FutureBeefCross
- Breeding for sustainable beef

Anders Fogh

Meeting with Evolution

Kvægafgiftsfonden

Miljø- og Fødevareministeriet
gudp

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Allflex Livestock Intelligence

AARHUS UNIVERSITET

DANISH CROWN

FRONTMATEC

VIKINGDANMARK

VIKINGGENETICS

LANDBRUG FØDEVARER SEGES

The aim of the project

Design the future veal calf through breeding

Deliver genomic breeding values for:

- **Feed efficiency**
- **Methane emission**
- **Eating quality**

We will record novel phenotypes and genotype on 12,000 veal calves

Foto: Colourbox

The project – step by step

Record new phenotypes in commercial herds

Record new phenotypes at Holsted slaughterhouse

Genotype and validation of data

Develop genomic breeding values

The ”breeding plan”

- In total 12,000 Beef x Dairy veal calves
  - Beef breeds used:
    - 100 Danish Blue bulls – selected on calving traits
    - 80 Charolais bulls – selected on calving traits
    - 80 Angus bulls – selected on growth
  - Only offspring from Holstein cows

Charolais bulls from Evolution

40 bulls with more than 10 inseminations

Foch	7939941691	13
Derrik	5380707911	12
Jaika	6950786109	23
Elios	6412217019	23
Diamant	6347838737	10
Helvyn	1213026627	22
Flipper	3524595337	25
Enduro	7239080908	25
Disco	7121758980	23
Bison	5343819106	27
Grisy	6950643724	30
Bataclan	6346247537	28
Decan	5343819230	18
Lupin Exc	1216158995	27
Jibus	4242217592	36
Gadget	3803196016	31
Florin	2350101637	17
Emira	2222305636	28
Hardi Exc	6950721888	35
Icare	4242035074	37
Inka Exc	4313002375	36

Malon Exc	6950907672	31
Elium	6950516905	38
Declic	6950516876	35
Leire Exc	4314015248	42
Hiribo	4241897493	38
Joss Exc	4242217584	41
Eros	4241633093	38
Jurix Exc	6950786110	40
Greco	4341135883	44
Dofus	4308181559	40
Dolmen	6950516834	40
Junior Exc	4341290998	41
Espion	6950586369	35
Bol D'or	6950410331	25
Doudou	4913397568	47
Cador	4307176898	53
Dragon	108024040	74
Larzac Exc	1216158964	738
Idylle	5343401955	500
Influx	1214081300	912

SEGES

40 sires will not be become used in the project

LANDBRUG FØDEVARER

Present spring 2022

Inseminering i spring 2022 → born in january 2023 → Slaughtered in december 2023

Expectations from inseminations, live calves and slaughtered calves

	Charolais
Number of sires	87
Sires with less than 5 calves	29
Sires with 50-150 calves	3
Sires with more than 150 calves	4
Number of calves	2.000
Number of calves - max 150 calves pr sire	1.700

Inseminations in dairy herds that are suppliers på FBC herds

Insemination month and year	Charolais
1 – 2020	150
2 – 2020	140
3 – 2020	220
4 – 2020	230
5 – 2020	220
6 – 2020	230
7 – 2020	270
8 – 2020	260
9 – 2020	320
10 – 2020	350
11 – 2020	370
12 – 2020	400
1 – 2021	390
2 – 2021	370
3 – 2021	370
4 – 2021	370
5 – 2021	330
6 – 2021	310
7 – 2021	260
8 – 2021	330
9 – 2021	270
10 – 2021	283
11 – 2021	299
12 – 2021	308

Charolais often used on crossbred dams

Novel phenotypes from commercial farms

Measurements on veal calves (6-8 months old):

- Feed intake and body weight (All-feed by Allflex)
- Methane emission (CO_2 method - Madsen et al., 2012)

Novel phenotypes on commercial farms

TMR

grain + pellets

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CLIMATE FRIENDLY CROSSBRED CALVES IN THE DAIRY PRODUCTION

PRELIMINARY RESULTS

Kresten Johansen og Morten Kargo

Aarhus Universitet

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COMPARISON OF BREEDS

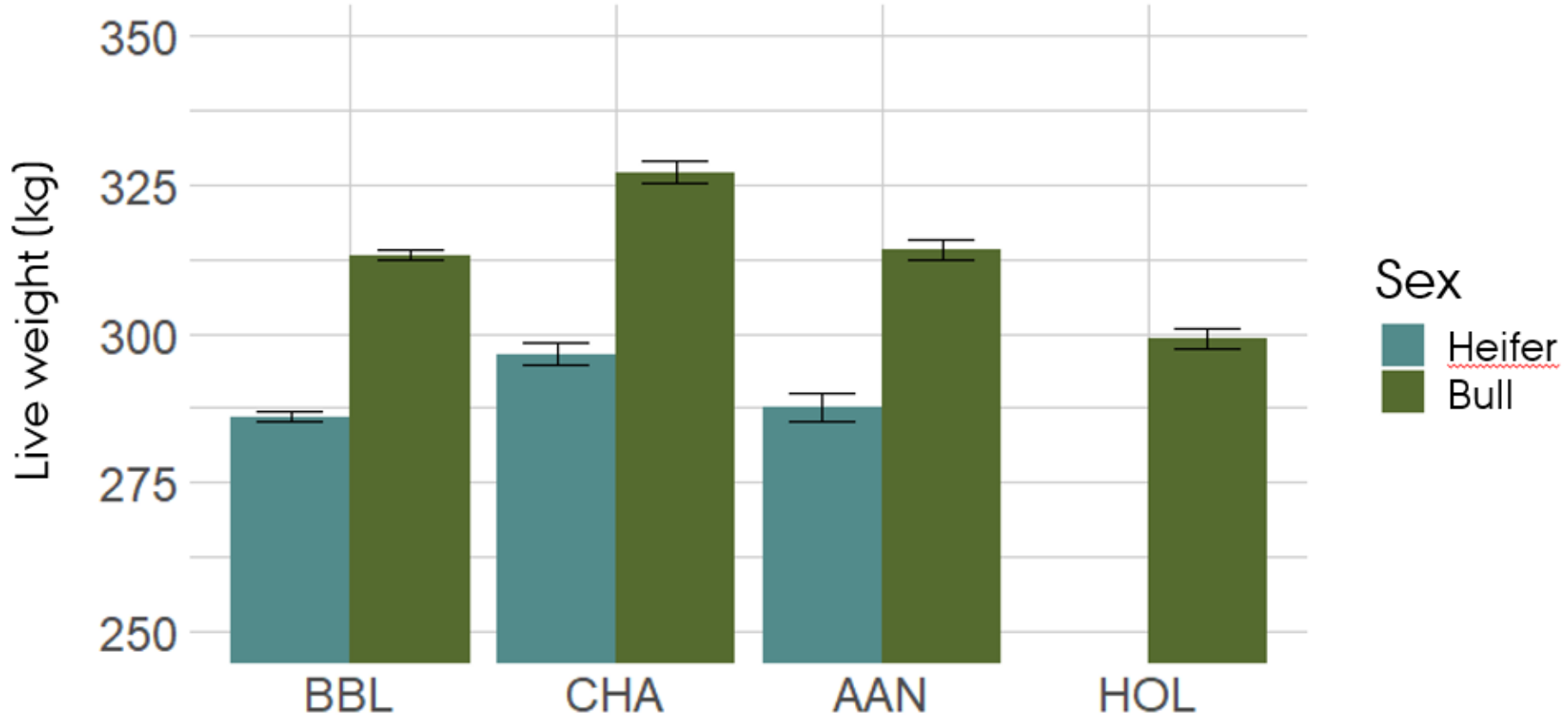
Data corrected for:

- Herd?
- Age at measuring?
- Sex

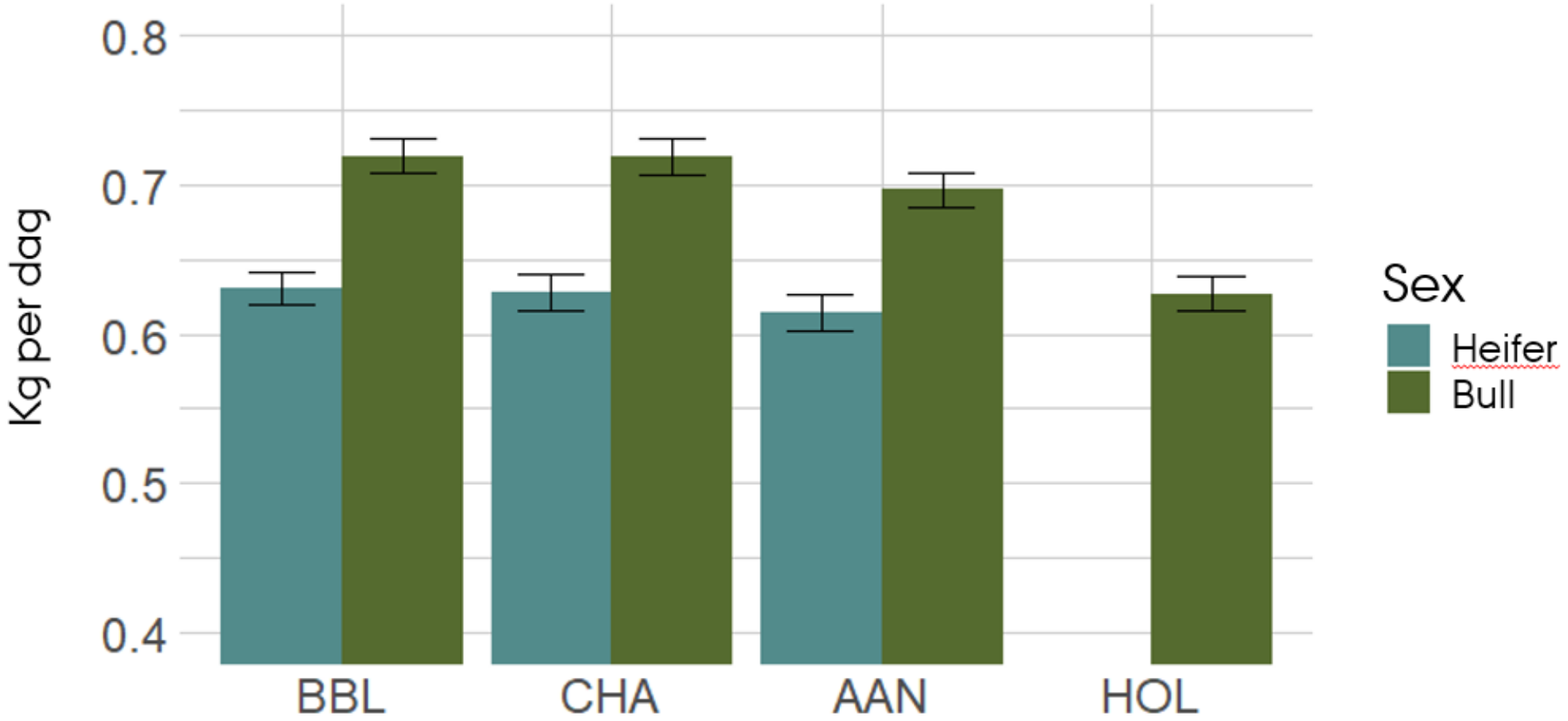
The results presented are at 8 month of age

WEIGHT AND GAIN

Crossbred calves are significantly larger than purebred Holstein calves



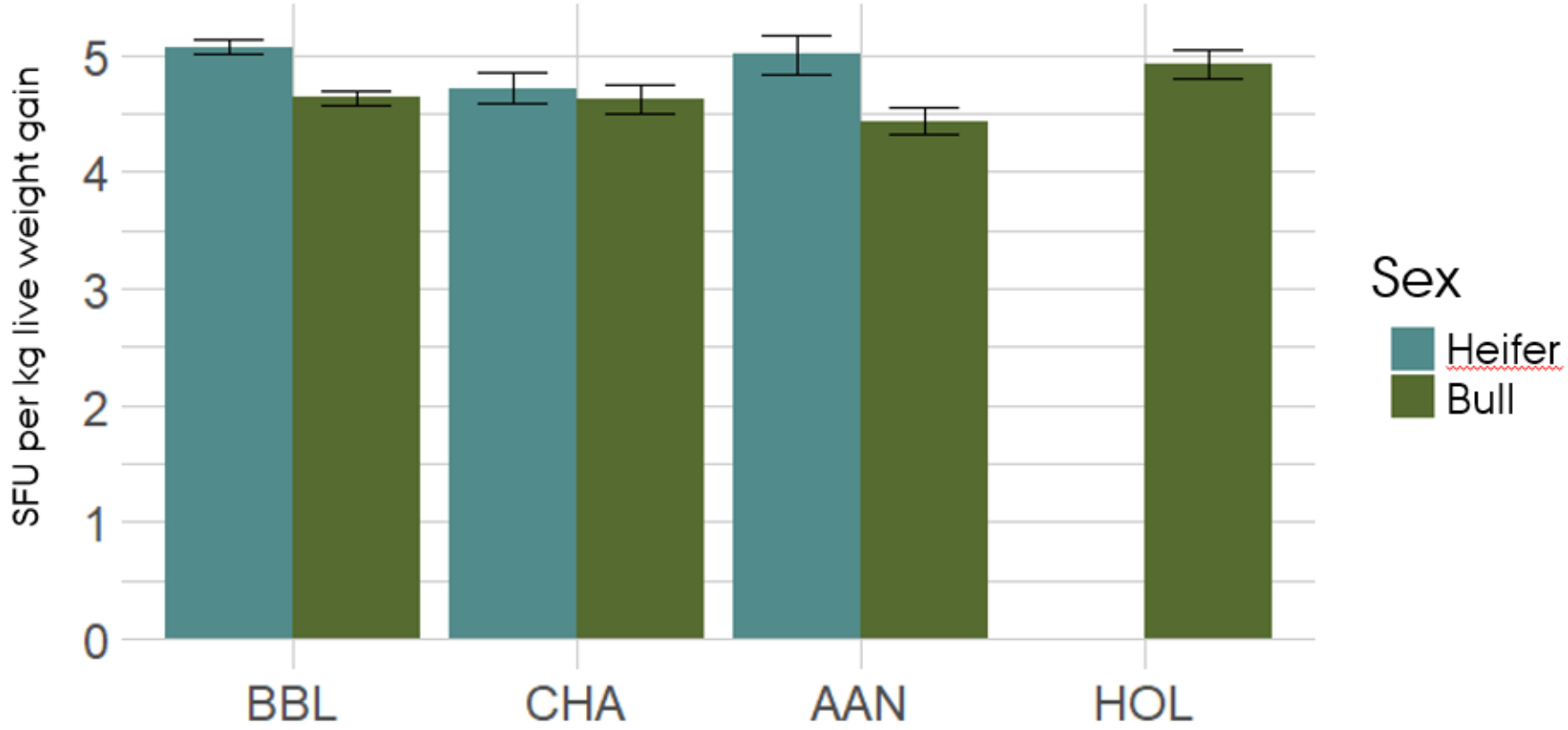
NETTO CARCASS GAIN



FEED EFFICIENCY

Small differences between sex

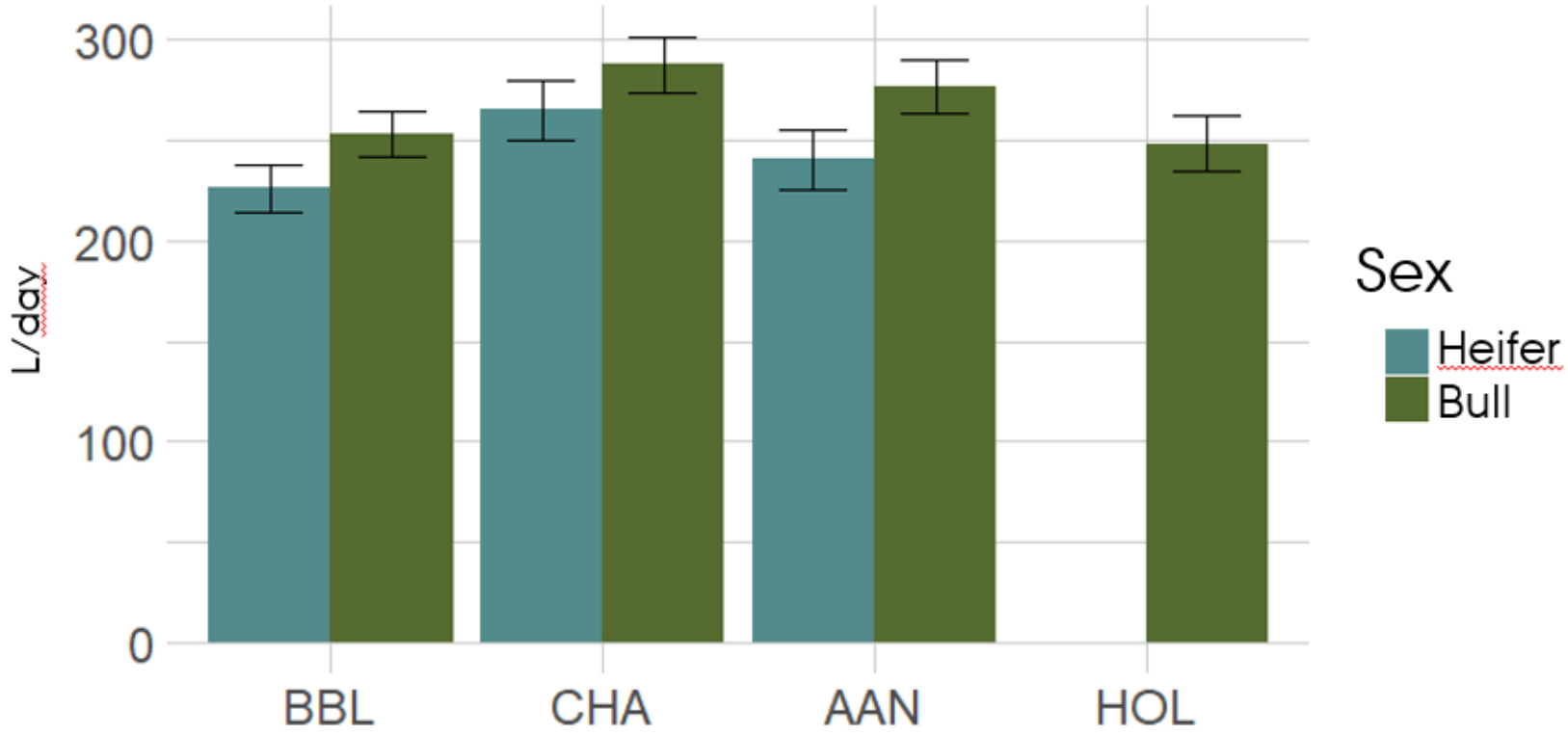
BonD bull calves better than pure Holstein bull calves



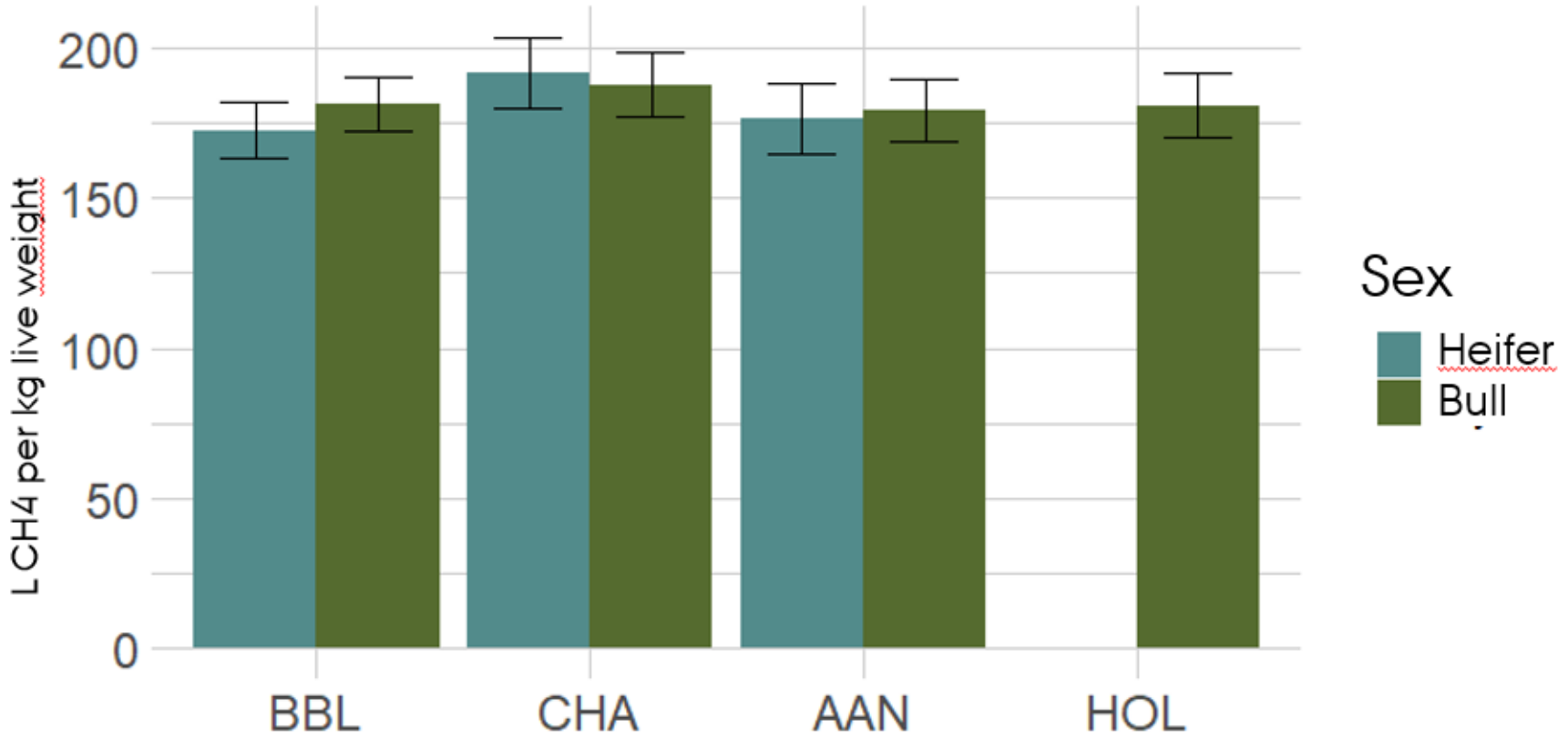
METHANE VISITS

Registrations over 17 days and on average 2 visits per day

METHANE PRODUCTION



METHANE PRODUCTION PER KG LIVE WEIGHT GAIN



BonD better when transformed to LCH4 per kg of carcass gain

WP 1 – Better Eating Quality

Danish Crown, Frontmatec, SEGES, Aarhus Universitet

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- We are measurering in the loin (*M. longissimus thoracis*) at the 5 th rib after splitting the carcass in pistol and wing.
- We are capturing the the image with the Loin Eye camera 24/48 h post mortem
- We measure loin area, pH, colour (L*, a* and b*), and Warner Bratzler shear force (meat heated to 62°C) 72 h post mortem.
- We measure the amount of intra muscular fat by chemical extraction

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Animals

- Holstein x Danish Blue – (meat quality traits **125 bulls and heifers**)
- Holstein x Charolais – (meat quality traits **104 bulls and heifers**)
- Holstein x Angus – (meat quality traits **113 bulls and heifers**)

- For development of Q-FOM camera and algoritme also results from **125 reference animals** (mainly dairy cows with high intra-muscular fat)

Preliminary results (means) from part of the animals (105 x BBL, 37 X CHA and 23 X ANG)

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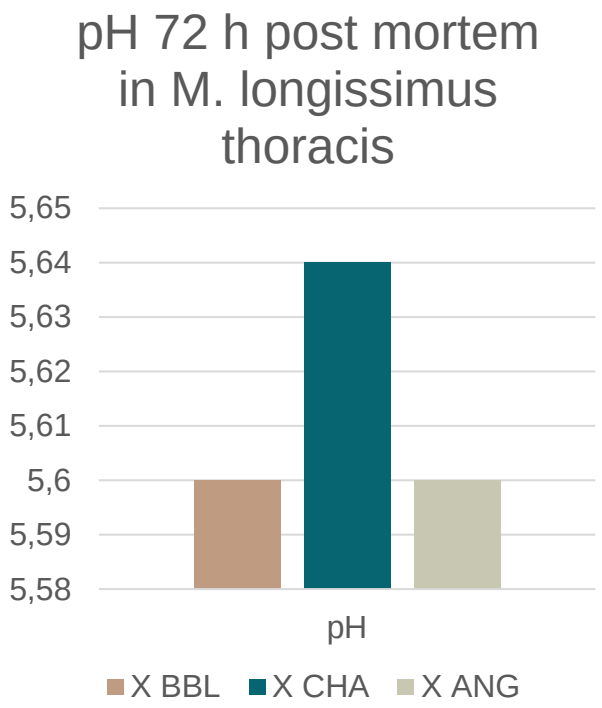

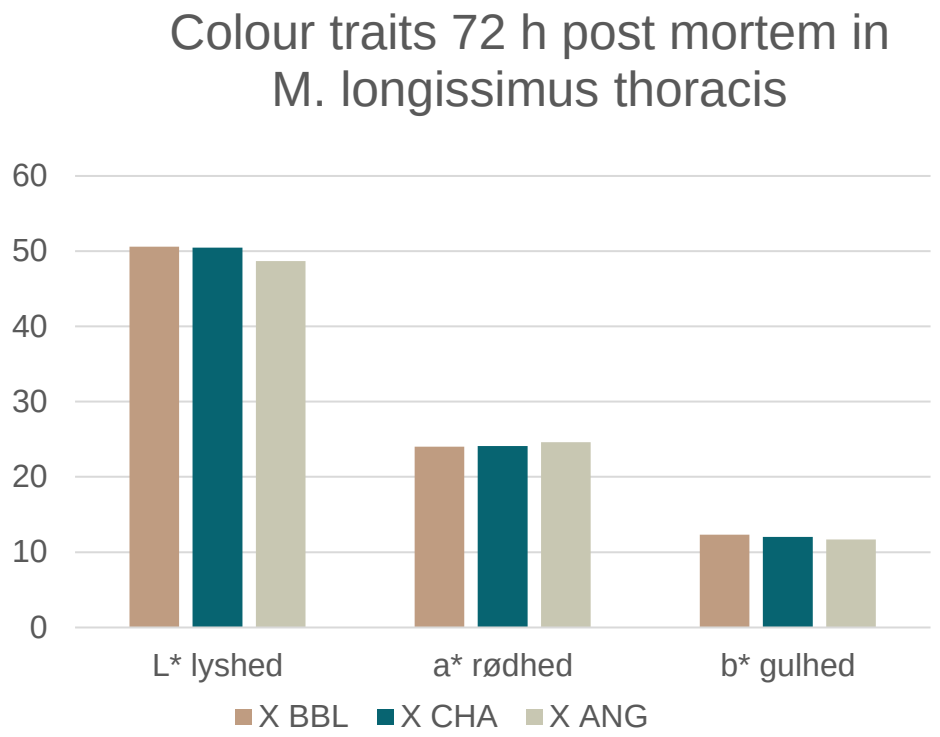

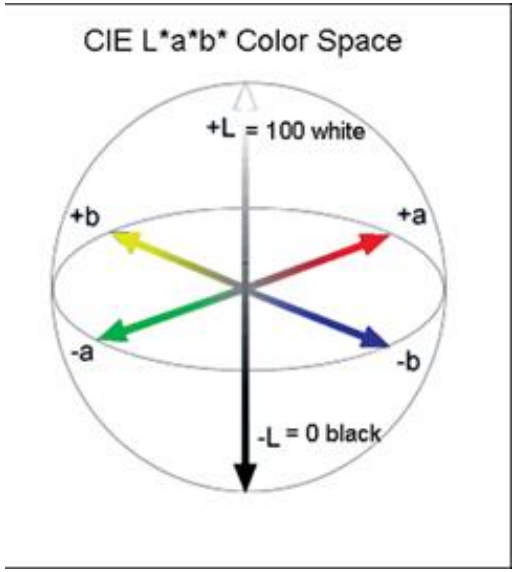

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