Predictive ability of different models for clinical mastitis in joint genetic evaluation for Sweden, Denmark and Finland

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Udder health

- A part of robustness
- Important for
  - Animal Welfare
  - Economy
  - Labour

Udder health selection

Which traits		**h^2**
• Clinical mastitis	(CM)	0.03
• Somatic cellcount	(SCC)	0.12
• Udder conformation	(UC)	0.30

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Aim

Study predictive ability for different multiple trait alternatives

Data

Red Dairy Cattle (DNK, FIN, SWE)

Procedure

Divide data in early and late part,

estimate correlations

Procedure

- Calculate sire breeding values from different models in **early data**

- Correlate with **CM** daughter group means or sire breeding values from **late data**

- Cows with data in the early dataset was abandoned in the late data

Proven bulls

Born 1992-1995

Early data

- First daughter group
  ~100 daughters

Late data

- Second daughter group
  ~1400 daughters

Young bulls

Born 1997-2000

Early data

- Pedigree information

Late data

- First daughter group
- ~100 daughters

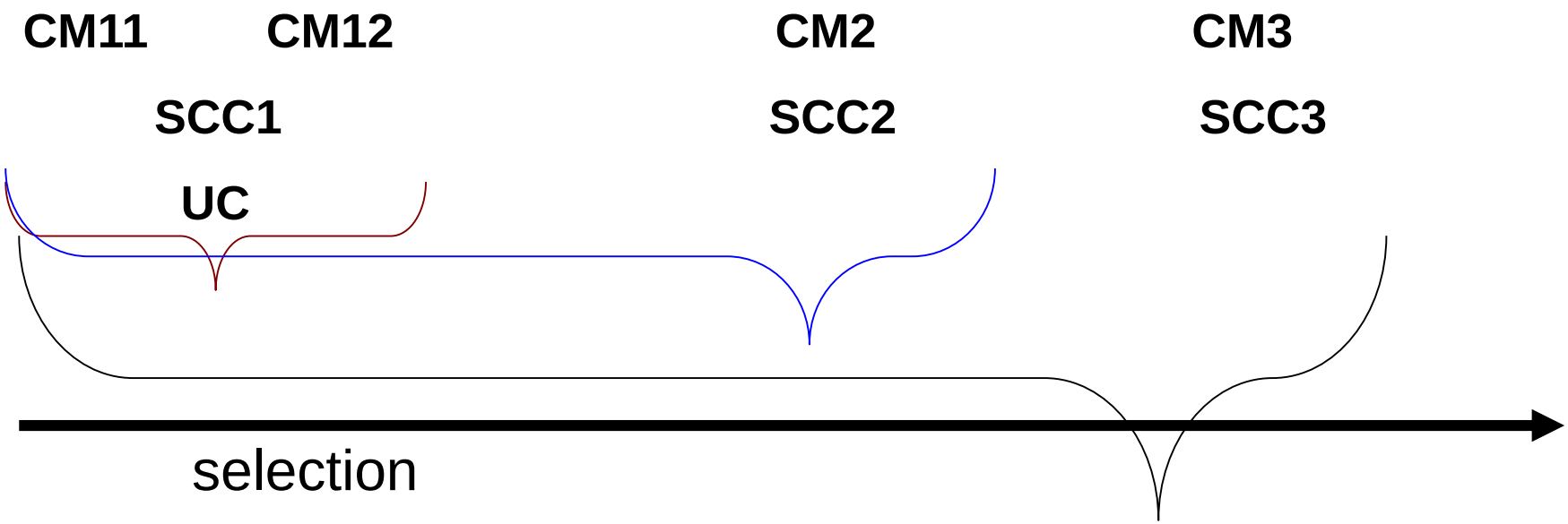
Traits

Traits	period	h^2	Index w.
CM11	-15 to 50	0.03	0.25
CM12	51 to 300	0.02	0.25
CM2	-15 to 150	0.03	0.3
CM3	-15 to 150	0.03	0.2
SCC1	5 to 150	0.14	
SCC2	5 to 150	0.13	
SCC3	5 to 150	0.11	
U. attach.	1st lact.	0.24	
U. depth	1st lact.	0.36	

Genetic correlations for indicator traits

CM - SCC	0.55 - 0.65
CM – Udder conformation	-0.35 - -0.55

Information on bull sires at different stages of selection



selection

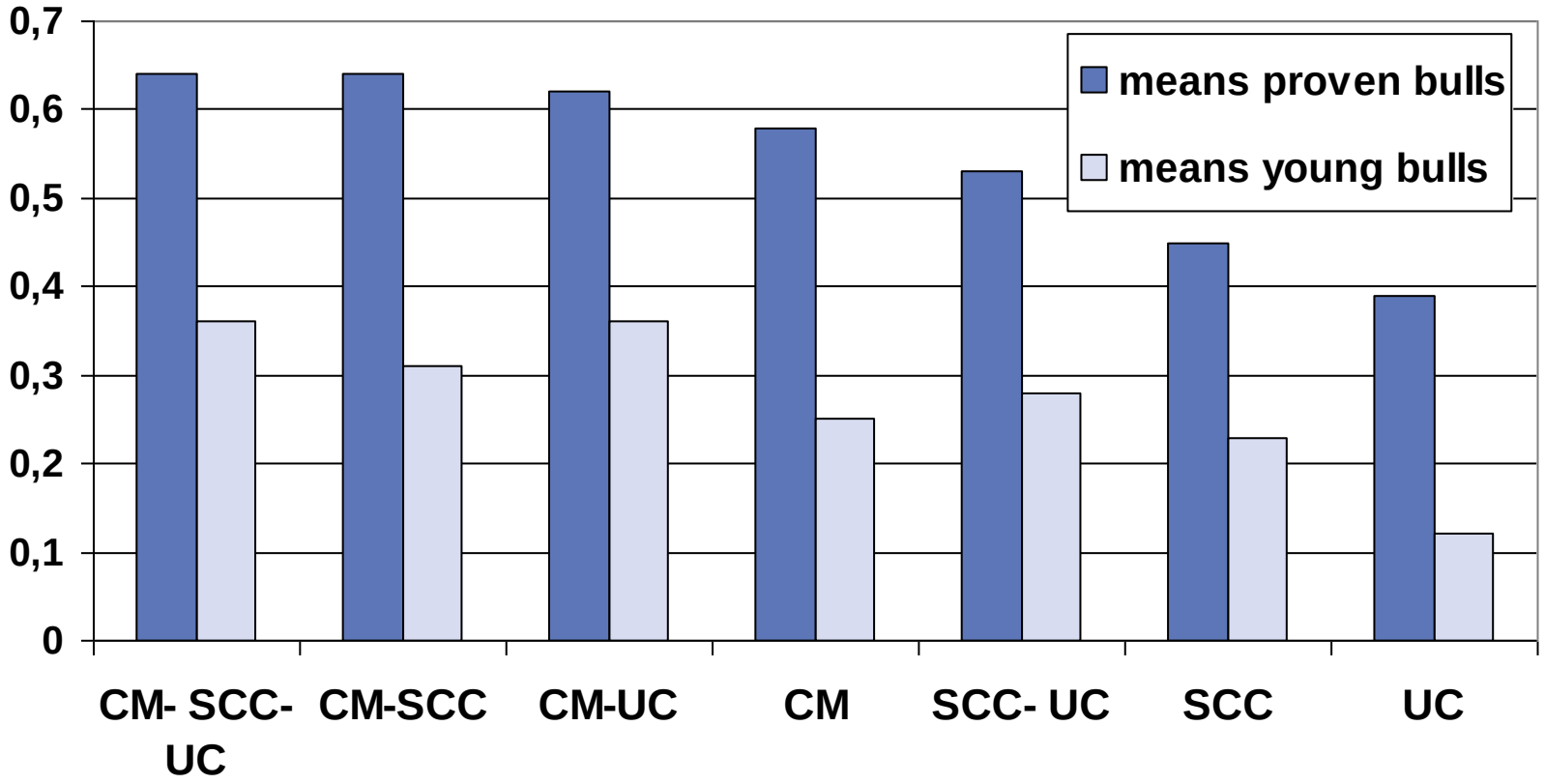
bull sire

selection
newborn
bull calves

Selection

young bulls

Correlations between EBVs from early data and daughter group means from late data.



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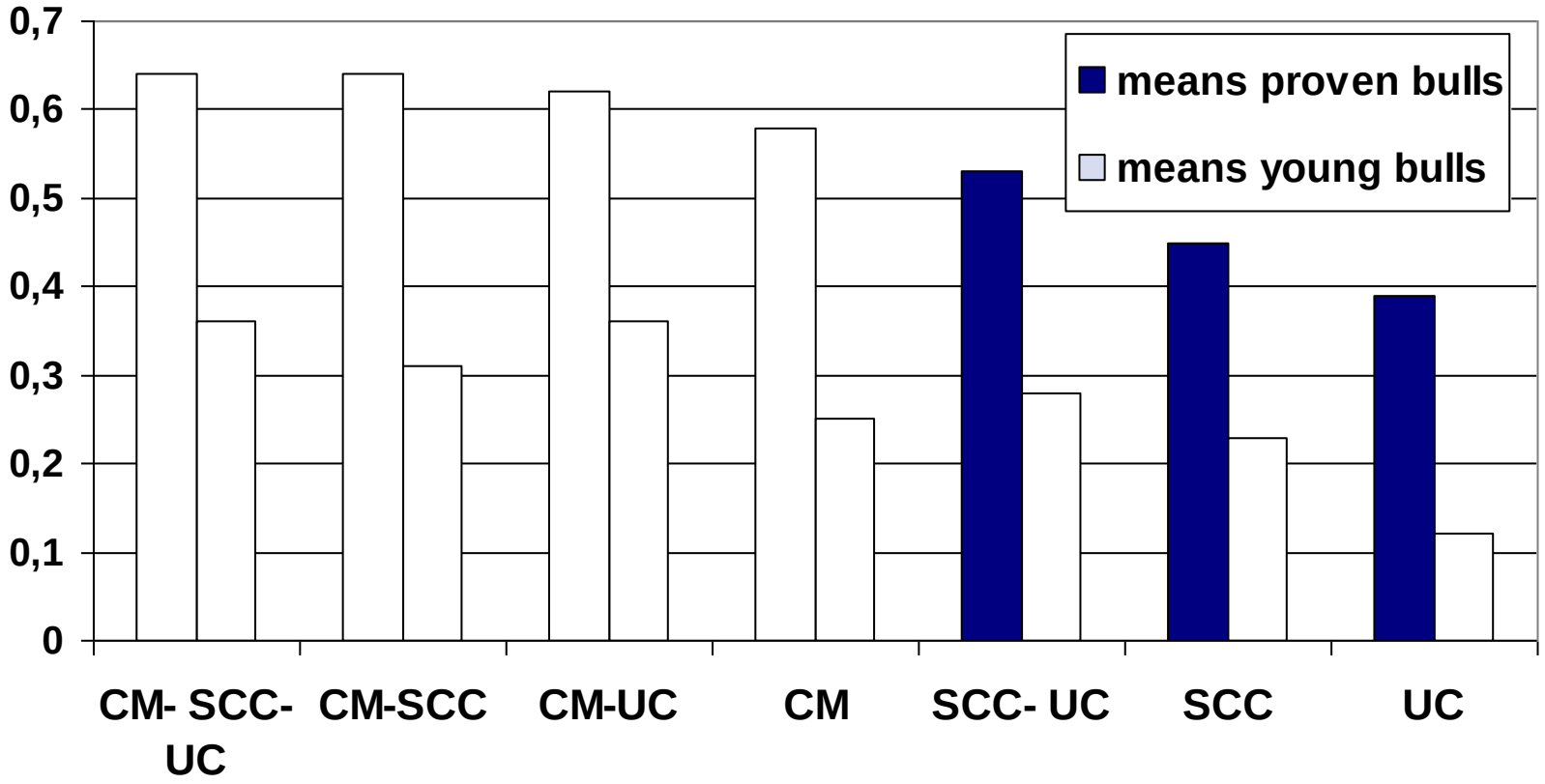

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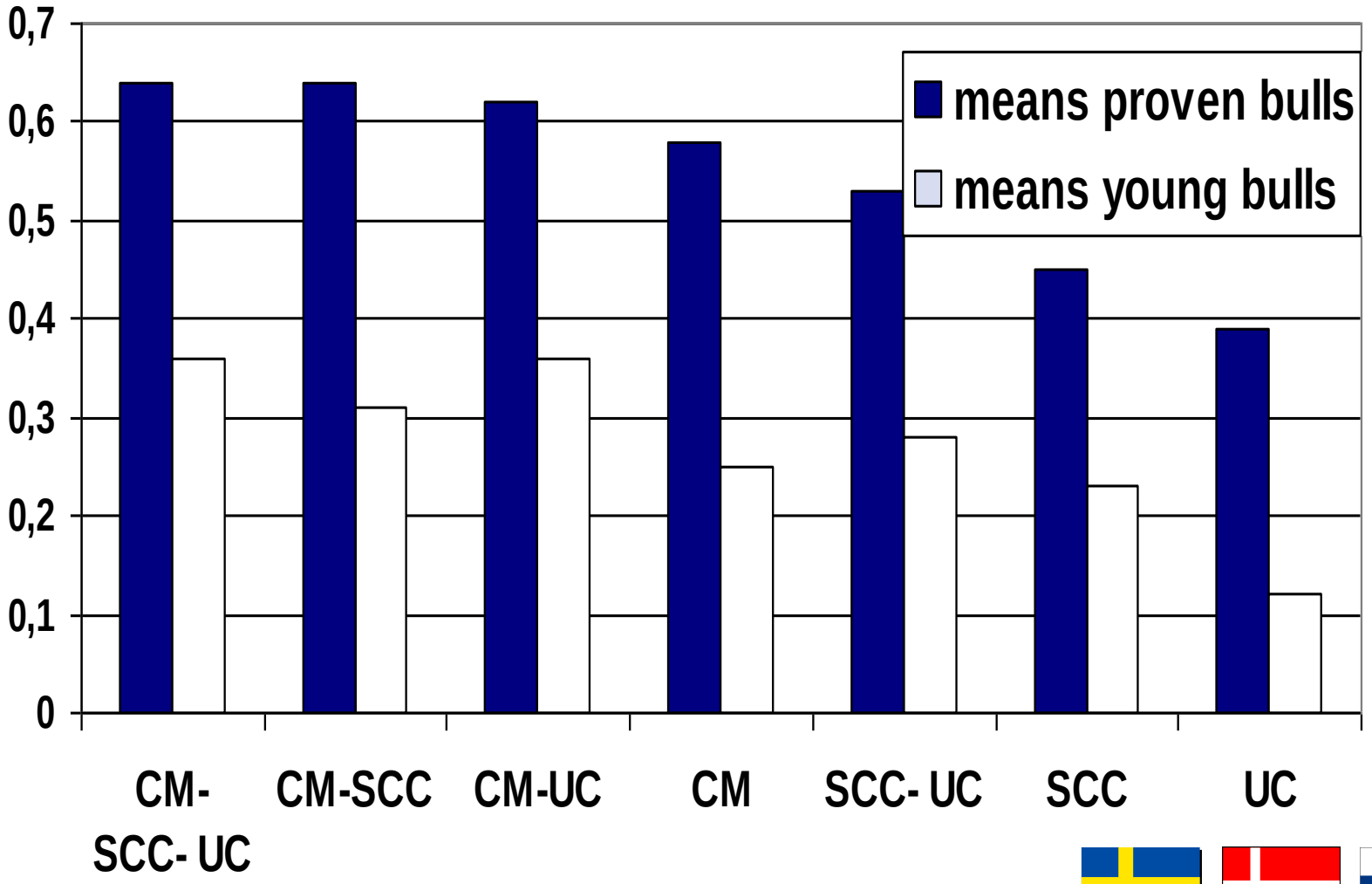
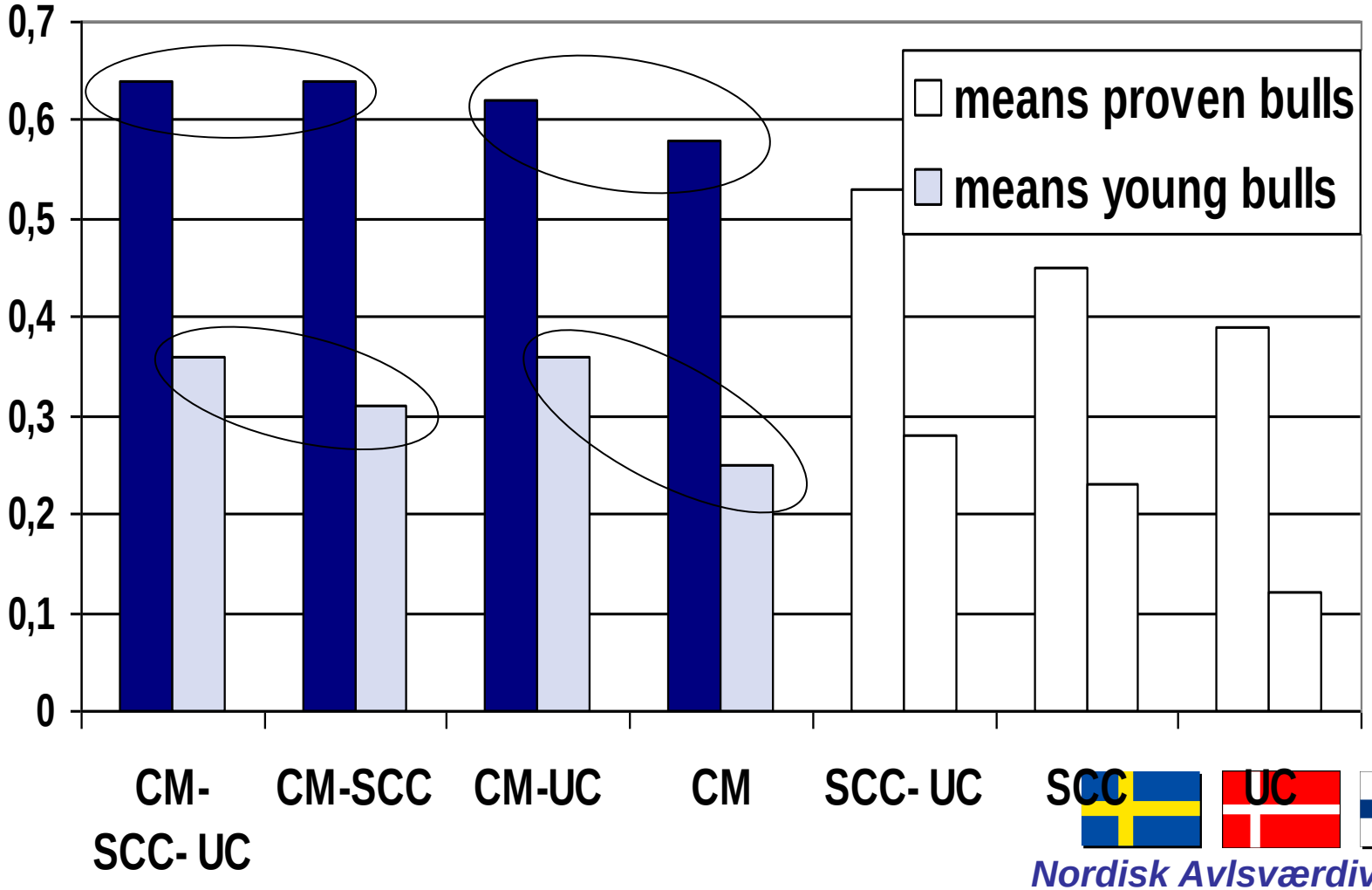


Correlations between EBVs from early data and daughter group means from late data.



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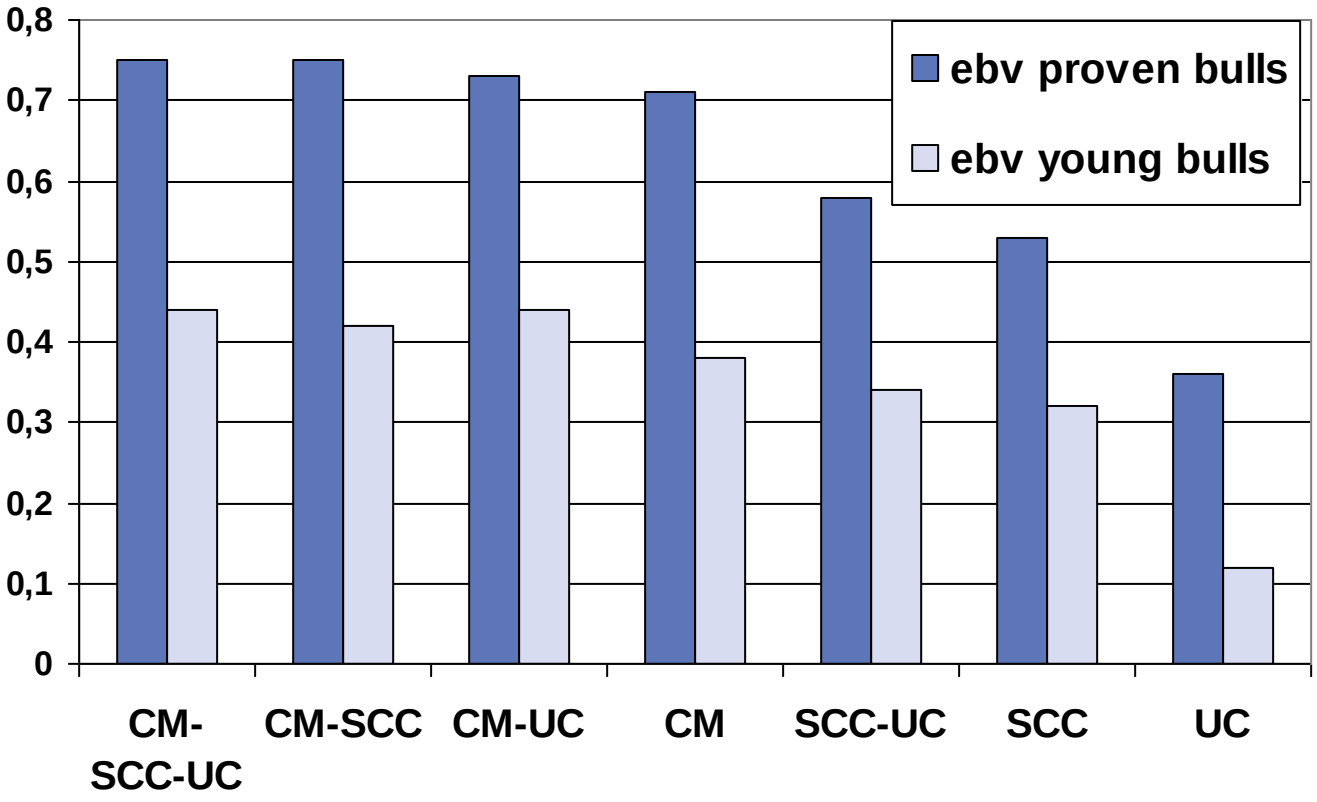


Summing up

-Prediction of clinical mastitis is improved by

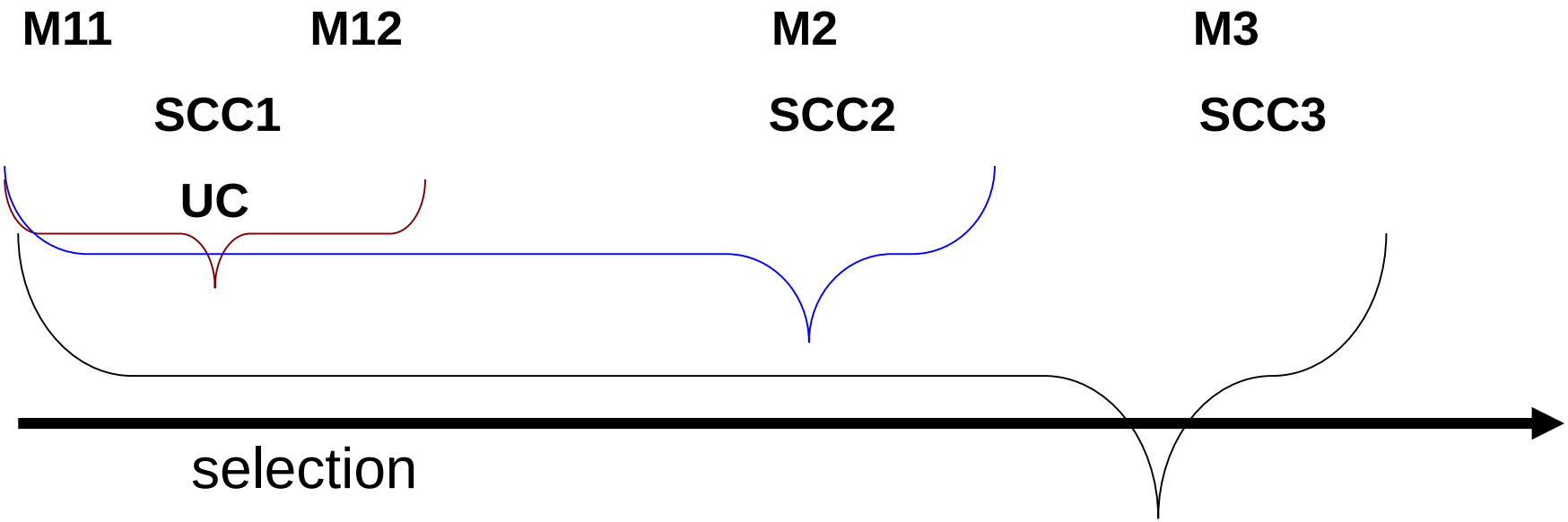
- Inclusion of CM records
- Inclusion of SCC or UC records together with CM records

Summing up

-UC is important

- In young bull selection
- In first stage of bull sire selection

Information on bull sires at different stages of selection



bull sire

selection
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bull calves

Selection

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-Both proven bull and young bull information can be used when evaluating models

Thank You!

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