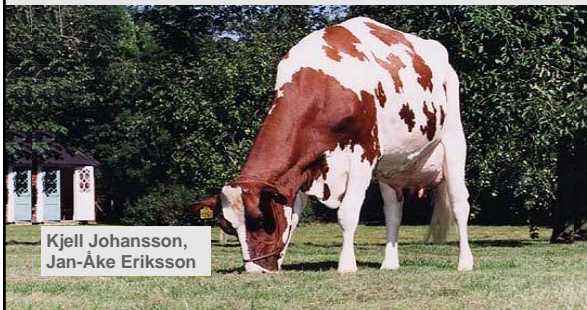


Genetic Evaluation of Claw Health

NAV workshop on Claw Health
Copenhagen May 4, 2011



From disorder recording to trait definition

Trait name	Disorders (coding)	Mean
Dermatitis (DE)	Interdigital (1), Digital (2), Dermatitis	0.16
Heel Horn Erosion (HH)	Mild (1), severe (2)	0.20
Skin Proliferation (SP)	interdigital hyperplasia, wart (1)	0.03
Sole Haemorrhage (SH)	Mild(1), severe (2)	0.21
Sole Ulcer (SU)	Mild (1), severe(2)	0.07
Cork screw claws (CSC)	(1)	0.02
White line separation (WLS)	White Line Separation, Double sole (1)	0.06

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Nordisk Avlsværdi Vurdering • Nordic Cattle Genetic Evaluation

VIDENCENTRET FOR LANDBRUG

Klovlideiser på dansk og udenlandsk
v/Pia Nielsen, Kvæg, VFL

dansk: Spaltebetændelse /Betændelse klovspalte
engelsk: Interdigital dermatitis / Slurry Heel
svensk: Klövspaltekssem / lindrigt eksem
finsk: Sorkkavälin ihon tulehdus (765)

Mild

Svær



Nordisk Avlsværdi Vurdering • Nordic Cattle Genetic Evaluation

VIDENCENTRET FOR LANDBRUG

Klovlideiser på dansk og udenlandsk
v/Pia Nielsen, Kvæg, VFL

dansk: Digital dermatitis, DD
engelsk: Digital dermatitis
svensk: Klöveksem / Digital dermatitis
finsk: Sorkka-alueen ihotulehdus (767)

Mild

Svær



Nordisk Avlsværdi Vurdering • Nordic Cattle Genetic Evaluation

From disorder recording to trait definition

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VIDENCENTRET FOR LANDBRUG

Klovlideiser på dansk og udenlandsk
v/Pia Nielsen, Kvæg, VFL

dansk: Balleråd / Balleforrådnelse
engelsk: Heel horn erosion
svensk: Klövröta
Finsk: Kantasyöpymä (766)

Mild

Svær



Nordisk Avlsværdi Vurdering • Nordic Cattle Genetic Evaluation

From disorder recording to trait definition

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Dermatitis (DE)	Interdigital (1), Digital (2), Dermatitis	0.16
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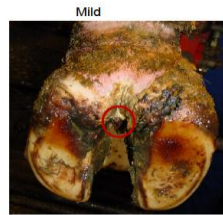
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Nordisk Avlsværdi Vurdering • Nordic Cattle Genetic Evaluation

VIDENCENTRET FOR LANDBRUG

Klovidelser på dansk og udenlandsk
v/Pia Nielsen, Kvæg, VFL

dansk: Nydannelse
engelsk: Interdigital fibroma / interdigital hyperplasia
svensk: Limax
finsk: Sorkkavälin liikkasvu (775)



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From disorder recording to trait definition

Trait name	Disorders (coding)	Mean
Dermatitis (DE)	Interdigital (1), Digital (2), Dermatitis	0.16
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VIDENCENTRET FOR LANDBRUG

Klovidelser på dansk og udenlandsk
v/Pia Nielsen, Kvæg, VFL

dansk: Såleblødning
engelsk: Sole haemorrhage
svensk: Subblödning
finsk: Vertymä anturassa (761)



Nordisk Avlsværdi Vurdering • Nordic Cattle Genetic Evaluation

From disorder recording to trait definition

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Dermatitis (DE)	Interdigital (1), Digital (2), Dermatitis	0.16
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VIDENCENTRET FOR LANDBRUG

Klovidelser på dansk og udenlandsk
v/Pia Nielsen, Kvæg, VFL

dansk: Sålesår
engelsk: Sole ulcer
svensk: Klövsulesår
finsk: Anturahaavauma (764)



Nordisk Avlsværdi Vurdering • Nordic Cattle Genetic Evaluation

From symptom recording to trait definition

Trait name	Disorders (coding)	Mean
Dermatitis (DE)	Interdigital (1), Digital (2), Dermatitis	0.16
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Nordisk Avlsværdi Vurdering • Nordic Cattle Genetic Evaluation

VIDENCENTRET FOR LANDBRUG

Klovlidelser på dansk og udenlandsk
v/Pia Nielsen, Kvæg, VFL

dansk: Protrækker klov
engelsk: Corkscrew claw
svensk: Korkskruvklöv
finsk: Sorkkakiertymä (768)

Mild



Svær



Nordisk Avlsværdi Vurdering • Nordic Cattle Genetic Evaluation

From disorder recording to trait definition

Trait name	Disorders (coding)	Mean
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Cork screw claws (CSC)	(1)	0.02
White line separation (WLS)	White Line Separation, Double sole (1)	0.06

NAV Traits with means, not diseases with frequencies!!

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VIDENCENTRET FOR LANDBRUG

Klovlidelser på dansk og udenlandsk
v/Pia Nielsen, Kvæg, VFL

dansk: Hul væg
engelsk: White line disease, WLD
svensk: Hålvägg
finsk: Valkoviivan repeämä (763) / paise (773)

Løs hvid linje / Abaxial wall fissures /
Valkoviivan repeämä (763)



Byld i hvid linje / White line Abscess /
Böld vita linjen / Valkoviivan paise (773)



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VIDENCENTRET FOR LANDBRUG

Klovlidelser på dansk og udenlandsk
v/Pia Nielsen, Kvæg, VFL

dansk: Dobbelt sål
engelsk: Double sole
svensk: Dubbelsula
finsk:

Mild



Svær



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Trait definition ...

- 7 traits per lactation
- 3 lactations
- Maximum 3 trimmings per lactation
- Trimmings within 430 days after calving

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Trait definition...

- Uninformative records deleted:
- Records from herd-years with just "0" records
- Deleted if probability of a "1" record is 95%

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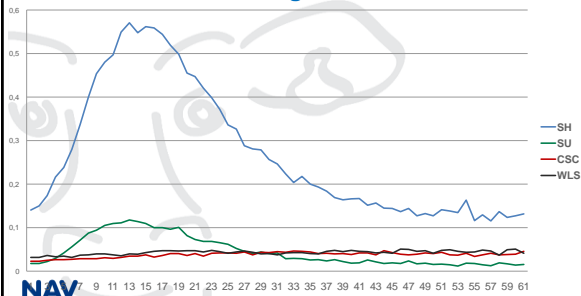
Number of trimmed and evaluated cows

	Holstein	RDC	Jersey
Denmark	108793	9364	16949
Finland	18334	38295	-
Sweden	134420	121125	1651

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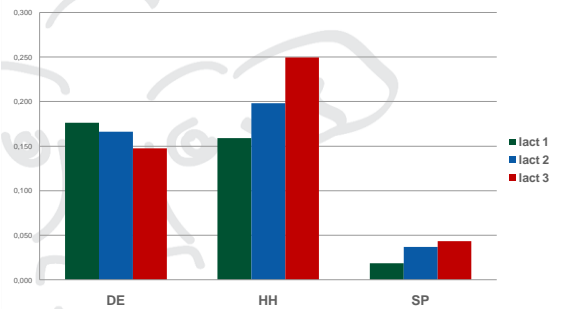
Effect of lactation stage. Weeks after calving. RDC



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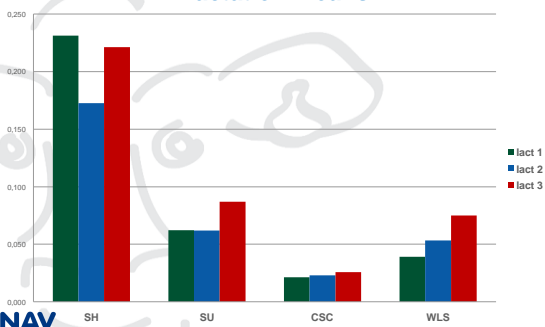
Lactation means



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Lactation means



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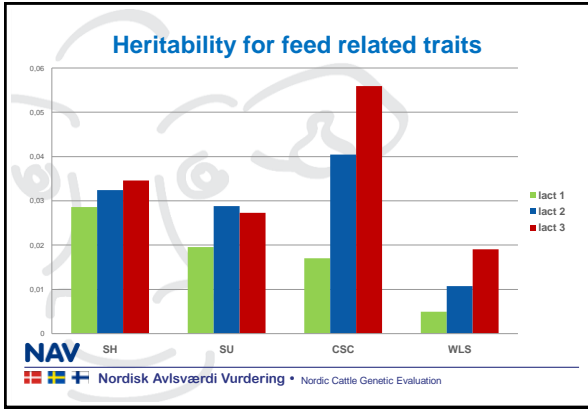
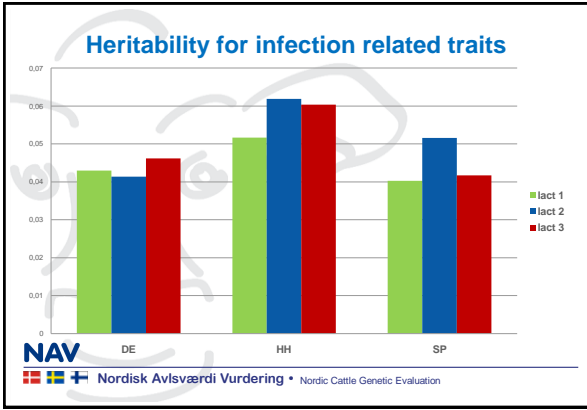
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Model

Effect	Type
Herd*period (5 year)	fix
herd*half-year	random
Year*month	fix
Lactation stage	fix
Calving age	fix
Permanent environment	random
Animal	random

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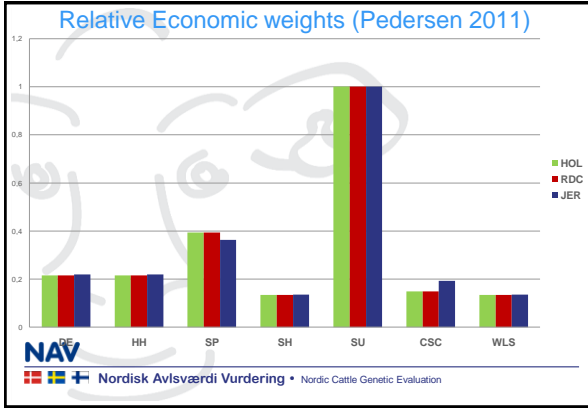
Genetic correlations

Between	Range
Infection related traits (DE, HH, SP)	0.3-0.9
Feed related traits (SH, SU, CSC, WLS)	0.2-0.9

Between	Range
Infection related and feed related traits	-0.2 to 0.3

Between	Range
Same trait in different Lactations	0.79-0.99

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Correlations between rbvs for claw traits and claw health index

Trait	RDC	Holstein	Jersey
DE	0.63	0.50	0.62
HH	0.76	0.62	0.77
SP	0.58	0.41	0.56
SH	0.66	0.83	0.74
SU	0.79	0.90	0.84
CSC	0.34	0.57	0.68
WLS	0.53	0.78	0.66

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Sire EBVs and the trait means

	V Exes	Var Elvis	Difference
Daughters	10516	4669	
Claw index	119	98	21
DE	0.32	0.31	0.01
HH	0.16	0.22	- 0.06
SP	0.05	0.10	- 0.06
SH	0.18	0.24	- 0.06
SU	0.08	0.10	- 0.02
CSC	0.00	0.01	- 0.01
WLS	0.10	0.10	- 0.01

NAV Nordisk Avlsværdi Vurdering • Nordic Cattle Genetic Evaluation

Sire EBVs and their trait means

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CSC	0.00	0.01	- 0.01
WLS	0.10	0.10	- 0.01

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Publication rules

- Sires with at least 1 trimmed daughter
- Official Claw index when reliability = 40 and over

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Comments

•Correlation to Swedish evaluation is around 0.8: New evaluation more efficient, covers more aspects

•Danish rbvs will vary because of much new information

Increases in recording is advantageous

Thank You!!



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