Beef Breeding Indexes Webinar

Thursday, 2 November | 8pm

Featuring:



Margaret Kelleher, ICBF





Paul Crosson, Teagasc



This webinar will commence shortly



Agenda

Торіс	Speaker	
Welcome and introduction	Pat Mulvehill (Chairing session)	
1. Motivation for change	Margaret Kelleher (ICBF)	
2. Terminal Index improvements	Donagh Berry (Teagasc)	
3. Replacement Index improvements	Paul Crosson (Teagasc)	
4. Impact of improvements	Siobhan Ring (ICBF)	
Q & A	Open session	

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Motivation for change

Margaret Kelleher mmkelleher@icbf.com



An Roinn Talmhaíochta, Bia agus Mara Department of Agriculture, Food and the Marine



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Suckler Beef Herds: Where we are?



Replacement Index has delivered €50m to beef industry. Will grow to €300m by 2030.

Eurostars selecting for more profitable and efficient animals for Irish beef farmers!

Why change?







Market price changes New traits, methods and technology

Policy changes



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Climate Targets

THE IRISH TIMES

Environment

Ireland to miss 2030 climate targets by wide margin, EPA predicts

Latest projections suggest all sectors agriculture, industry, electricity and transport on course to miss targets

Assessment of Achievement of Sectoral Targets under the With Additional Measures scenario

Sectors E	Emissions 2018	8 Projected Emissions	Percentage Reduction	Target Reduction
	(Mt CO2 eq) 2030 (Mt CO2 eq)	2030 vs 2018	2030 vs 2018
Electricity	10.3	3 3.9	-62%	~-75%
Transport	12.2	2 7.2	-41%	~-50%
Buildings (Residentia	al) 7.1	1 3.7	-48%	~-40%
Buildings (Comm an	d Public) 1.5	5 0.8	-50%	~-45%
Industry	7.0	0 6.2	-11%	~-35%
Agriculture	23.4	4 19.0	-19%	~-25%
Other20	2.2	2 1.7	-21%	~-50%
LULUCF (no ceiling of	currently) 6.3	3 7.2	15%	N/A
Total with LULUCF	70	0 49.7	-29%	-51%

Source: Ireland's greenhouse gas emissions projections 2022-2040 (EPA)

- Agriculture => <u>35%</u> of GHG total in Ireland (i.e., ~23 MT).
 - Population of 5m but produce enough food to feed 40m people!
- Irish government climate action plan => 51% reduction in GHG by 2030 & net zero by 2050.
- Sectoral targets => Agriculture <u>must</u> reduce by 5.75 MT by 2030.
- What are the genetic strategies that could help achieve this? What are the potential gains/costs ? => Extensive research over last 2 years

<u>Kevin O'Sullivan</u> Fri Jun 2 2023 - 00:00

Global challenge=> we all need to do our part!

Timeline

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Take home messages

- Genetics is a trusted and proven technology that will deliver
 Profitability | Sustainability | Climate & environment
- 2. Market prices have been updated after 8 years
- 3. New improvements give farmers more choice in their breeding decisions
- 4. Genetics has the potential to deliver 1.2 MT of **GHG mitigation** in dairy and beef, of Irish governments 5.75 MT requirement for agriculture

Motivation for change

To improve beef breeding indexes to better aligned with the <u>needs</u> of the suckler beef industry today and <u>safeguard</u> into the future

Improvements to the Terminal index

Donagh Berry Teagasc, Moorepark, Ireland

donagh.berry@teagasc.ie



Terminal index

- Index to rank beef bulls where all progeny are slaughtered
- €10 difference in terminal index between bulls translates to €10 difference in profit per progeny born
- Breeds can be compared to each other
- Other countries
 - Feedlot value, beef value, vealer index, Northern export index, ISERV



Improvements

- **1. Updated prices and costs of production**
- 2. Carbon cost
- 3. Non-linear effects
 - Docility penalises more extreme aggressive animals
- 4. New traits
 - Age at finish
 - TB
 - Carcass EUROP specs
- 5. Modified trait expression
 - Carcass fat



1. Updated prices & costs - calving difficulty





Vet



Subsequent performance







4. New traits







Age at finish 35% genetic

Tuberculosis 14% genetic

Carcass specifications 50% genetic

4. Modified trait expression – fat cover





Terminal Index Relative emphasis



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Summary

Trait	Direction
Calving difficulty	Less
Calf mortality	Less
Gestation length	Shorter
Feed intake	Less
Carcass weight	Heavier
Carcass conformation	Better
Carcass fat	Intermediate
Docility	Quiet
Polledness	None
Meat eating quality	Breed bonus
Age at finish	Earlier
Tuberculosis	Less

Heavier and better conformed carcasses with the appropriate fat cover



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Born alive with little required assistance and a short gestation that are not aggressive but finished younger with better feed efficiency



Improvements to the Replacement Index (Cow Traits)

Paul Crosson Teagasc Grange



Main objectives

- Reduce the cost of carrying suckler cows
 - Cow size
 - Fertility



2015	2022
€1094	€1546

Teagasc NFS: Total cost per cow unit for suckling farms

- Increase value of output
 - Higher live weight performance
 - Fertility also key for output

Further reduce GHG emissions



Carbon in the breeding indexes

- Deployed in EBI (dairy) and DBI (dairy-beef) in 2023
- Absolute carbon emissions
 - More than just methane
 - Framework to deploy methane gEBVs
 - Assumed carbon price; €80/t
- Example: age at first calving



• All else being equal, earlier first calving age \rightarrow less carbon (plus lower costs)

	Carbon		
Production economic			Combined economic value
value €/d	Carbon output (kg/d)	Carbon economic value (€/d)	(€/d)
-1.76	+1.40	-0.11	-1.87

Reducing costs - feed





• Feed contribution

- Grazed pasture, 68%
- Grass silage 26%
- Concentrates 6%
- Average cost of feeding
 - Cow, 13 c/kg DM
 - Calf to finish, 18 c/kg DM
- Cow size, intake EBVs and fertility components





Reducing costs - fertility







Reducing costs – earlier first calving age

- Comparison of 24 and 36 months of age at first calving
 - Increase in feed demand and land area farmed



Increase value of output

- Live weight performance
 - Economic Value, €4.68/kg increase in carcass weight
- Weaning weight performance ('milk' effect)
 - Value of the calf at weaning (linked to beef price)
 - Also considers the cost of milk plus the impact of feeding heavier weanlings to finish
- Fertility
 - National average calving interval currently 390 days

-> 300 kg weanling = 280 kg weaned output per year, loss of €65/weanling



Economics of higher weaning weight = (32 – 6) / 10 = €2.61/kg

Summary of cow traits – both carbon and production economics



Relative Emphasis – Replacement Index



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Cow traits Calf traits

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Impact of the Changes

Beef Breeding Indexes Webinar - Teagasc & ICBF Siobhán Ring 2nd November 2023





An Roinn Talmhaíochta, Bia agus Mara Department of Agriculture, Food and the Marine

Impact of Changes: Terminal Index



- Continentals currently most desirable Terminal cattle, they will continue to be most desirable after changes
- Huge variation within breed, and overlap across breeds



Terminal Index Breed Composition: Top 100 Active Bulls, born 2012-2023



Key message:

 Top 100 Active Al bulls remains dominated by Continentals



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Where Does this Take the Direction of Finishing Cattle?

- Irrespective of chosen breed, improvements should result in:
 - easier calvings
 - shorter gestations
 - less calf mortality
 - heavier more conformed carcasses
 - earlier finishing age
 - less feed intake
 - Improved tb resistance



Impact of Changes: Replacement Index



- Top 3 most desirable replacement breeds remain as the top 3 after changes
- Traditional breeds improve
- Belgian Blues move the most



Replacement Index Breed Composition: Top 100 Active Bulls, born 2012-2023



- Top 100 Active AI bulls increase in traditional breeds
- Breed choice still possible (7 breeds represented)



Composition of 5* Replacement SCEP cows



- More suckler bred animals and less dairy bred animals at 5* after changes
- Continental breeds still dominate
 representation as most favorable
 5* cows



Where Does this Take the Direction of Suckler Bred Replacements?

- Irrespective of chosen breed, improvements should result in:
 - more fertile cows
 - slightly lighter cows
 - easier calvings
 - shorter gestations
 - less calf mortality
 - earlier finishing age
 - less feed intake
 - Improved tb resistance
 - slightly lighter carcasses and less conformed progeny



Impact of Changes Regarding SCEP

- Some animals will change
 - All farmers will need to check their herd status
 - A small proportion (<5%) of herds will have to react <u>down-the-line</u> to meet future SCEP targets
- 84% current 4-5* retain 4-5* status after changes
 - Of the remainder current 4-5*, as many will rise as will fall on Replacement Index





•These are not new indexes, just improved indexes to future-proof industry

- Most animals will not change
- If you need support, please contact HerdPlus and your Teagasc advisor
- Breed preference important for herd owners
 - Within your breed of choice, there is plenty of options
 - These changes will help to improve the breed
- Changes come into effect 21st November 2023
 - Not a whole rewrite of everything you know





Our Farmer & Government Representation



An Roinn Talmhaíochta, Bia agus Mara Department of Agriculture, Food and the Marine





Our AI & Milk Recording Organisations









Our Herdbooks



Acknowledging Our Members