

Presentation for breed groupwork NAV workshop

January 2025

NAV



Nordisk Avlsværdis Vurdering • Nordic Cattle Genetic Evaluation

HOLSTEIN



NAV



Nordisk Avlsværdi Vurdering • Nordic Cattle Genetic Evaluation

Mini revision of NTM

- NTM had in 2018 the latest big revision
- Normally NTM has a revision every 10 year
- Next large revision will be in 2028
- If the price and production circumstance change much, a small adjust of NTM can be done
- Is there area where the price and production circumstance has changed a lot?
- The NTM report from 2018 can be found under:

[2018.11.06-NTM-2018-report-Full.pdf](#)

NAV



FRAME

NAV



Nordisk Avlsværdis Vurdering • Nordic Cattle Genetic Evaluation

Assumptions and calculations

- **Farmers want cows that are:**
 - **Smaller**
 - **Deeper body**
 - **Wider chest**
- **How to: go back to earlier principle in calculation of body**

NAV



Nordisk Avlsvärdering • Nordic Cattle Genetic Evaluation

Optimum, weight and breed average

	Optimum	Weight*	Breed average
Stature	148	3 -> 5	149,8
Body depth	6	15	5,6
Chest width	5	15	5,0
Rib form	6	20	4,9
Top line	7	12 -> 10	6,3
Rump width	5,5	15	5,3
Rump angle	5	20	4,9

Optimal
cow?

Adjustment
s that gives
the wanted
direction

NAV

*Classification scale



Correlation between new body and subtraits

	New body
Stature	-0,23
Body depth	0,39
Chest width	0,08
Rib form	0,25
Top line	0,17
Rump width	0,22
Rump angle	0,1
Frame	0,14
F&L	-0,03
Udder	-0,31

Correlation between Frame, New body, Stature and NTM traits

	Frame	New body	Stature
NTM	-0.10	-0.03	-0.06
Yield	0.17	0.19	0.07
Growth	0.07	0.04	-0.11
Fertility	-0.23	-0.17	-0.11
Birth	-0.35	-0.03	-0.28
Calving	0.05	-0.10	0.13
Mastitis	-0.14	-0.20	-0.04
Health	-0.22	-0.16	-0.15
Frame (current)	-	0.14	0.80
New Body	0.14	-	-0.23
Stature	0.80	-0.23	-
Feet and Legs	-0.20	-0.03	-0.06
Udder	0.19	-0.31	0.39
Milking speed	0.05	0.05	0.04
Temperament	0.12	0.09	0.10
Longevity	-0.26	-0.12	-0.15
Claw health	-0.18	-0.12	-0.11
Young stock survival	-0.20	0.02	-0.20
Persistency	0.04	0.04	0.03
Saved feed	-0.77	0.07	-0.73

Correlation between stature in NTM and traits in i NTM

	Weight on stature in NTM		
	Weight on 0.0	Weight on 0.1	Weight on 0.2
Yield	0.73	0.71	0.68
Growth	0.14	0.15	0.16
Fertility	0.35	0.36	0.36
Birth	0.19	0.22	0.24
Calving	0.20	0.19	0.17
Mastitis	0.30	0.30	0.30
Health	0.34	0.35	0.36
Frame (current)	-0.10	-0.19	-0.28
New Body	-0.03	0.00	0.02
Stature	-0.06	-0.17	-0.28
Body depth	-0.15	-0.19	-0.22
Chest width	-0.08	-0.09	-0.11
Rib structure	-0.01	-0.08	-0.14
Top line	-0.07	-0.10	-0.12
Rump width	-0.04	-0.09	-0.15
Rump angle	-0.06	-0.08	-0.11
Feet and Legs	0.09	0.09	0.10
Udder	0.18	0.13	0.09
Milking speed	0.07	0.06	0.06
Temperament	0.08	0.07	0.05
Longevity	0.36	0.37	0.38
Claw health	0.21	0.22	0.23
Young stock survival	0.15	0.17	0.18
Persistence	0.11	0.11	0.10
Saved feed	0.09	0.17	0.25

Correlation between new frame in NTM and traits in NTM

	Weight on new frame in NTM			
	0 weight	0.1 weight	0.2 weight	0.4 weight
Yield	0.73	0.74	0.75	0.75
Growth	0.14	0.14	0.15	0.15
Fertility	0.35	0.33	0.31	0.26
Birth	0.19	0.18	0.18	0.16
Calving	0.20	0.19	0.18	0.15
Mastitis	0.30	0.28	0.25	0.20
Health	0.34	0.32	0.30	0.25
Frame (current)	-0.10	-0.08	-0.07	-0.04
New Body	-0.03	0.08	0.18	0.37
Stature	-0.06	-0.08	-0.10	-0.14
Body depth	-0.15	-0.11	-0.06	0.01
Chest width	-0.08	-0.07	-0.06	-0.04
Rib structure	-0.01	0.01	0.04	0.09
Top line	-0.07	-0.05	-0.04	0.00
Rump width	-0.04	-0.01	0.01	0.06
Rump angle	-0.06	-0.04	-0.02	0.02
Feet and Legs	0.09	0.08	0.08	0.07
Udder	0.18	0.15	0.11	0.05
Milking speed	0.07	0.08	0.08	0.08
Temperament	0.08	0.09	0.10	0.11
Longevity	0.36	0.34	0.33	0.28
Claw health	0.21	0.20	0.18	0.15
Young stock survival	0.15	0.15	0.15	0.14
Persistency	0.11	0.12	0.12	0.12
Saved feed	0.09	0.09	0.10	0.11

CORRELATIONS BETWEEN NTM WITH THE NEW SAVED FEED INDEX AND SINGLE TRAITS IN FRAME

NAV



Nordisk Avlsværdis Vurdering • Nordic Cattle Genetic Evaluation

Correlation between NTM and single traits in frame

	Holstein	RDC	Jersey
Stature	-0,01	0,16	0,07
Body depth	-0,10	0,01	-0,10
Chest width	-0,06	-0,02	-0,08
Rib form	0,02	0,21	0,10
Top line	-0,08	-0,05	0,07
Rump width	-0,03	0,12	0,06
Rump angle	-0,07	-0,04	-0,06
No of bulls	6491	5406	916

- Genomic tested bulls from DNK, SWE and FIN born in 2021-2022

CORRELATIONS TO NTM FOR HOLSTEIN GENOMIC TESTED BULLS

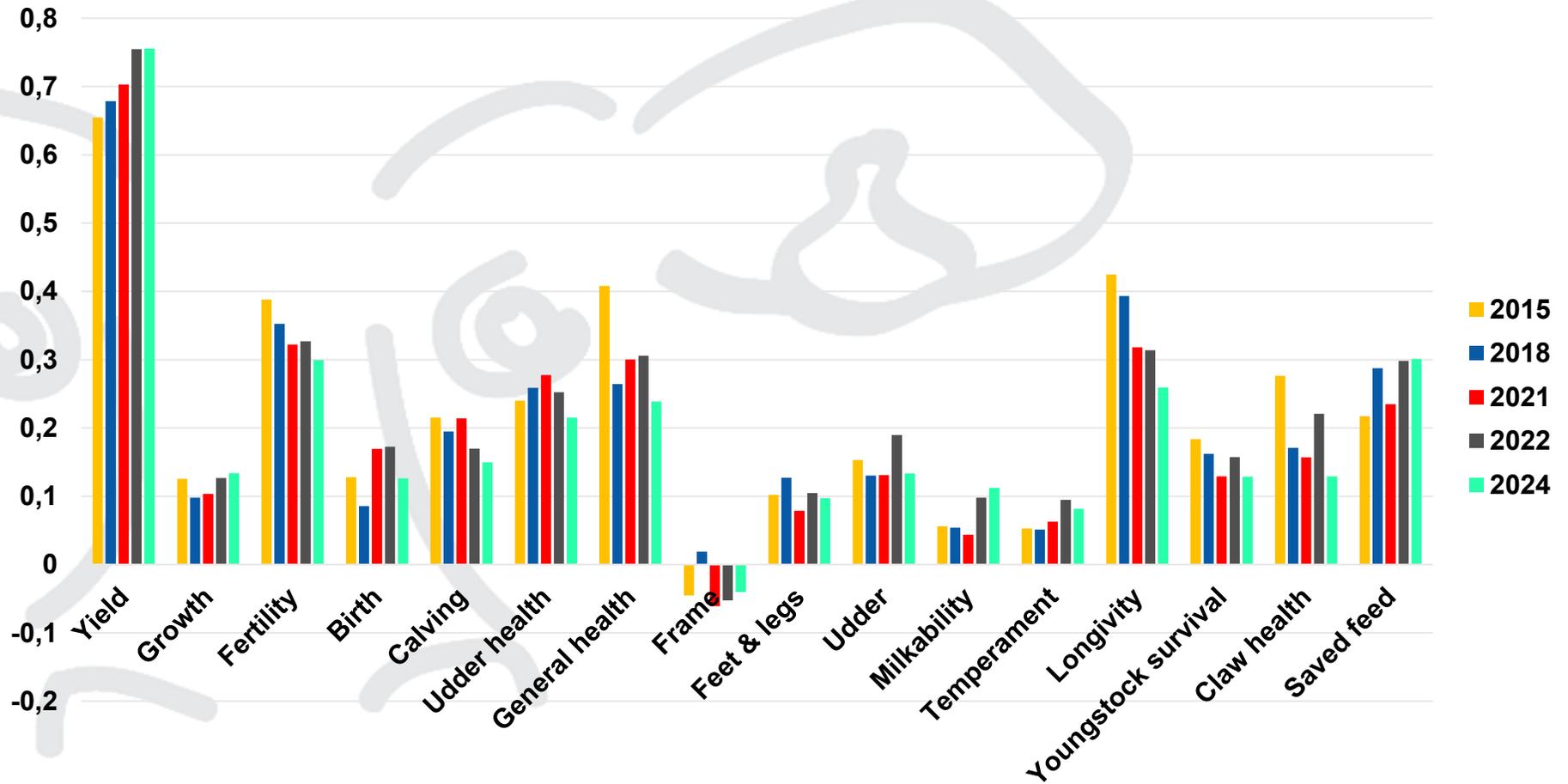
WITH NEW SAVED FEED INDEX

NAV



Nordisk Avlsværdi Vurdering • Nordic Cattle Genetic Evaluation

Correlations to NTM for Holstein genomic tested bulls



RDC



NAV



Nordisk Avlsværdi Vurdering • Nordic Cattle Genetic Evaluation

Mini revision of NTM

- NTM had in 2018 the latest big revision
- Normally NTM has a revision every 10 year
- Next large revision will be in 2028
- If the price and production circumstance change much, a small adjust of NTM can be done
- Is there area where the price and production circumstance has changed a lot?
- The NTM report from 2018 can be found under:

[2018.11.06-NTM-2018-report-Full.pdf](#)

NAV



UDDER

NAV



Nordisk Avlsværdi Vurdering • Nordic Cattle Genetic Evaluation

Scenarios for udder weight

Trait	Current	C	F*	G**
Fore udder attachment	0.20	0.20	0.20	0.20
Rear udder height	0.08	0.08	0.08	0.08
Rear udder width	0.05	0.05	0.05	0.05
Udder cleft	0.12	0.12	0.12	0.12
Udder depth	0.20	0.16	0.14	0.14
Teat length	0.10	0.12	0.14	0.19
Teat thickness	0.10	0.12	0.12	0.12
teat placement, front	0.10	0.10	0.10	0.05
Teat placement, back	0.05	0.05	0.05	0.05
Udder balance	-	-	-	-

*Modified scenario C

**correlation to Teat length = 0.00



Correlation to NTM

Trait	Current	C	F	G
Fore udder attachment	0,28	0,27	0,26	0,26
Rear udder height	0,35	0,34	0,34	0,33
Rear udder width	0,32	0,32	0,32	0,32
Udder cleft	0,03	0,03	0,03	0,02
Udder depth	0,28	0,26	0,24	0,23
Teat length	-0,08	-0,06	-0,04	0,00
Teat thickness	-0,04	-0,02	-0,01	0,02
teat placement, front	0,13	0,13	0,12	0,08
Teat placement, back	0,06	0,05	0,04	0,01
Udder balance	0,13	0,12	0,12	0,12

Correlation to other traits in NTM +/- 0,02
compared to current udder



Correlation to Udder

Trait	Current	C	F	G
Fore udder attachment	0,28	0,27	0,26	0,26
Rear udder height	0,35	0,34	0,34	0,33
Rear udder width	0,32	0,32	0,32	0,32
Udder cleft	0,03	0,03	0,03	0,02
Udder depth	0,28	0,26	0,24	0,23
Teat length	-0,08	-0,06	-0,04	0,00
Teat thickness	-0,04	-0,02	-0,01	0,02
teat placement, front	0,13	0,13	0,12	0,08
Teat placement, back	0,06	0,05	0,04	0,01
Udder balance	0,13	0,12	0,12	0,12
Current udder	1,00	0,99	0,97	0,91

WEIGHT IN YIELD

NAV



Nordisk Avlsværdi Vurdering • Nordic Cattle Genetic Evaluation

Correlation to NTM and yield

	NTM	NTM no weight on milk	Yield	Yield no weight on milk
Yield	0,64	0,64	-	0,96
Growth	0,05	0,07	0,14	0,16
Fertility	0,38	0,36	-0,26	-0,29
Birth	0,19	0,20	-0,05	-0,05
Calving	0,28	0,27	0,07	0,04
Mastitis	0,30	0,27	-0,11	-0,17
Health	0,33	0,29	-0,11	-0,16
Frame	0,03	0,04	0,32	0,32
Feet and Legs	0,19	0,17	-0,05	-0,07
Udder	0,31	0,28	0,02	-0,03
Milkability	0,15	0,13	0,15	0,11
Temperament	0,09	0,10	0,16	0,16
Longevity	0,54	0,57	0,14	0,16
Claw health	0,19	0,18	-0,11	-0,13
Young stock survival	0,26	0,25	-0,02	-0,05
Saved feed	0,09	0,08	-0,22	-0,23
NTM	-	0,97	0,64	0,55
Milk kg	-0,02	0,20	0,24	0,52
Fat kg	0,56	0,56	0,90	0,85
Protein kg	0,42	0,53	0,77	0,89

CORRELATIONS BETWEEN NTM WITH THE NEW SAVED FEED INDEX AND SINGLE TRAITS IN FRAME

NAV



Nordisk Avlsværdis Vurdering • Nordic Cattle Genetic Evaluation

Correlation between NTM and single traits in frame

	Holstein	RDC	Jersey
Stature	-0,01	0,16	0,07
Body depth	-0,10	0,01	-0,10
Chest width	-0,06	-0,02	-0,08
Rib form	0,02	0,21	0,10
Top line	-0,08	-0,05	0,07
Rump width	-0,03	0,12	0,06
Rump angle	-0,07	-0,04	-0,06
No of bulls	6491	5406	916

- **Genomic tested bulls from DNK, SWE and FIN born in 2021-2022**

CORRELATIONS TO NTM FOR RDC GENOMIC TESTED BULLS

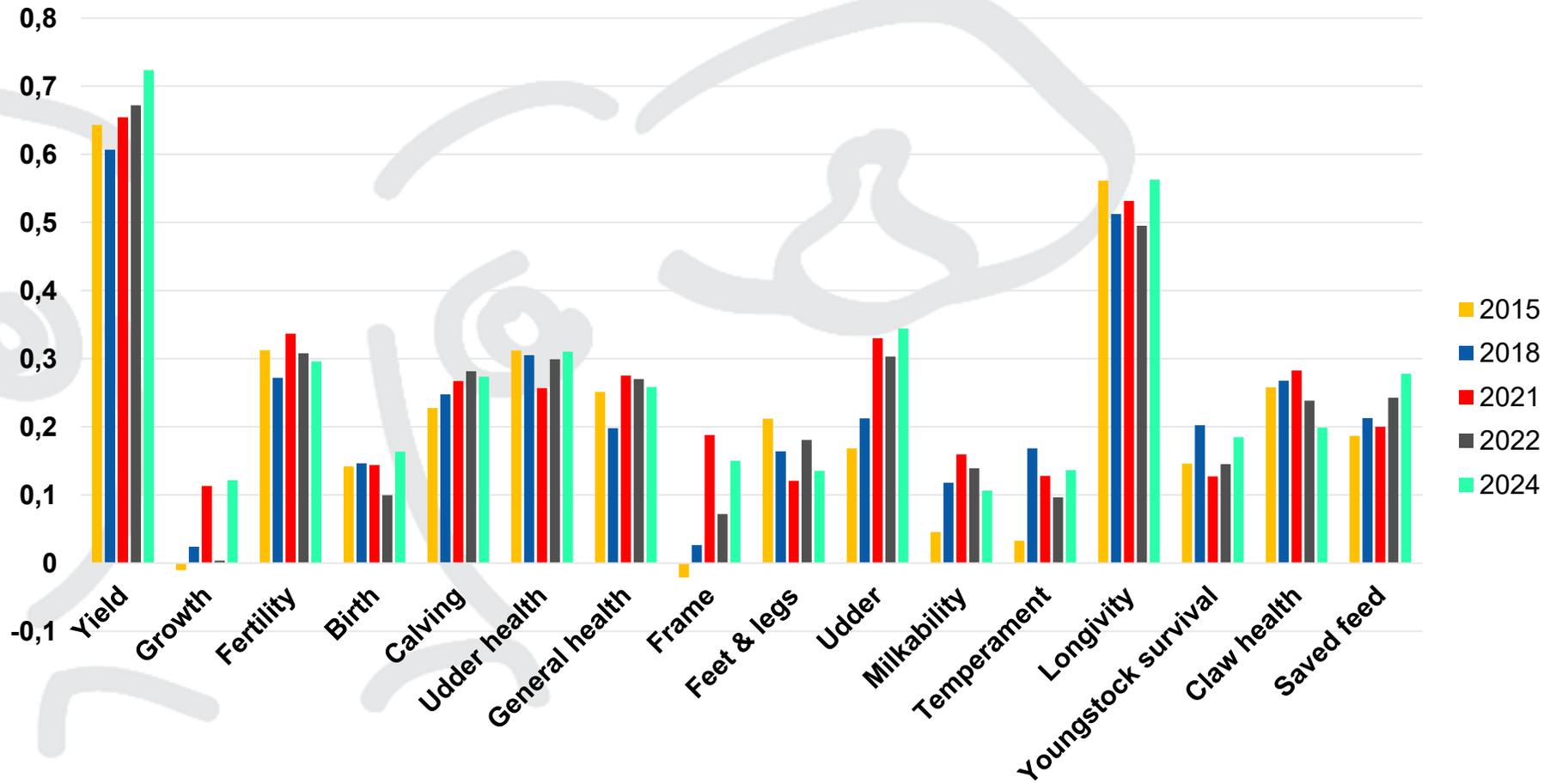
WITH NEW SAVED FEED INDEX

NAV



Nordisk Avlsværdi Vurdering • Nordic Cattle Genetic Evaluation

Correlations to NTM for RDC genomic tested bulls



JERSEY



NAV



Nordisk Avlsværdi Vurdering • Nordic Cattle Genetic Evaluation

Mini revision of NTM

- NTM had in 2018 the latest big revision
- Normally NTM has a revision every 10 year
- Next large revision will be in 2028
- If the price and production circumstance change much, a small adjust of NTM can be done
- Is there area where the price and production circumstance has changed a lot?
- The NTM report from 2018 can be found under:

[2018.11.06-NTM-2018-report-Full.pdf](#)

NAV



CORRELATIONS TO NTM FOR JERSEY GENOMIC TESTED BULLS

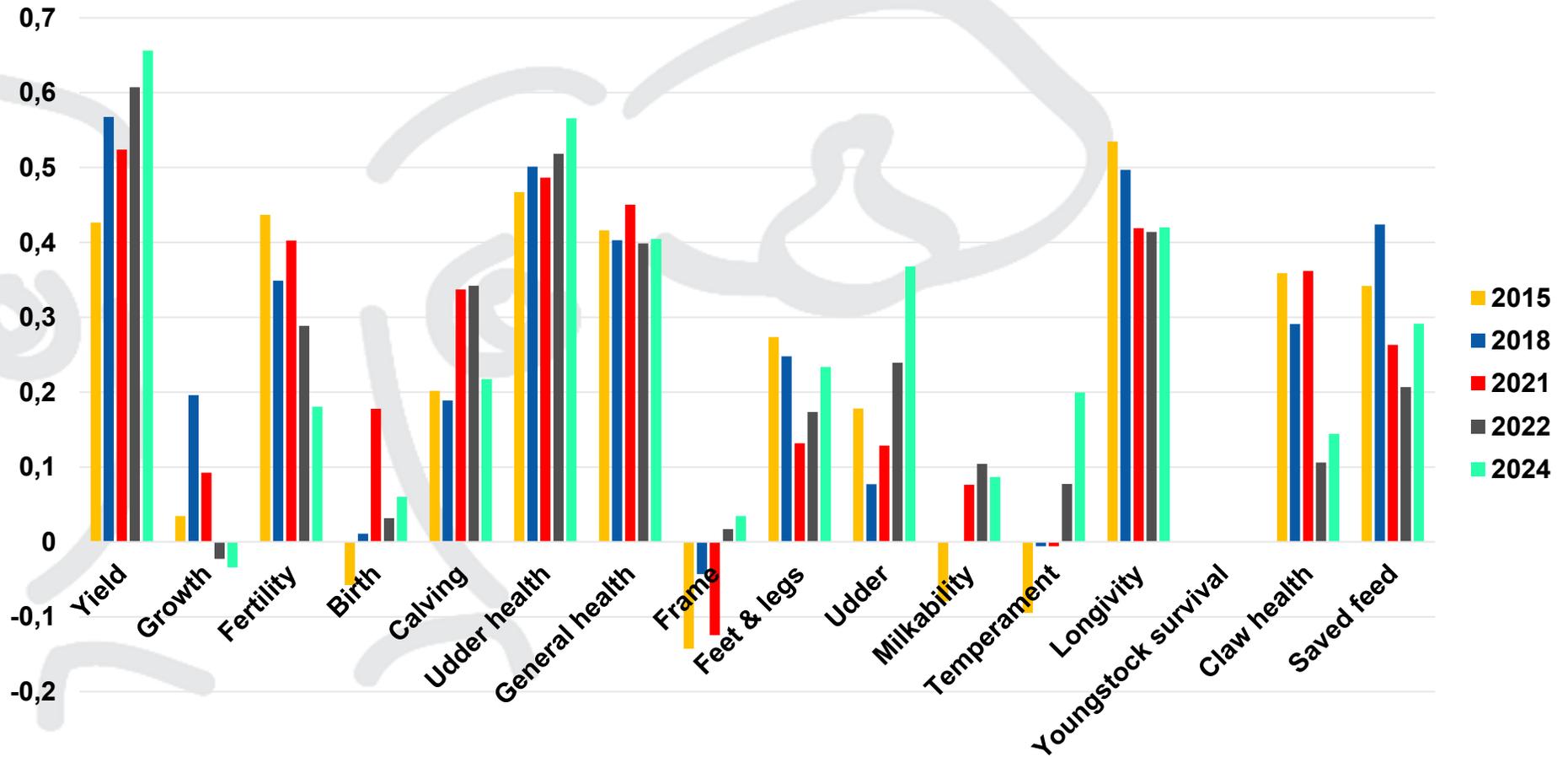
WITH NEW SAVED FEED INDEX

NAV



Nordisk Avlsværdi Vurdering • Nordic Cattle Genetic Evaluation

Correlations to NTM for Jersey genomic tested bulls



CORRELATIONS BETWEEN NTM WITH THE NEW SAVED FEED INDEX AND SINGLE TRAITS IN FRAME

NAV



Nordisk Avlsværdis Vurdering • Nordic Cattle Genetic Evaluation

Correlation between NTM and single traits in frame

	Holstein	RDC	Jersey
Stature	-0,01	0,16	0,07
Body depth	-0,10	0,01	-0,10
Chest width	-0,06	-0,02	-0,08
Rib form	0,02	0,21	0,10
Top line	-0,08	-0,05	0,07
Rump width	-0,03	0,12	0,06
Rump angle	-0,07	-0,04	-0,06
No of bulls	6491	5406	916

- **Genomic tested bulls from DNK, SWE and FIN born in 2021-2022**

USE OF POLLED GENETIC IN JERSEY

NAV



Nordisk Avlsværdis Vurdering • Nordic Cattle Genetic Evaluation

RDC polled genetic

Polled status	Horned	Polled Heterozygot	Polled Homozygot	Ukendt	% af total
Konventionel antal	26.781	15.623	2.540	362	45.306
Konventionel procent	59,11%	34,48%	5,61%	0,80%	86,06%
Økologisk antal	3.465	2.833	859	183	7.340
Økologisk procent	47,21%	38,60%	11,70%	2,49%	13,94%

Insemination data from DNK
1.11.2023 → 1.11.2024

NAV



Nordisk Avlsværdi Vurdering • Nordic Cattle Genetic Evaluation



Martin Krogsgaard

Holstein polled genetic

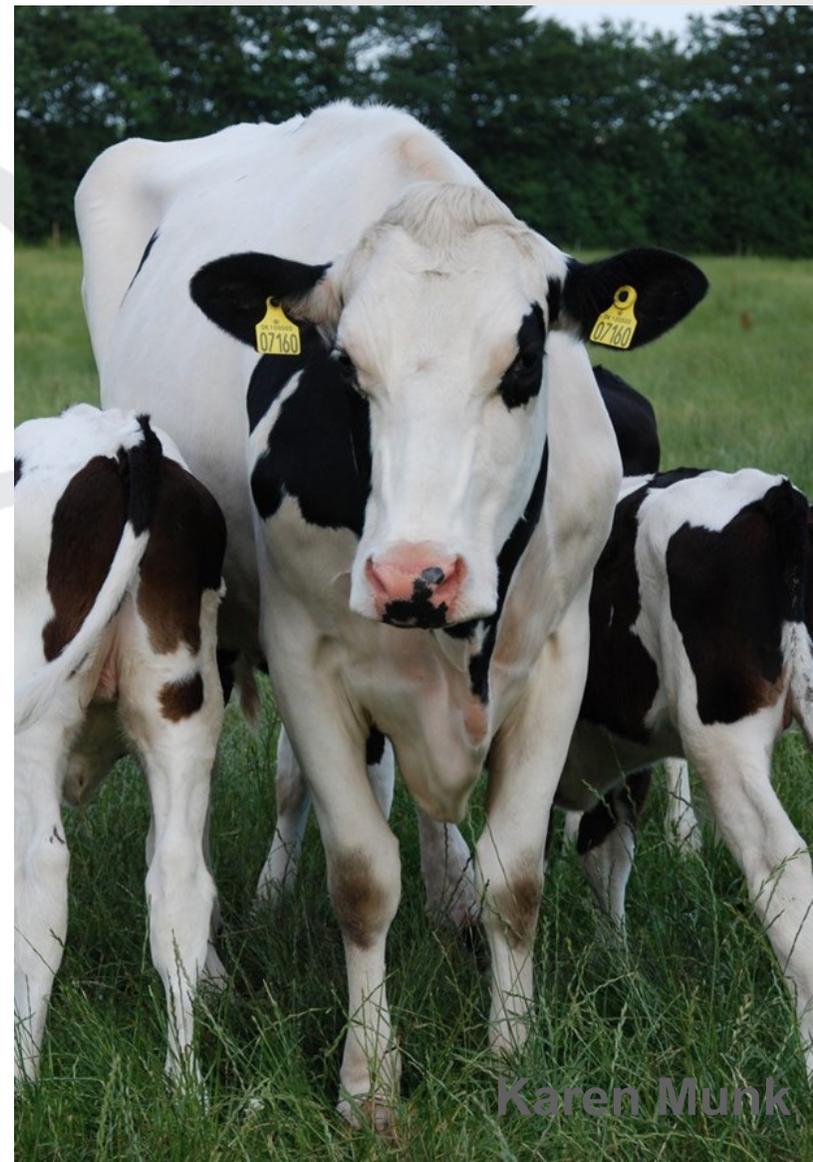
Polled status	Horned	Polled Heterozygot	Polled Homozygot	Ukendt	% af total
Konventionel antal	419.466	145.040	70.341	58.164	693.011
Konventionel procent	60,53%	20,93%	10,15%	8,39%	90,10%
Økologisk antal	35.281	22.101	16.152	2.591	76.125
Økologisk procent	46,35%	29,03%	21,22%	3,40%	9,90%

Insemination data from DNK
1.11.2023 → 1.11.2024

NAV



Nordisk Avlsværdi Vurdering • Nordic Cattle Genetic Evaluation



Jesey polled genetic

Polled status	Horned	Polled Heterozygot	Polled Homozygot	Unknow	Total % af total
Conventional number	111.397	15.969	2.423	7.559	137.348
Conventional percent	81,11%	11,63%	1,76%	5,50%	88,80%
Organic number	13.548	2.515	761	505	17.329
Organic percent	78,18%	14,51%	4,39%	2,91%	11,20%

Insemination data from DNK
1.11.2023 → 1.11.2024

NAV



Nordisk Avlsværdi Vurdering • Nordic Cattle Genetic Evaluation



Linda Duve

Is no dehorning possible?

- Strategi minimum 70% use of polled genetic
- No dehorning = only homozygotic bulls

PP Jersey bull NAV search page

International ID	Name	Birth year	NTM
JERDNKM003833015548	VJ Mojo PP	2023	16
JERDNKM004363902502	VJ Lee PP	2023	10
JERFRAM005625947835	VJ MBA PP	2022	6
JERDEUM000364353520	Jatta PP	2022	4
JERNLDM000544593385	Niels PP	2021	4
JERUSAM003126234075	Solar PP	2014	-14
JERUSAM000075812216	ValuablePP	2019	-15
JERDEUM001406414157	Donier PP	2021	-18

NAV



USE OF DATA FROM NORWAY AND FRANCE

NAV



Nordisk Avlsværdis Vurdering • Nordic Cattle Genetic Evaluation

Jersey carvings in 2023 that go into breeding evaluation

Country	1. calving	Later calving	Total calvings
Denmark	21,329	20,959	42,288
Finland	355	467	822
Sweden	768	1,138	1,906
Norway	1,255	1,561	2,816
France	2,474	4,610	7,084

NAV



Nordisk Avlsværdi Vurdering • Nordic Cattle Genetic Evaluation

Jersey data included in breeding evaluation

Trait / Country	France	Norway*
Yield	X	X
Growth	-	-
Saved feed	-	-
Fertility	X	X
Birth	X	X
Calving	X	X
Udder health	X	X
General health	-	-
Claw health	-	-
Youngstock survival	-	-
Frame	X	-
Feet & legs	X	-
Udder	X	-
Milkability	-	-
Temperament	X	-
Longevity	X	X

***Same for
Holstein from
Norway**