Increasing efficiency of Dairy beef

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TRANSFORMATION OF THE IRISH LIVESTOCK SECTOR

1.55 m

dairy calving's

400k

(males)

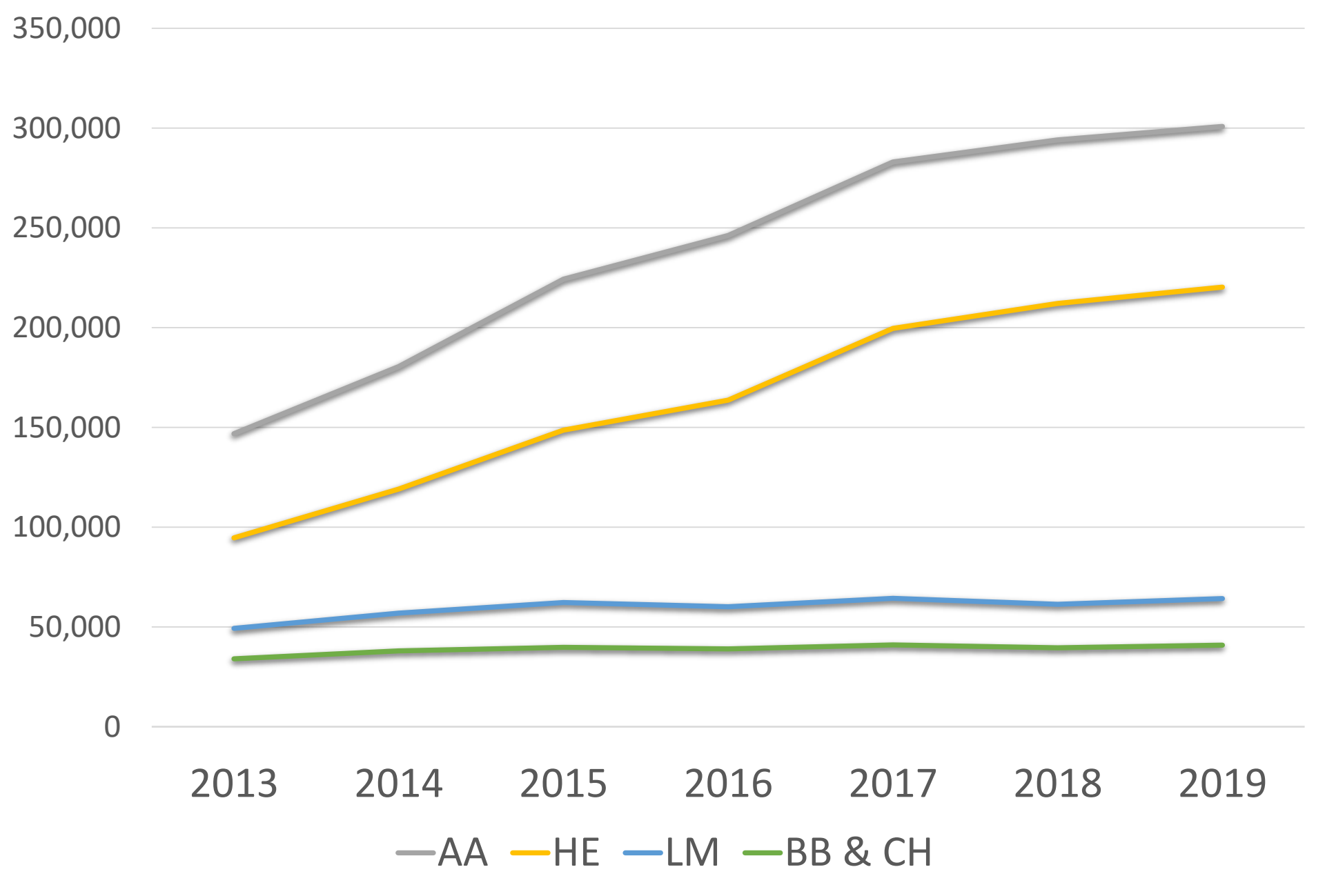
dairy x dairy

750k

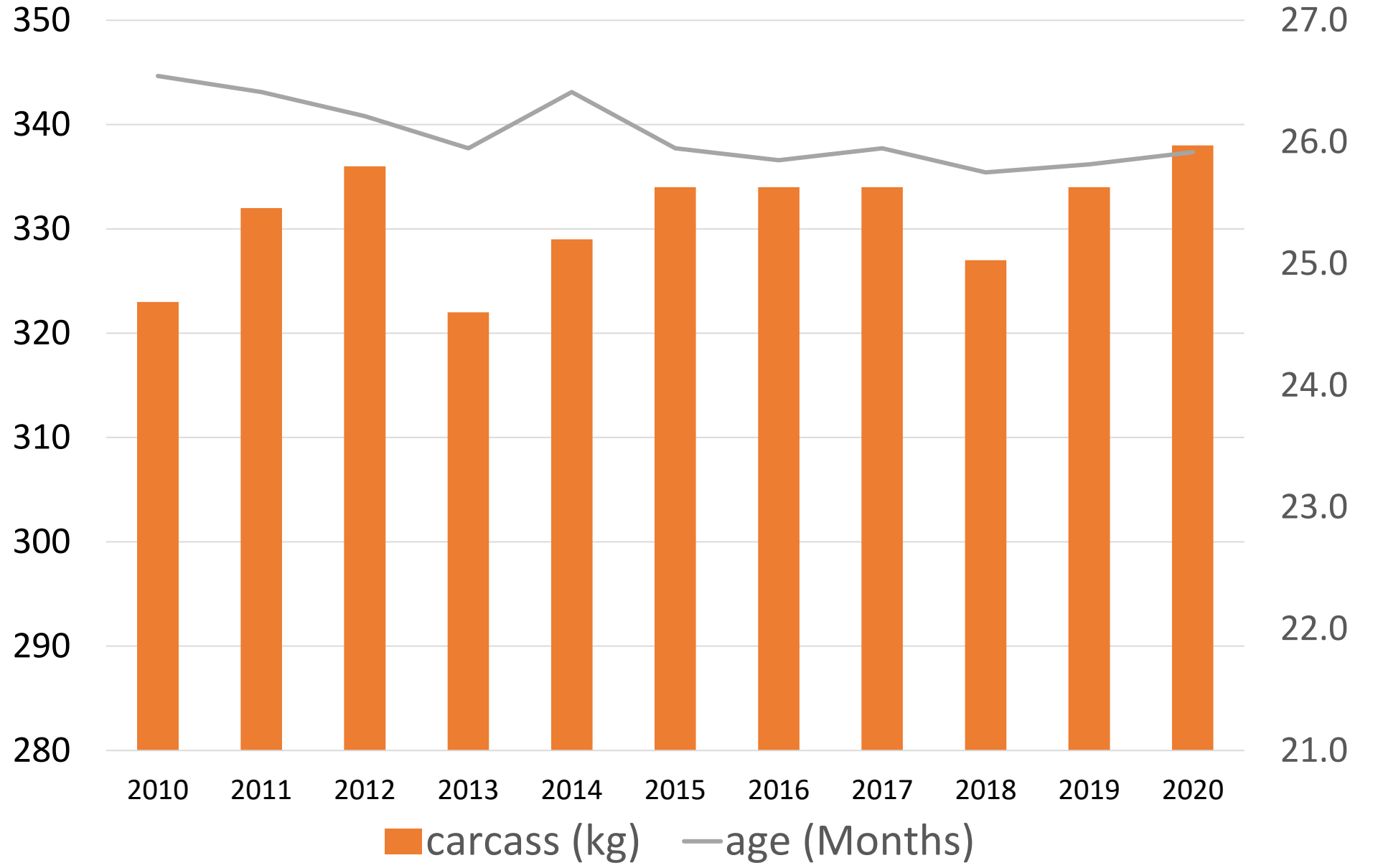
beef x dairy

1.15m calves <6 weeks of age available for beef production

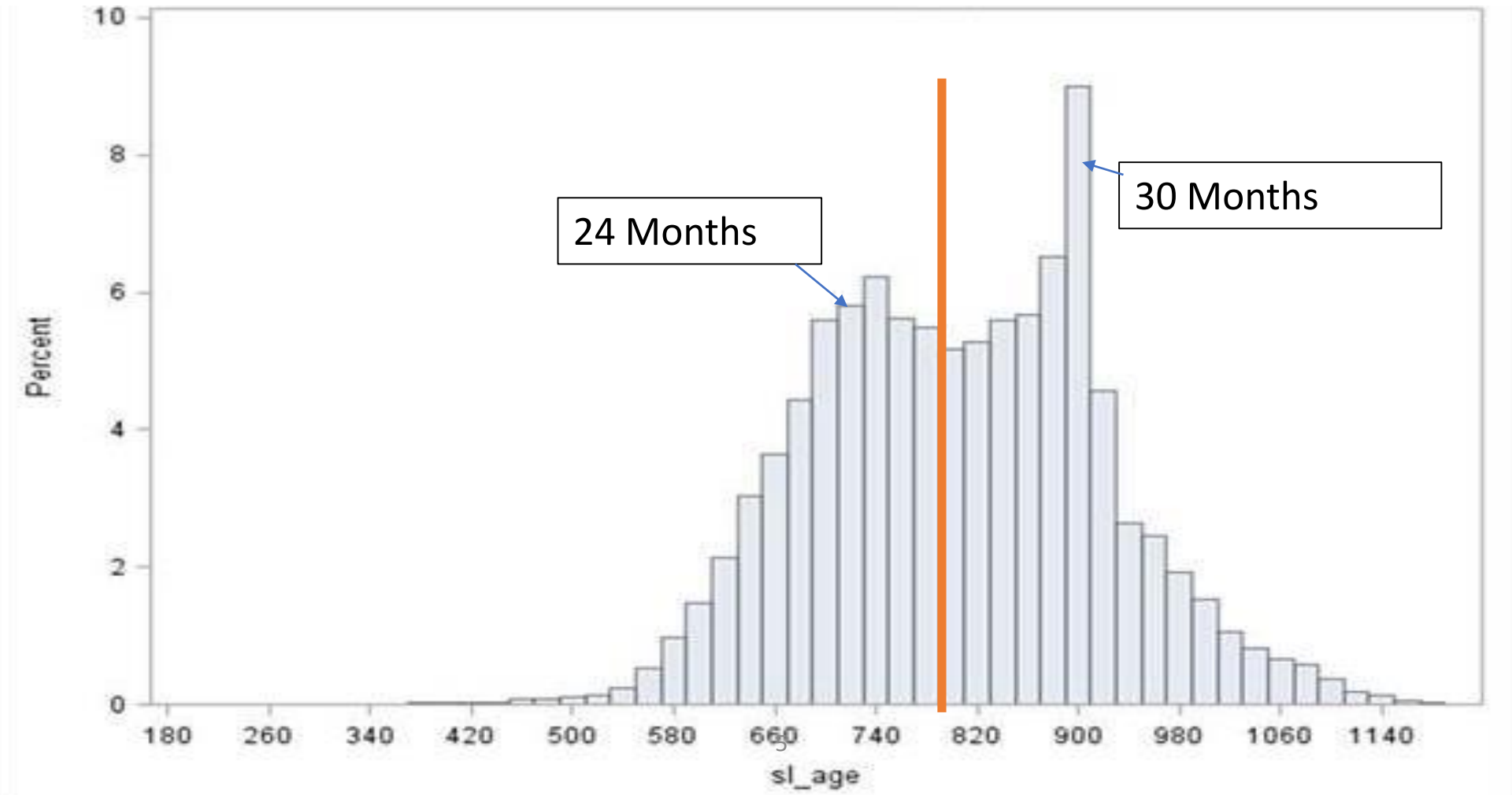
Beef breeds from dairy herd



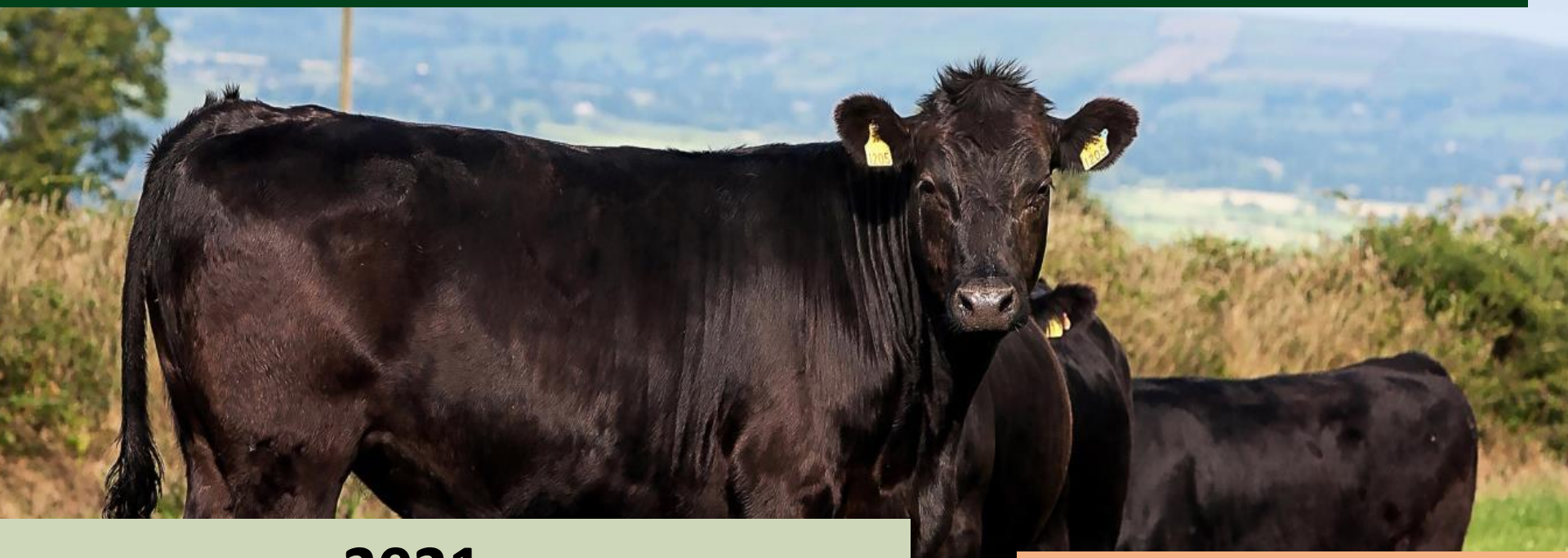
National performance of Beef * Dairy (< 30 months)



AGE AT SLAUGHTER OF ANGUS STEERS



Significant opportunity



2021

750 k beef * dairy calves

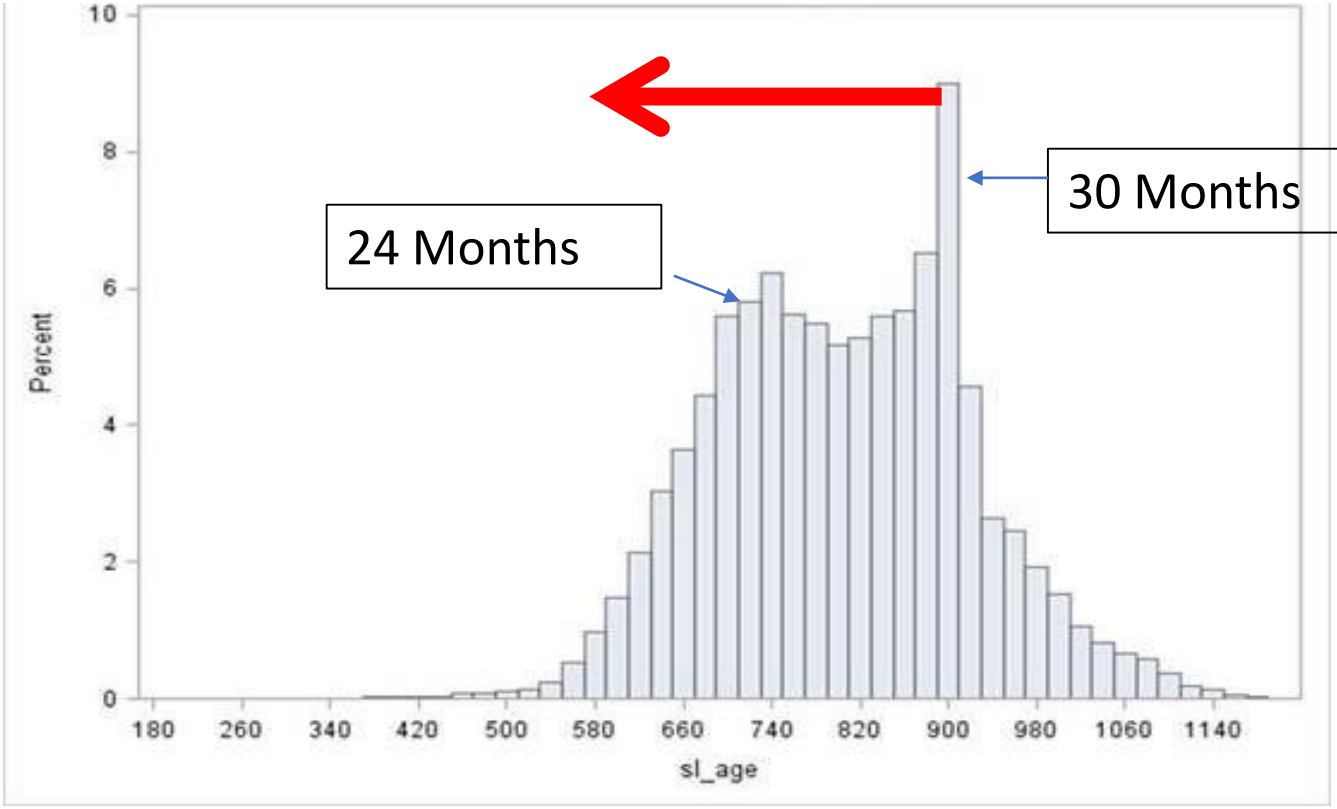
Producing 251 kt of prime beef

Approx 3.0 mt of CO_{2eq}

2030?

- 1.1 m calves
- 350 k t beef
- 4.5 mt of CO_{2eq}

AGE AT SLAUGHTER OF ANGUS STEERS



- Climate Action Plan and Teagasc Marginal Abatement Cost Curve (MACC) highlight opportunity from reduced age at slaughter.

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Gene Ireland Dairy–beef collaboration

HOW THE PROCESS WORKS

Annual Throughput

ICBF Identify suitable bulls

Sires sourced from AI companies

650 calves reared by ABP

2900 commercially reared

250 calves to Teagasc Johnstown

400 calves reared on ABP farm

150 cattle finished in ICBF Feed Intake Centre

3 YEAR RESULTS

SIRE CARCASS PERFORMANCE

Angus - significant variation within breed.

SIRE	Carcass wt.(kg)	CONF (1 - 15)	FAT (1 - 15)	VALUE €)	AGE (months)
ZLT	**279**	7.18 (R-)	7.58 (3+)	1090	21.3
ZTP	281	5.74 (O+)	8.12 (4-)	**1074**	21.2
AA2025	283	5.99 (O+)	8.00 (4-)	1089	21.0
KYA	294	5.64 (O+)	7.56 (3+)	1133	21.1
AA2387	298	5.70 (O+)	6.97 (3+)	1134	20.6
AA2123	300	4.94 (O=)	7.12 (3+)	1124	21.1
AA2192	303	5.25 (O=)	8.43 (4-)	1128	20.9
GZJ	303	7.02 (R-)	8.33 (4-)	1207	20.7
RGZ	303	6.00 (O+)	7.52 (3+)	1170	21.0
AA4057	304	5.94 (O+)	7.44 (3+)	1167	20.7
TKR	304	6.28 (O+)	7.74 (4-)	1188	20.9
AA2203	311	5.87 (O+)	7.58 (3+)	1196	21.0
AA2309	317	6.37 (O+)	8.42 (4-)	1202	20.6
FPI	**323**	5.70 (O+)	7.33 (3+)	**1247**	21.5

€173 difference in carcass value

CARBON; What impact can **animal breeding** and **farm systems** have on lower beef emissions ?

BACKGROUND TO CARBON RESEARCH

- The carbon analysis was conducted by AbacusBio using data, ABP R&D Farm, Teagasc and the ICBF database.
- The focus was on enteric methane from birth to slaughter in Angus x Dairy calves when comparing systems

1: ENHANCED GENETICS AND CARBON EFFICIENCY

Results Trial Farm	Emissions Intensity (kg CO_2e/kg cwt) Within breed	Emissions Intensity (kg CO_2e/kg cwt) Across breed
Worst Sire	8.53	8.53
Average Sire	7.96	7.83
Best Sire	7.29	6.69
Best vs. Average (%)	**-9%**	**-17%**

*Based on a subset of animals reared on the ABP Trial farm and finished in the ICBF Tully feed intake centre

2: CARBON EFFICIENCY BETWEEN FARMING SYSTEMS

	Gross emissions (kg CO_2e) Lifetime	Emissions Intensity (kg CO_2e/kg cwt)	Increase in kg CO_2e/kg cwt (compared to 20-month ABP Farm)
20-month ABP Farm Performance	2543	7.93	0
Avg. animal (26.5 Mts)	3498	10.76	**+2.83 (36%)**

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2: Carbon Efficiency Impact

- Emissions from agriculture **20.5 mt**
- Approximate reduction of **2.5 mt** required by 2030

- 750k beef * dairy calves annually (1.1m by 2030)
- 1 month younger slaughter = 180 kg CO_{2e} reduction per animal
- Nationally worth 135 **kt** (198 KT by 2030)

3: NATIONAL CARBON REDUCTION POTENTIAL

A 1Mt CO_2e emission reduction potential if the system was applied across the national Dairy x Beef Herd.

	National Average	Average ABP	High ABP
Age (months)	26	21	21
Carcass Weight	322	321	338
Carcass Grade	O+/=3+	O+/=3+	O+/=3+
Physical Stocking Rate (LU/ha)	2.5	3.33	3.33
Economic returns			
Net Margin per Ha €)	487.1	638.7	727.0
Net Margin per Animal €)	205.8	217.1	274.7
Carbon Footprint (kg/Kg	11.21	8.1	6.06
Total Footprint (000 tonnes)	2592	1861	1458

4: CLIMATE ACTION PLAN

- The genetic enhancement within farm reduces enteric emissions by up to 9% (within breed) and up to 17% (across breed).
- Additionally we have seen that moving the age at slaughter profile forward by 2 months would add a further 10% reduction in enteric emissions.
- Combined these have a material impact in supporting the Teagasc MACC with an overall abatement potential of 1Mt CO_2e in Dairy x Beef

A MORE SUSTAINABLE PRODUCTION MODEL

Right Genetics + Right system = More Sustainable Production through reduced Age of Slaughter

Economic Sustainability

- Improved returns for farmers from between €150 & €200 on animal carcass value.
- Reduced cost of production (€58 /month)

Environmental Sustainability

- Potential to reduce enteric emissions (within breed) by up to 9% on the same farm (best v average).
- Potential to reduce enteric emissions by up to 36% between farm systems (within breed).
- The potential to reduce up to 1Mt CO_2e reduction across the national dairy x beef herd.*

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Days to Slaughter

- Currently no trait on ‘days to slaughter’ in breeding goals
- Huge amount of costs are linked (€1.91/day)
  - Maintenance
  - Capital tied up
  - Opportunity costs of facilitates
    - (Depending on time of year)
  - Labour
  - Contractor etc
- Emissions (~ 6 kg $CO2_{eq}$ /day)

Conclusion

- Improved farm management can lead to reduced age at slaughter
  - National Dairy-beef campaign to improve management
- Selection of better bulls can breed animals for
  - reduced age at slaughter
  - Increased efficiency
  - Increased profitability
- Urgent need to include age at slaughter in breeding goals
  - Increase farm profitability
  - Reduce environmental footprint


THANK YOU