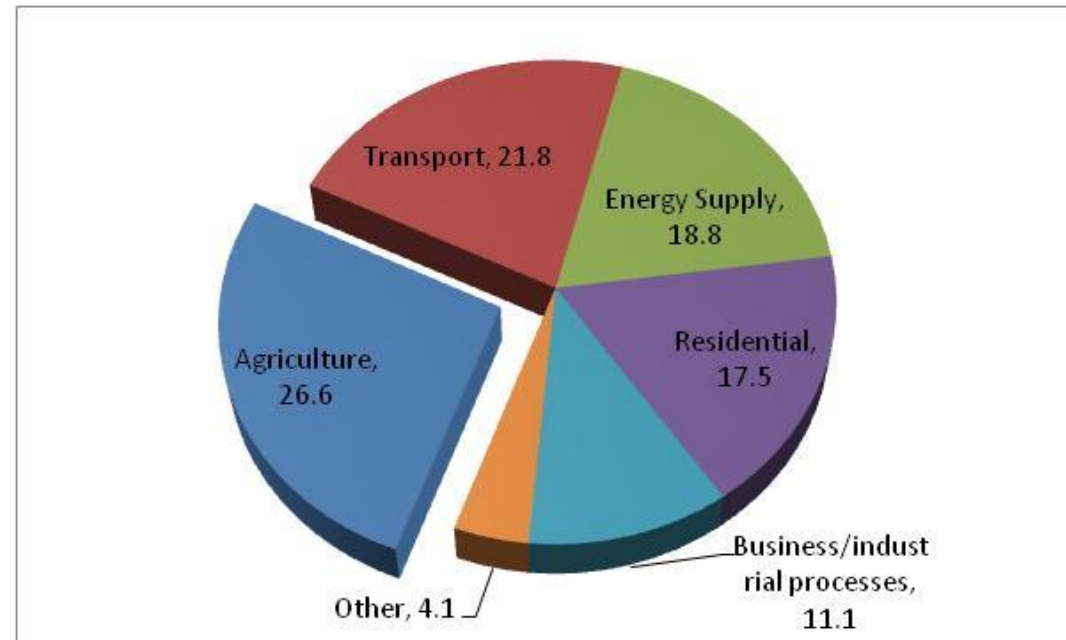
Carbon dioxide – fertiliser, lime, herbicides, pesticides, fuel, electricity, animal feed etc

Nitrous oxide – fertiliser application, manure management, crop residues etc

Methane – enteric fermentation in rumen, manure management

What are we doing about it?

- ◆ DEFRA and the devolved administration have funded a large project involving AFBI and research organisations across the UK to improve the accuracy of the national GHG inventory
- ◆ DARD and AgriSearch have commissioned AFBI to investigate GHG reduction strategies and develop a tool to enable producers to calculate emissions from their own farm
- ◆ Greenhouse Gas Reduction Strategy and Action Plan



Improved efficiency of production is key!

Reducing the age at first calving

- ◆ Less animals on the farm
- ◆ Less inputs required such as feed and land
- ◆ Increased carcass output per ha
- ◆ Improved cow longevity and fertility

Other methods to reduce GHG emissions:

- ◆ Reducing the age at slaughter
- ◆ Balanced diet formulation
- ◆ The use of improved beef genetics
- ◆ Minimising animal mortality and morbidity
- ◆ Improved fertility
- ◆ Efficient use of fertiliser nitrogen, clover, legumes

Effect of age at first calving on the number of replacement heifers on the farm (100 cow herd)

Age group	Age at calving (months)	
	24	36
0-12	20	20
12-24	20	20
24-36	0	20

Reducing the age at first calving could reduce GHG emissions by 10-15%

Improved production efficiency is key!

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
- ◆ Bulled 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

Importance of high quality grass silage

Silage quality	D –value (% DM)	330 kg continental heifer		515 kg in-calve continental heifer	
		Growth rate from silage alone (kg/d)	Conc required to achieve 0.74 kg/day	Growth rate from silage alone (kg/d)	Conc required to achieve 0.5 kg/day
High	77	0.95	0	1.0	0*
Low	60	0.04	4.5	0.01	3.5
Average	67	0.44	2.0	0.45	0.50

* Need to restrict intake

◆ High quality grass silage will reduce concentrate requirement

Industry Analysis – BovIS and LMC data

	Number slaughtered in 2011	Percentage from birth to finish farms	Age at slaughter (months)	Carcass weight (kg)	Conformation grade	Fat class
Bulls	19306	42	17	372	R+	3-
Steers	70744	18	26	369	R=	3=
Heifers	66402	25	25	317	R=	3+

- ◆ Important source of high quality beef – 39% in spec compared to 15% of dairy origin cattle
- ◆ Suckler beef production important role in managing and shaping the countryside

Animal type	No. killed	Carcass weight (kg)	Age at slaughter (months)	Grade	Fat class
Steers	62	320	24	O+	3=
Heifers	27	284	24	R-	3+

Animal type	Target daily carcass gain (kg/d)	Daily carcass gain achieved (kg/d)
Steers	0.47	0.44
Heifers	0.45	0.39

- Key objective on the McCollum farm is to produce prime quality carcasses in the most cost efficient manner
- ✓ Growth targets and monitoring performance

Herd Performance	2008/2009	2011/2012
Calving Index (days)	377	352
Calving Index for 2 nd Calvers	378	377
Monthly calving spread (% of herd calved in 3 consecutive months)	58	77
Reappearance Rate (% < 390 days)	50	66
Reappearance Rate (% < 450 days)	59	75