Nordic Total Merit Index

Use of sexed semen(SS) and beef semen(BS) in dairy herds

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Introduction

- Use of sexed semen (SS) and beef semen(BS) can improve revenue in dairy herds
- In dairy breeding: Which traits will be affected by use of SS and BS ?
- In the 2018 TMI-model the use of SS and BS was included
- Today, I will:
  - Give short review of the assumptions in 2018 TMI-model
  - Compare with the actual situation (results from survey)
  - A start for further discussions

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Which traits are affected by use of SS and BS

- Dairy beef production traits: Growth and Form
- Female fertility – conception rate (for sexed semen and beef semen)
- Calvings traits – survival and calving ease
- Youngs stock survival

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How will traits be affected

- Only effect of improving dairy genes should be evaluated
- Introducing BS will reduce the share of dairy genes in calves born in dairy herds

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How have the traits been affected

- The value is reduced for:
  - *Dairy beef traits – especially form score*
  - *Direct calving traits (birth index)*
  - *Young stock survival for (dairy) bull calves*
- The value is increased for:
  - *Fertility (conception rate)*
  - *Maternal calving traits (calving index)*
  - *Young stock survival for heifer calves*

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Important assumptions in 2018

- SS is used for almost all heifers
- SS is used mainly at 1st AI
- BS is used only for cows

- Replacement rate: Determine the share of cows available for insemination with beef semen – a low replacement rate was assumed.

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Assumptions on use of SS in 2018 TMI-model

	HOL and RDC			JER
	DNK	SWE	FIN	All
Pct SS in heifers 1st ins.	94	91	88	98
Pct SS in cows 1st ins.	10	10	10	10
Replacement rate	32	32	32	32

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In other words – assumptions were:

- Nearly all heifers are inseminated with SS
- More that 50% of calves born at 1st calving are a result of SS

- How does that correspond with the actual situation ?

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Results from the new survey

Use of Sexed Semen and Beef Semen in dairy breeds

Across heifers and cows – all inseminations

	DNK		SWE		FIN	*2018 Assumptions Approximation*
	HOL RDC	JER	HOL	RDC	HOL RDC	*HOL,RDC,JER*
Conventional	57	10	64	72	67	*35*
SS	22	63	24	14	8	*23*
BS (total)	21	27	12	14	25	*42*
Sexed BS	*2.7 (13%)*	*8.7 (32%)*	*2.7 (22%)*	*1.3 (9%)*	*1.3 (5%)*	*0.0*

Comparison – differences between assumptions and actual

- Actual use of SS
  - Higher than assumed in JER
  - Close to assumptions in DNK HOL and RDC
  - Close to assumptions in SWE HOL
  - Somewhat lower in SWE RDC and in FIN
- Actual use of BS is generally lower than assumed

  Might be partly due higher replacement rate than assumed (give less ”room” for use of BS)

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Results from the new survey – FIN data

Use of Sexed Semen and Beef Semen in dairy breeds

	Heifers Distribution of Ins. (pct)			Cows Distribution of Ins. (pct)		
	HOL	RDC	*JER*	HOL	RDC	*JER*
SS – 1st ins.	15	10	*44*	9	6	*27*
SS – All ins.	12	8	*38*	7	5	*24*
BS – 1st ins.	6	7	*10*	25	31	*26*
BS – All ins.	10	11	*12*	30	35	*27*

Observations from Finnish part of the survey

- SS is used more at later inseminations than assumed
- Use of BS for heifers are higher than assumed

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The future: Expected 2025-2030 situation

- Are the assumptions on future use of SS (and BS) realistic? - With respect to:
  - Total number of SS-calves born (dairy heifer calves)
  - Distribution on SS ins. on heifers and cows
  - SS ins. after 1st
- Other factors
  - Replacement rate – too low or too high
  - Beef breeds used – country differences
  - Sexed Beef semen – Viking expect large increase
  - Other aspects ?

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