WP 1 – Better Eating Quality

Danish Crown, Frontmatec, SEGES, Aarhus Universitet

Work package 1 – better eating quality

From August 2019 – August 2020

Took out samples from

- 284 Holstein x Belgian Blue calves (below 12 mo)
- 278 reference animals (high marbling) (~cows)

In futurebeefcross

- We are measurering in the loin (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

Animals from 2019 - 2020

- EUROP classification
- Muscle area
- pH 72 h
- IMF (Chemical)
- Shear force
- Cooking loss
- Colour (L*, a* og b*)
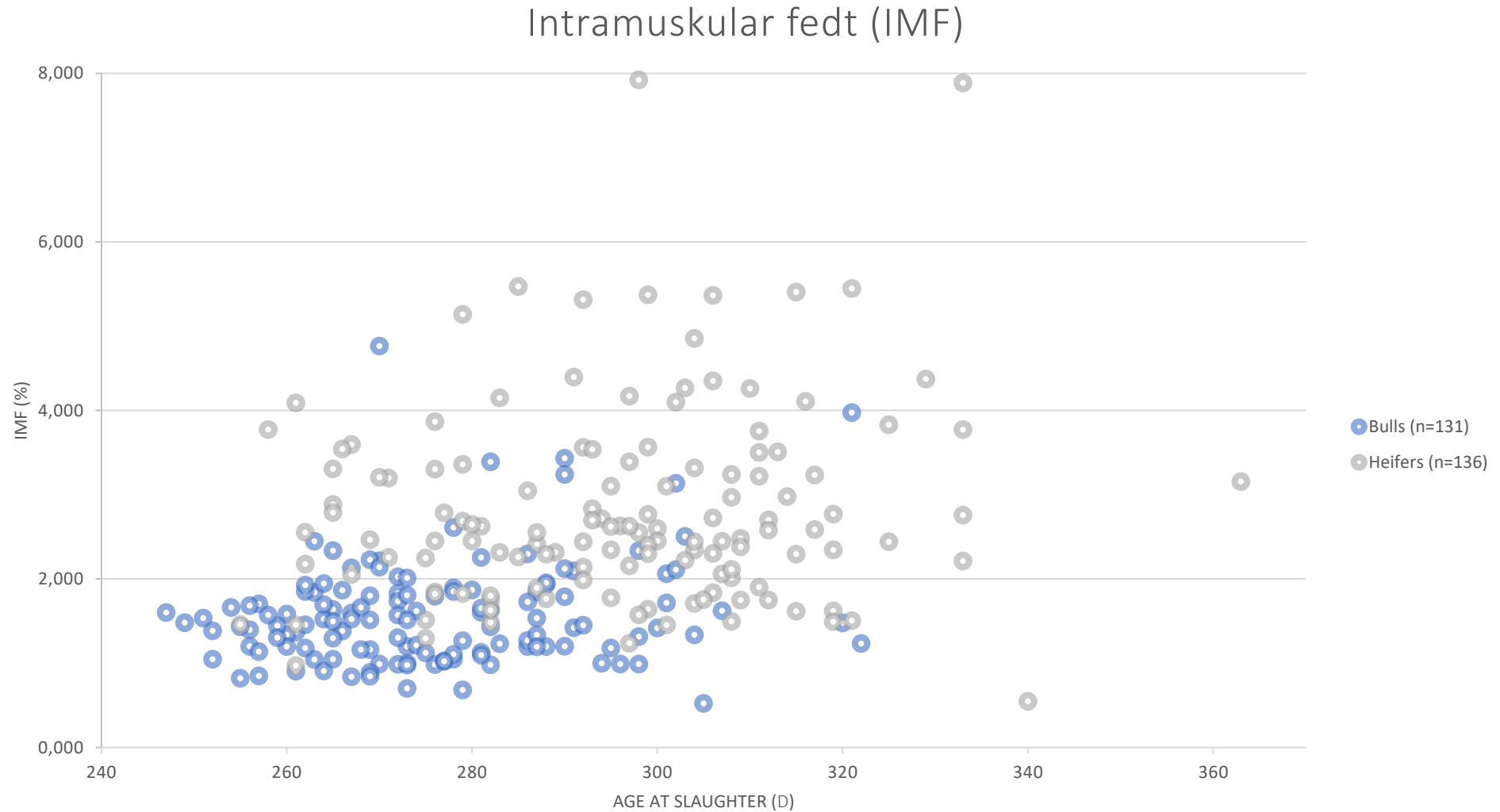
Fie Følbæk Drachmann, 2021

Table 6: Danish Holstein × Danish Blue (HB) and reference animals: Simple means and standard deviations of slaughter details and quality attributes of M. longissimus thoracis (LT).

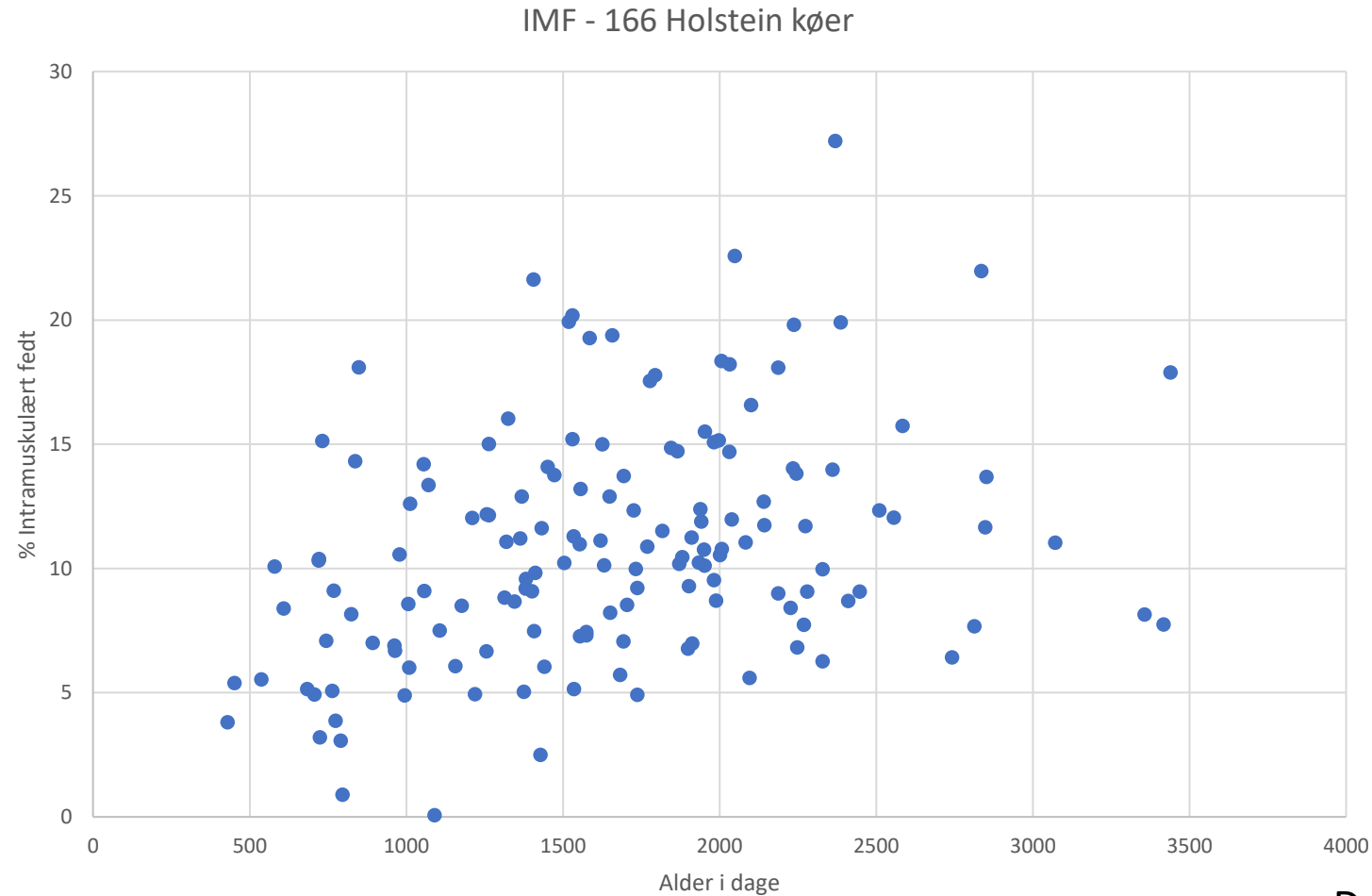|	HB			Reference animals		
	Both sexes	Bulls	Heifers	Both sexes	Males	Females
n	284	146	138	278	13	265
Carcass details						
Slaughter age (d)	286 (20)	277 (17)	296 (19)	1516 (719)	294 (45)	1576 (683)
Slaughter weight (kg)	216.0 (17.5)	221.9 (16.0)	209.8 (16.7)	348.7 (67.5)	218.9 (18.3)	355.0 (62.4)
EUROP conformation (1-15)	7.59 (1.2)	7.91 (1.2)	7.26 (1.0)	4.92 (2.0)	6.19 (3.0)	4.85 (2.0)
EUROP fatness (1-5)	2.61 (0.5)	2.30 (0.5)	2.93 (0.3)	3.57 (0.7)	2.38 (0.8)	3.63 (0.7)
LT area (cm^2)	68.2 (13.1)	68.9 (12.9)	67.4 (13.2)	64.1 (14.2)	70.1 (15.9)	64.0 (14.1)
Quality attributes						
pH	5.64 (0.06)	5.65 (0.06)	5.63 (0.05)	5.68 (0.20)	5.72 (0.09)	5.67 (0.21)
IMF (%)	2.17 (1.1)	1.55 (0.6)	2.82 (1.2)	9.97 (5.0)	2.22 (2.0)	10.38 (4.8)
WBSF, max (N)	48.99 (11.1)	52.24 (12.5)	45.57 (8.2)	54.9 (15.3)	49.8 (5.4)	55.1 (15.4)
Cooking loss (%)	10.89 (2.6)	11.60 (2.8)	10.13 (2.1)	10.47 (2.3)	13.31 (2.7)	10.40 (2.2)
L*	49.72 (4.3)	49.90 (4.3)	49.52 (4.2)	40.05 (4.2)	45.03 (3.7)	39.81 (4.1)
a*	21.75 (2.4)	20.83 (2.3)	22.73 (2.1)	24.61 (2.5)	20.93 (1.9)	24.79 (2.4)
b*	11.48 (1.9)	10.89 (1.9)	12.11 (1.7)	12.01 (1.8)	9.65 (1.4)	12.12 (1.7)

n—number of animals in the respective categories; HB—Danish Holstein × Danish Blue; ()—standard deviations; WBSF—Warner-Bratzler shear force; IMF—Intramuscular fat; pH—pH 72 h post mortem.

Intra muscular fat in young calves

Intramuskular fedt (IMF)

Fie Følbæk Drachmann, 2021

Reference animals – 166 Holstein cows

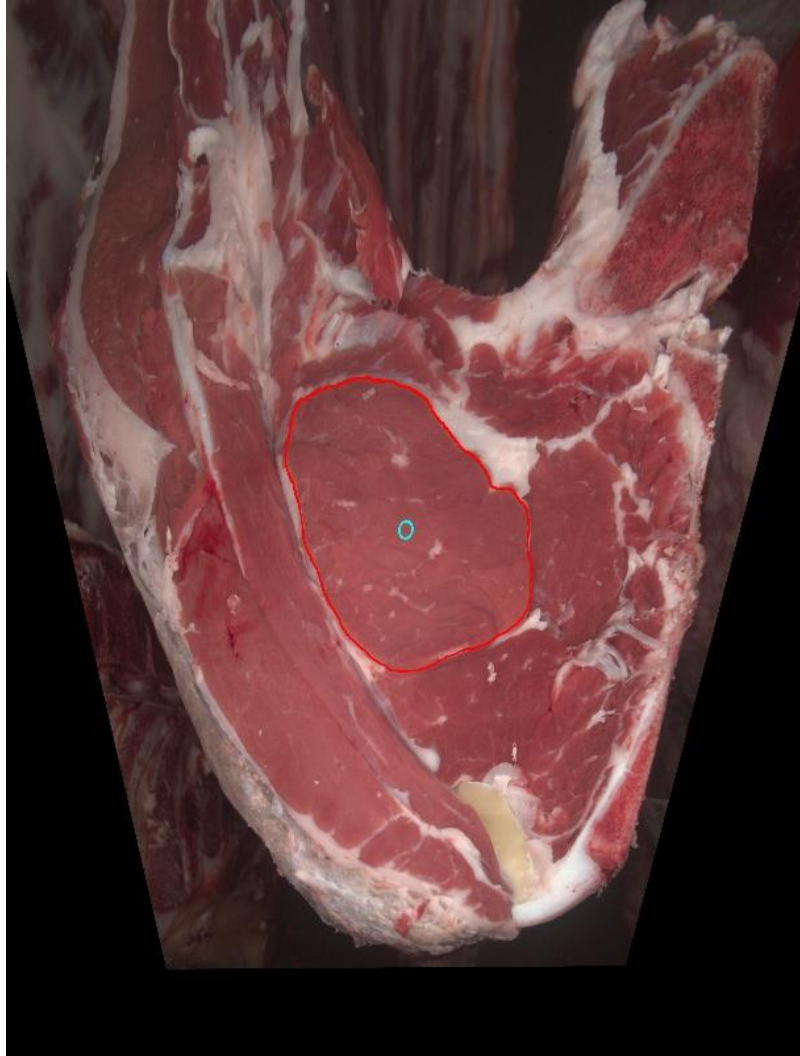IMF - 166 Holstein køer

Drachmann & Johansen, 2022

The Frontmatec Beef Grading Camera – under approval in Australien

Key features

- No shroud

- Integrated DCU

- AUS-MEAT and MSA traits

- Traceable calibration

- Ergonomic and hygienic design

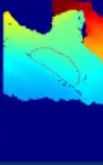- Versatile and user-friendly
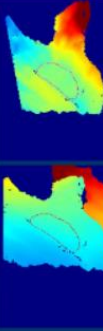
Muscle identification – 13/1-22

Examples of pictures taken by Q-FOM Beef camera – Danish Crown Holsted

Segmenting of muscle

Thanks for the attention