Does NBDI work?
Results from Finland

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High NBDI = better progeny?

- Bulls divided in three groups based on NBDI, long
  - High: NBDI, long > +5
  - Average: -5 ≤ NBDI, long ≤ +5
  - Low: NBDI, long < -5
- In combination indices and single traits, three groups based on the index value
  - High: Index > 105
  - Average: 96 ≤ Index ≤ +105
  - Low: Index < 96

One bull in different index groups

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VB Salo PP NBDI 13 → High NBDI group

Trait	Current evaluation
NBDI, long	13
Birth	95
Growth, long	115
Youngstock survival	105
Gestation length, cow (not in NBDI)	7

Birth → Low group

Growth, long → High group

Youngstock survival → Average group

High: NBDI, long > +5
Average: -5 ≤ NBDI, long ≤ +5
Low: NBDI, long < -5

High: Index > 105
Average: 96 ≤ Index ≤ +105
Low: Index < 96

Data

- Bulls with FIN herdbook number and NBDI, long in August 2025
- Only bulls with 200 slaughtered progeny in Finland
  - Dam of progeny HOL, RDC or JER
- In total 169 bulls, 6 breeds
- In total 447 007 progeny, 53 % males, 47 % females
- Bulls born 1990-2021, progeny 2005-2024
- NBDI, long -43 – +29, average -2,12

42	AAN	21	SIM
42	LIM	16	CHA
39	BAQ	9	HER

Results, calving traits

Calf survival, 1st calving

Group	Index	Survival, %	Bulls	Calves
High	109,2	94,84	36	16 752
Average	100,6	92,90	85	37 654
Low	89,0	87,94	48	6 706

Calf survival, later calvings

Group	Index	Survival, %	Bulls	Calves
High	108,4	96,35	29	118 390
Average	101,1	95,81	99	419 305
Low	89,5	94,26	41	110 645

Calf survival

- Calf survival within the first 24 hours after calving
- 1st and later calvings, respectively

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Results, calving traits

Calving ease, 1st calving

Group	Index	Easy calvings, %	Bulls	Calvings
High	111,8	94,57	40	17 791
Average	100,0	91,54	57	13 411
Low	86,0	87,42	72	6 281

Calving ease, later calvings

Group	Index	Easy calvings, %	Bulls	Calvings
High	112,0	97,13	40	43 242
Average	99,5	96,23	63	204 737
Low	85,1	93,82	66	131 239

Calving ease

- Evaluation of the calving ease compared to other calving's in the herd
- 1st and later calvings, respectively

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Results, Birth

- Birth = 0,58 x Calf survival, later lact. +
  0,53 x Calving ease, later lact.
- Correlations between Birth and underlying traits are about 0,95

Group	Index	Survival, 2+ calvings, %	Easy calvings, 2+ calvings, %	Bulls
High	110,2	96,58	97,18	33
Average	100,9	95,90	96,08	76
Low	87,8	94,72	93,42	60

Youngstock survival (YSS)

- Data
  - Early period (period 1, 1-30 days)
    - Only calves over 30 days old when data was extracted
  - Late period (period 2, 31-200 days)
    - Only calves over 200 days old when data was extracted
  - Only combination index from bulls

Results, Youngstock survival (YSS)

Group	Index, YSS	Bulls	Survival %, period 1	No. progeny, period 1	Survival %, period 2	No. progeny, period 2
High	111,4	51	98,27	147 800	96,44	138 541
Average	101,1	59	97,76	242 380	95,80	230 445
Low	88,4	59	97,48	281 207	93,87	271 591

Slaughter traits

- Data
  - Only progeny with slaughter date and weight, carcass conformation score and carcass fat score
  - Age at slaughter 200-900 days
  - Carcass conformation score (EUROP scale) was transformed to numeric values (1 – 15)
  - Carcass fat score: minus and plus scores were transformed to numeric values (0,665 – 5,335)

Results, daily carcass gain

- Daily carcass gain = Weight gain from birth to slaughter
- Daily gain, kg/day = Slaughter weight, kg/Age at slaughter, days

Group	Index	Slaughter weight, kg	Daily gain, kg/day	Bulls	No. progeny
High	114,3	336,2	0,597	66	131 366
Average	100,2	331,1	0,586	50	154 417
Low	86,2	321,0	0,567	53	161 224

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Results, slaughter quality

- Carcass conformation score

Group	Index	Carcass conformation score	Bulls	No. progeny
High	117,1	7,36	54	244 827
Average	100,5	6,73	35	61 806
Low	82,5	6,04	80	140 374

- Carcass fat score (lower index = less fat)

Group	Index	Carcass fat score	Bulls	No. progeny
Low	82,4	2,321	64	263 919
Average	101,1	2,665	29	38 135
High	127,3	2,977	76	144 953

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Results, Growth long

- Growth, long = 0,71 x Daily carcass gain +
  0,53 x Carcass conformation score +
  -0,12 x Carcass fat score

Group	Index	Slaughter weight, kg	Daily gain, kg/day	Carcass conf. score	Carcass fat score	Bulls	No. progeny
High	114,9	334,8	0,594	7,324	2,383	67	232 345
Average	99,8	325,7	0,575	6,681	2,728	33	51 610
Low	82,6	321,6	0,567	6,250	2,767	69	163 052

Results, NBDI long

NBDI group	NBDI	Bulls	Calf survival, 2+ calvings, %	Easy calvings, 2+ calvings, %	YSS, % (0.36*period 1 + 0.83*period 2)	Slaughter weight, kg	Daily gain, kg/day	Carcass conf. score	Carcass fat score
High	12,5	40	95,79	95,70	95,47	337,4	0,599	7,430	2,395
Average	-0,1	68	95,78	95,32	95,02	328,5	0,582	6,815	2,597
Low	-13,9	61	95,36	95,45	94,97	320,8	0,566	6,324	2,698

Summary

- For single traits the phenotypic results of the progenies are better when the index value of the sire is better 👍
- Same situation with combination indices 👍
- The differences between NBDI, long groups are very small in calving traits and youngstock survival
- In growth and slaugter traits, higher NBDI long indicates better slaughter weight, growth and slaugter quality

  ➔ Higher slaughter income 👍 💶

Conclusions

- Based on the Finnish data, NBDI long is a good tool for selecting beef bulls for dairy herds
- The weight of calving traits in NBDI long is lower than the weight of slaughter traits BUT a beef bull must have good results in calving traits to be used in dairy herds

Thank you!

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