Consequences of using genomic information as pseudo-observations in the Dutch-Flemish National Evaluation

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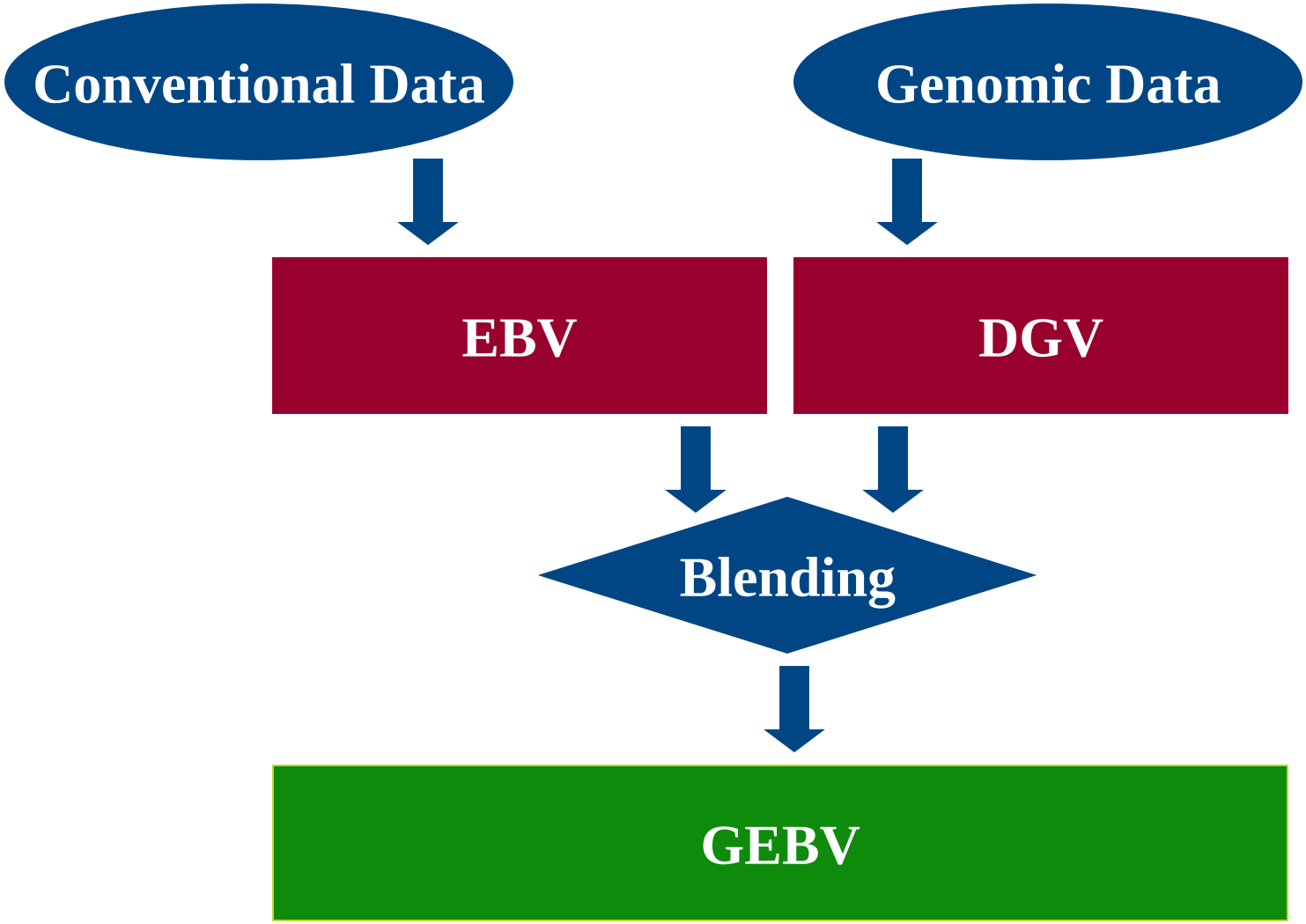
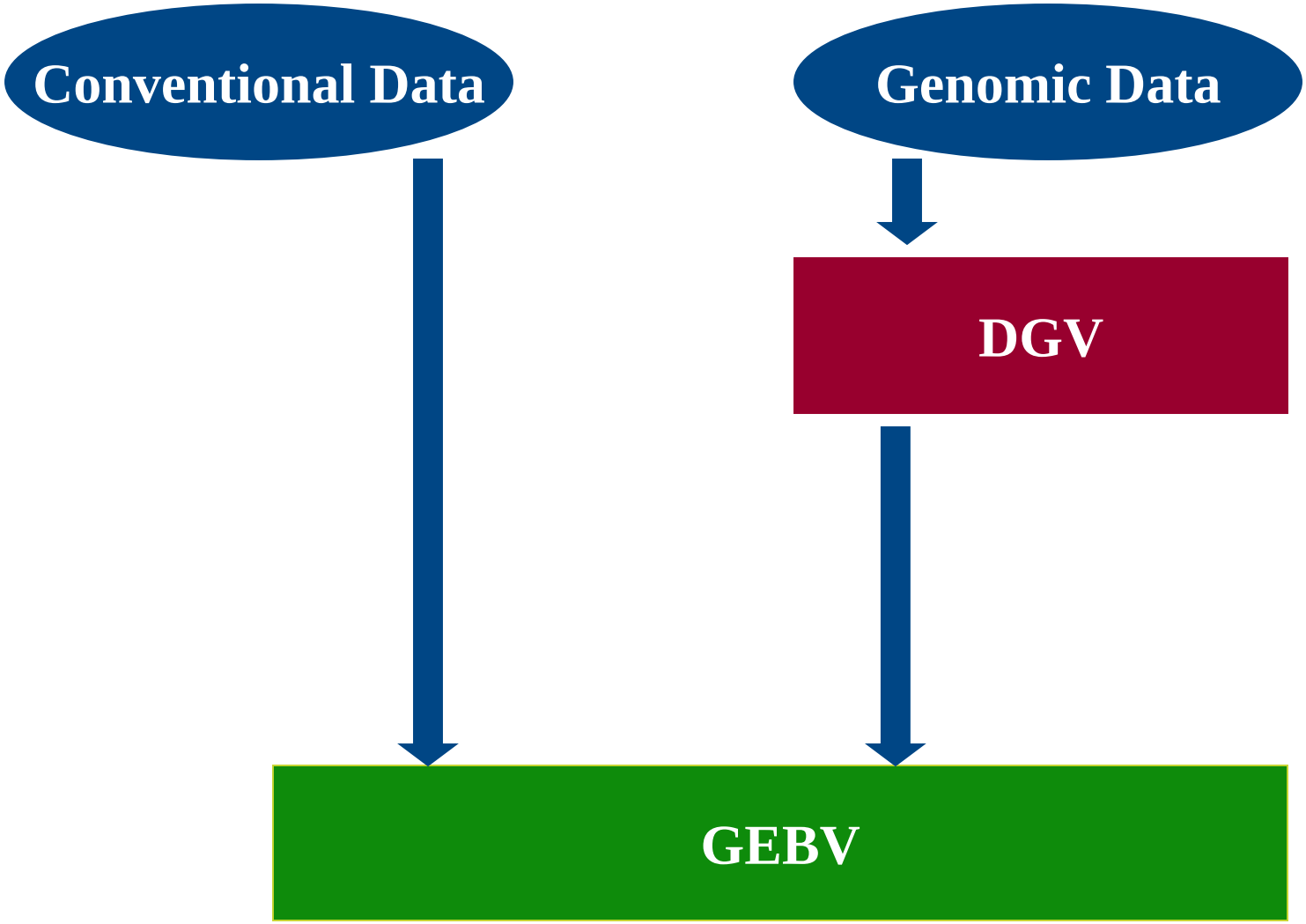
Content

- Pseudo-Record Procedure
  - Genomic info in genetic evaluation
- Results
  - Compare genetic trend bulls from conventional system vs. pseudo record system
- Remarks

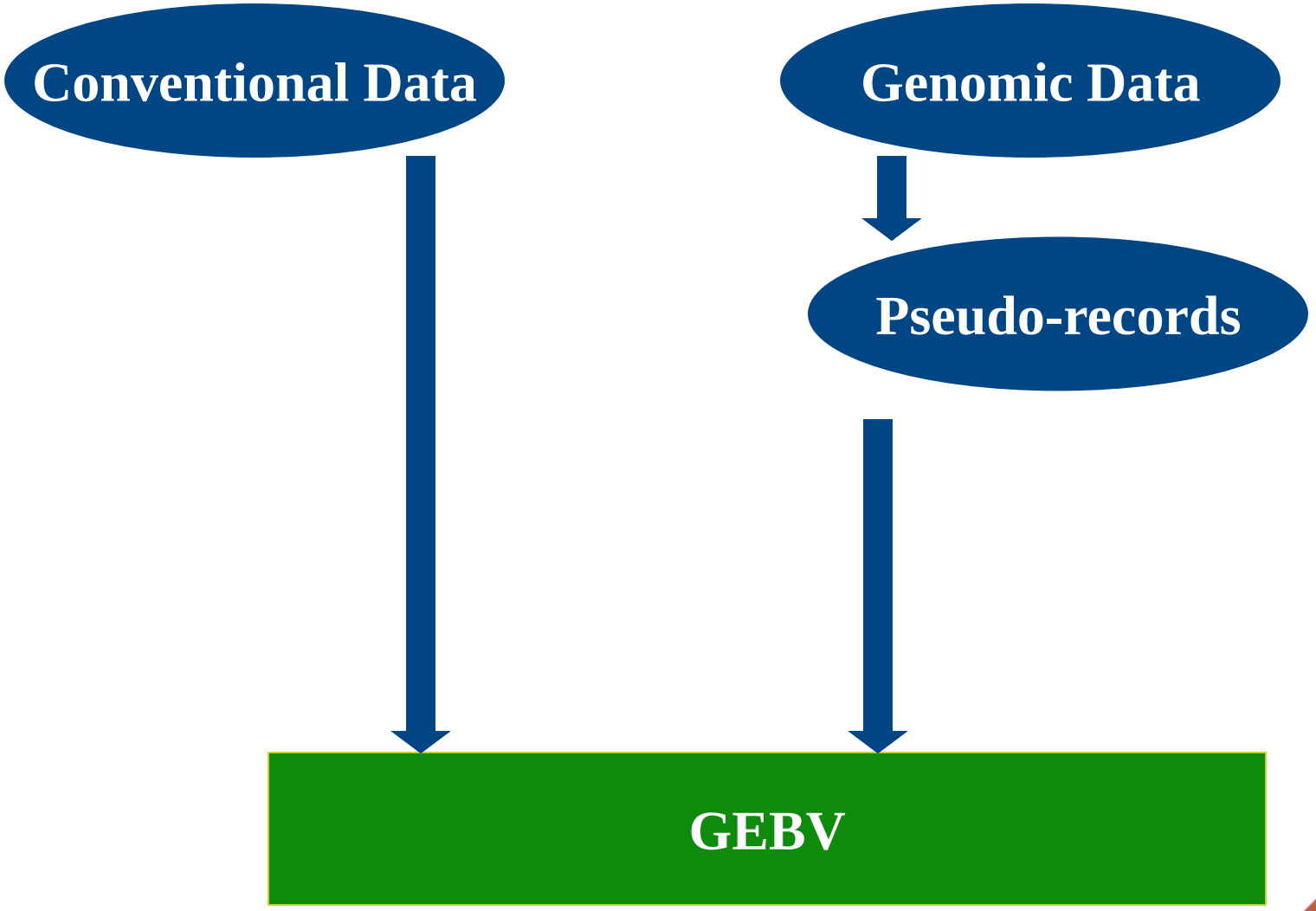
GEBV in NLD: Post-processing



GEBV in NLD: Pseudo-records



GEBV in NLD: Pseudo-records



Comparison results from two systems

Breeding values from conventional system

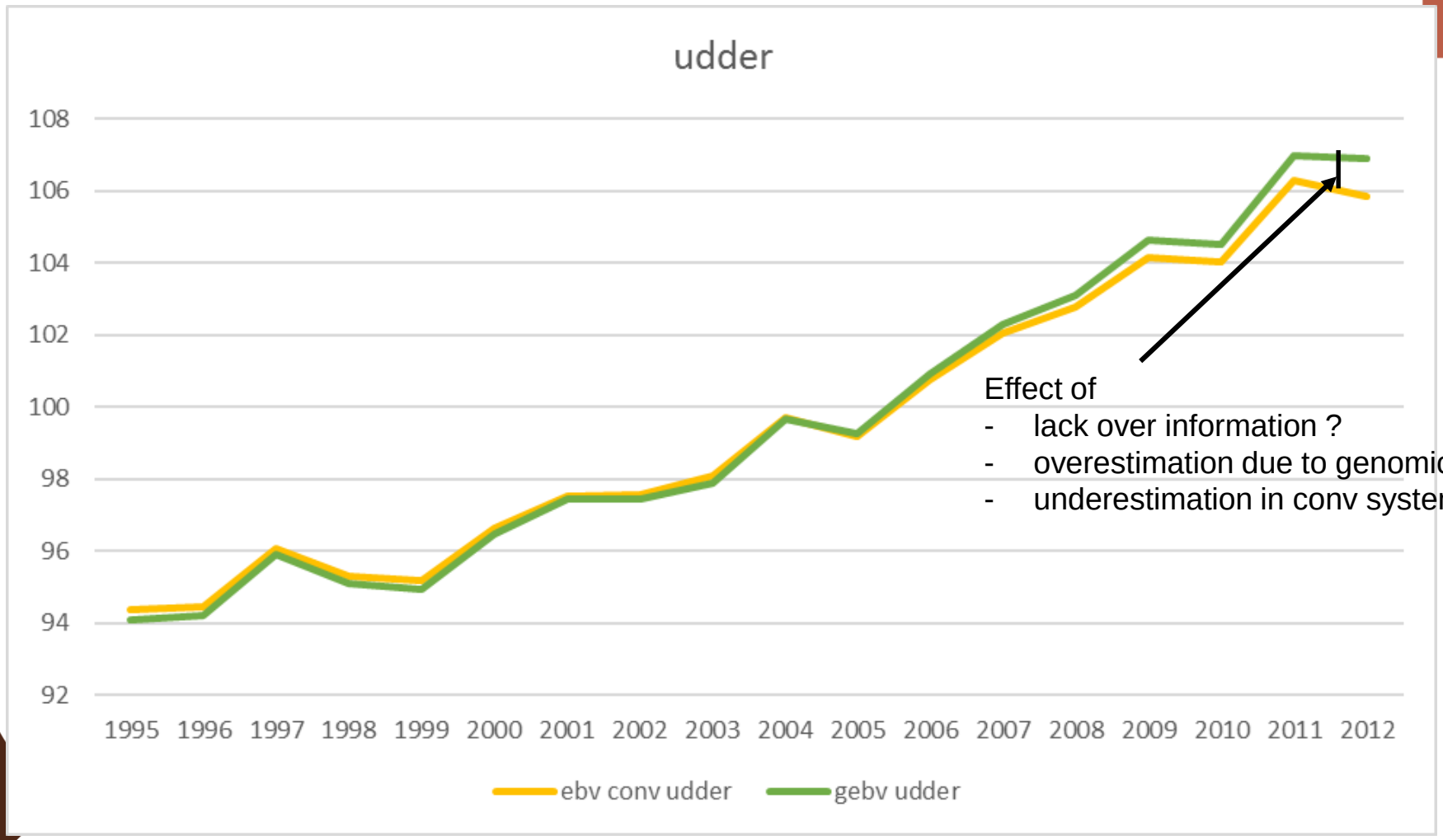
pseudo record system

Compare genetic trend of bulls

several traits

Udder conformation (apr'16)

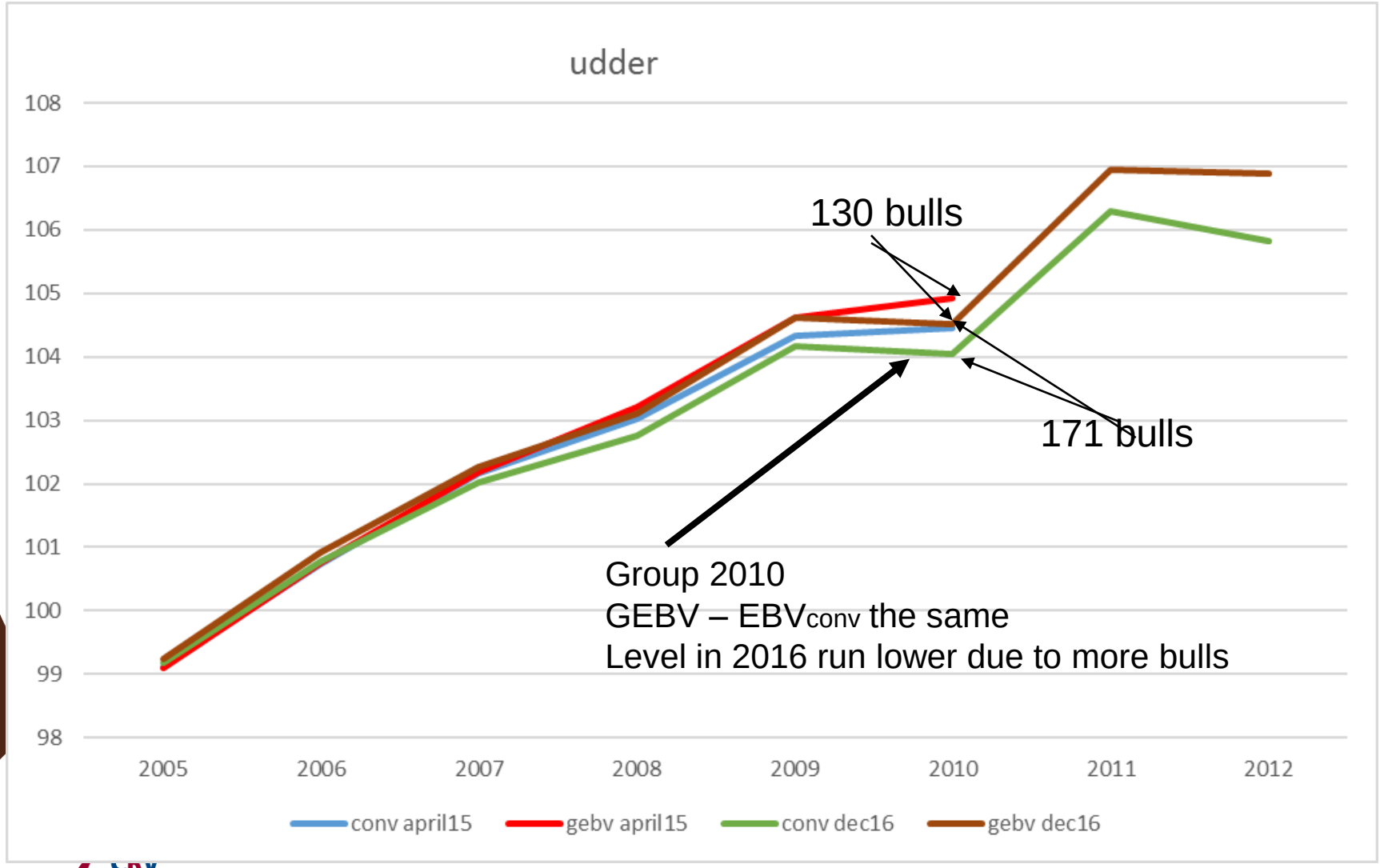
bulls with daughters



Difference genetic last years due to

- A. Number of daughters per bull still too low
  - effect of parent average or pre-selection bias not removed completely ?
    - comparing results run April 2015 vs December 2016

Run April 2015 vs Run December 2016

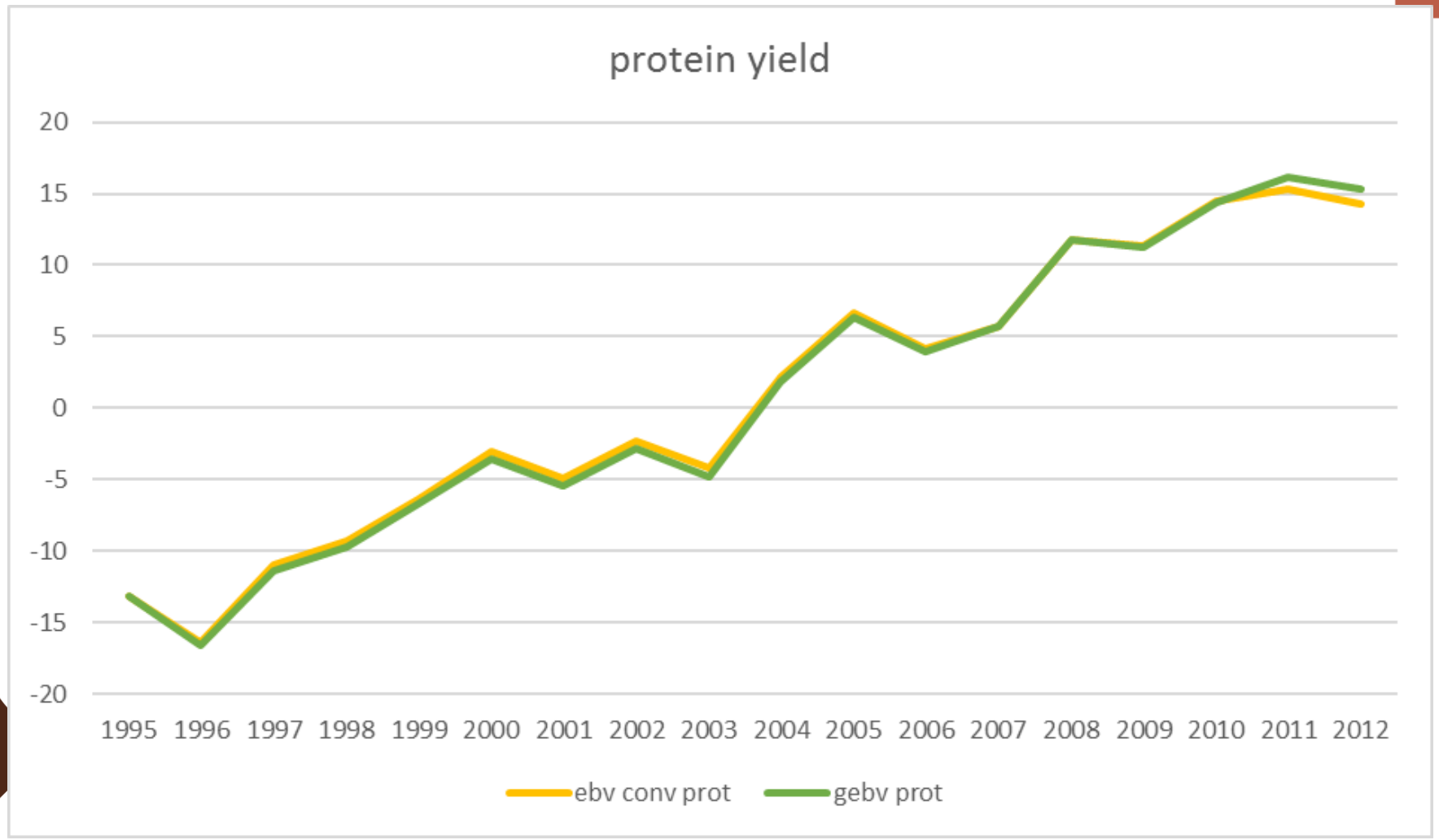


Difference genetic last years due to

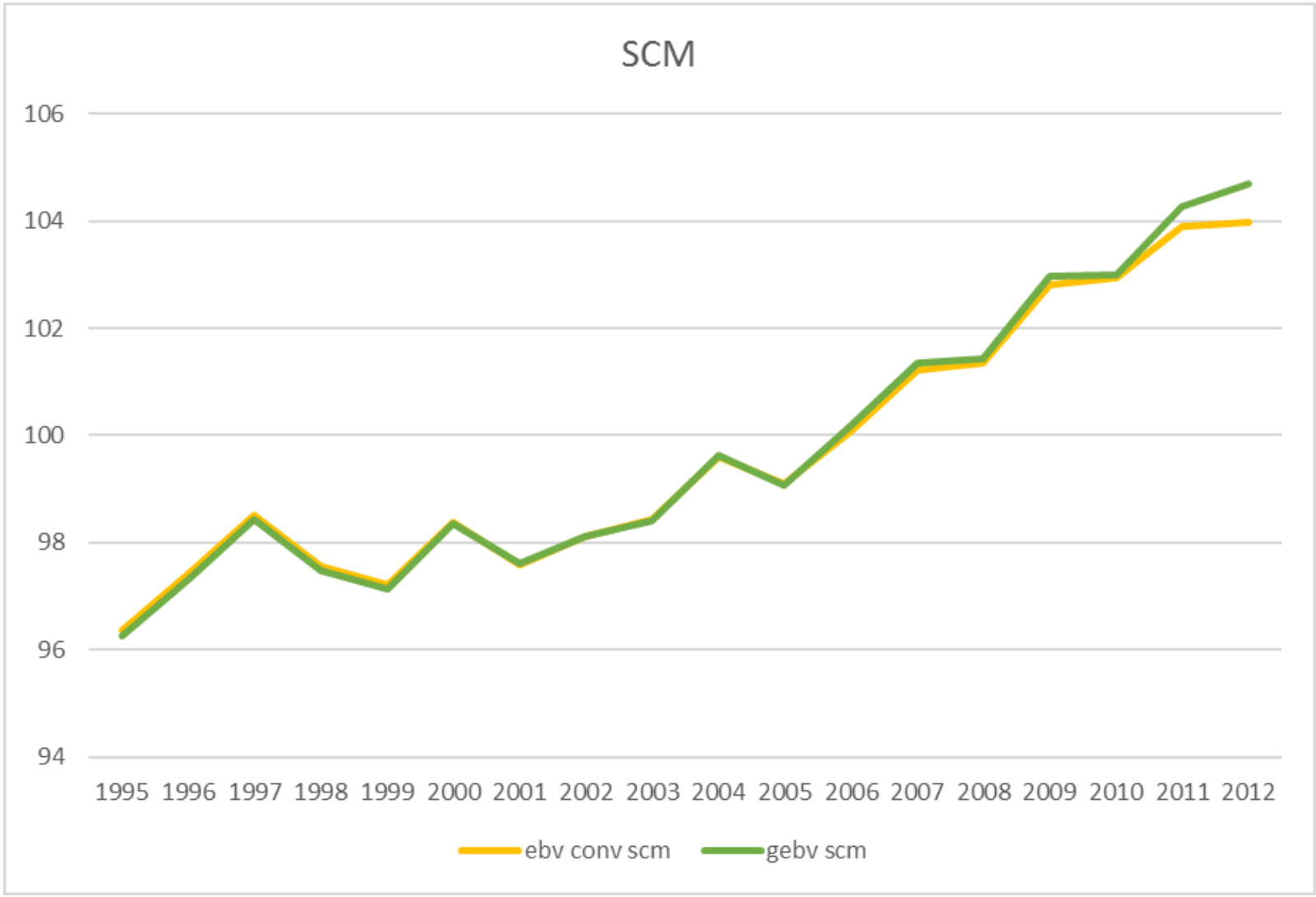
- A. Number of daughters per bull still too low
  - effect of parent average or pre-selection bias not removed completely ?
    - comparing results run April 2015 vs December 2016
    - tested with bulls having >500 daus
      - no difference in level last birth year

- B. Genomic pre-selection !
  - More pre-selection since 2008

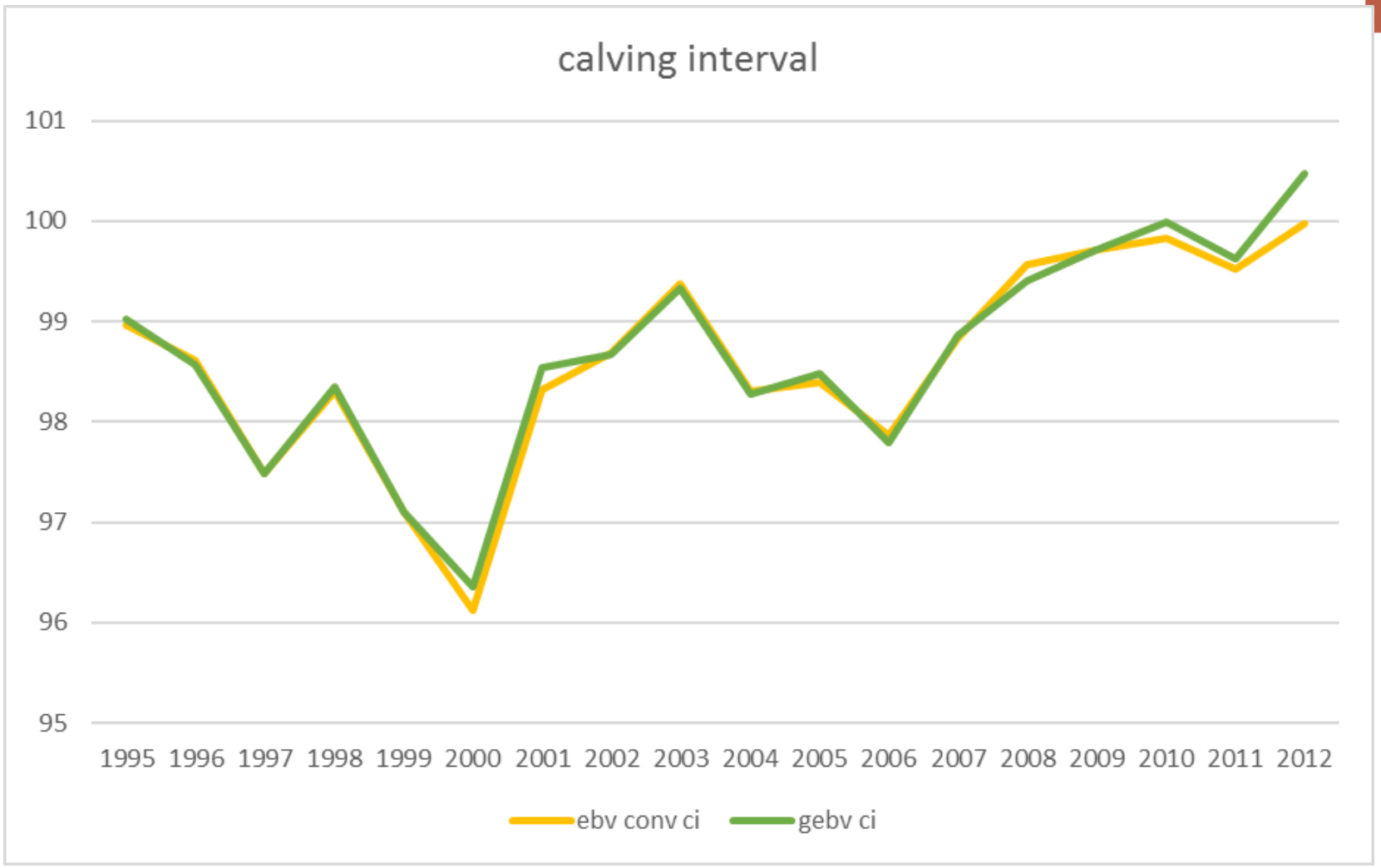
Trend bulls with daughters and genomic info



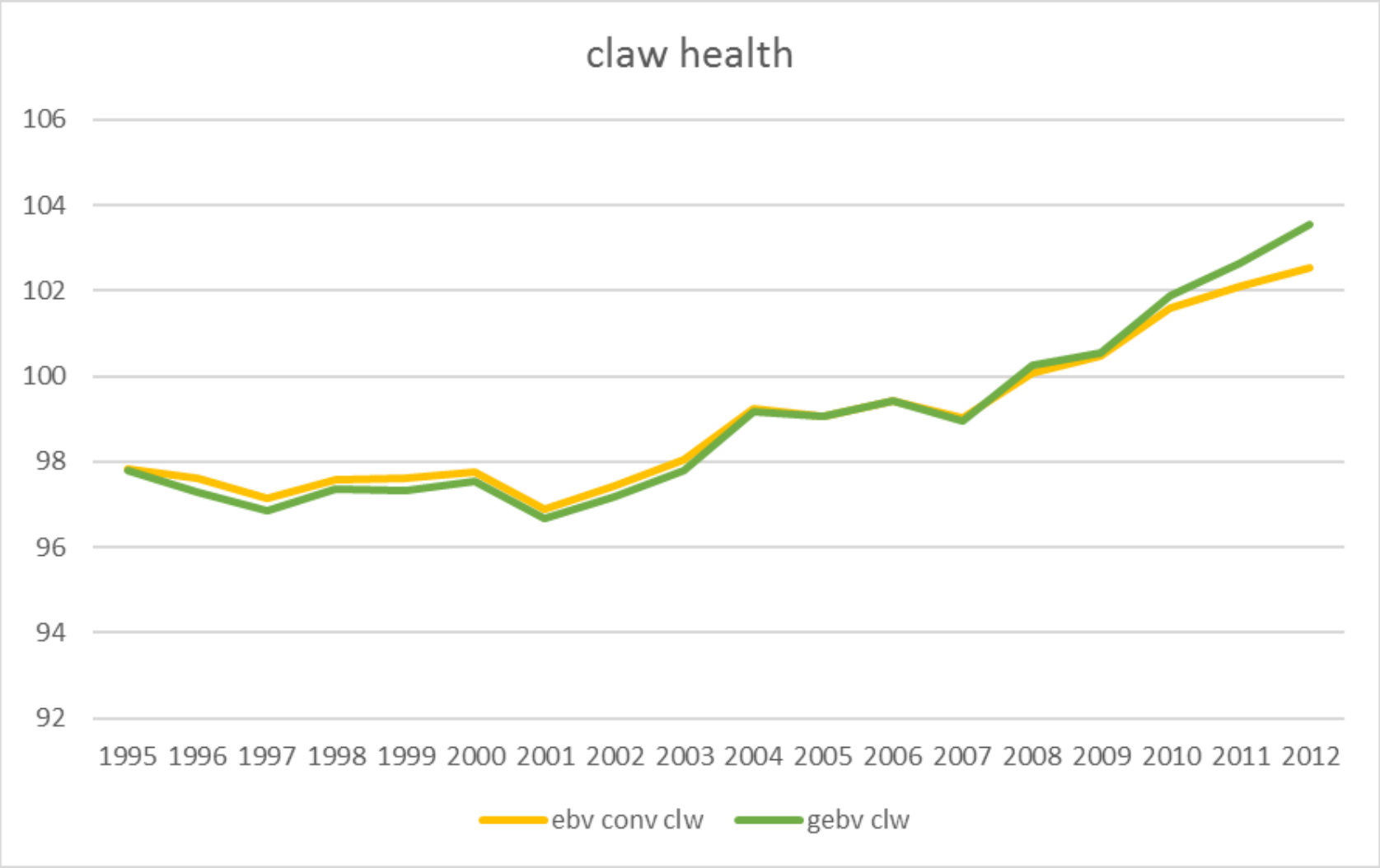
Subclinical mastitis

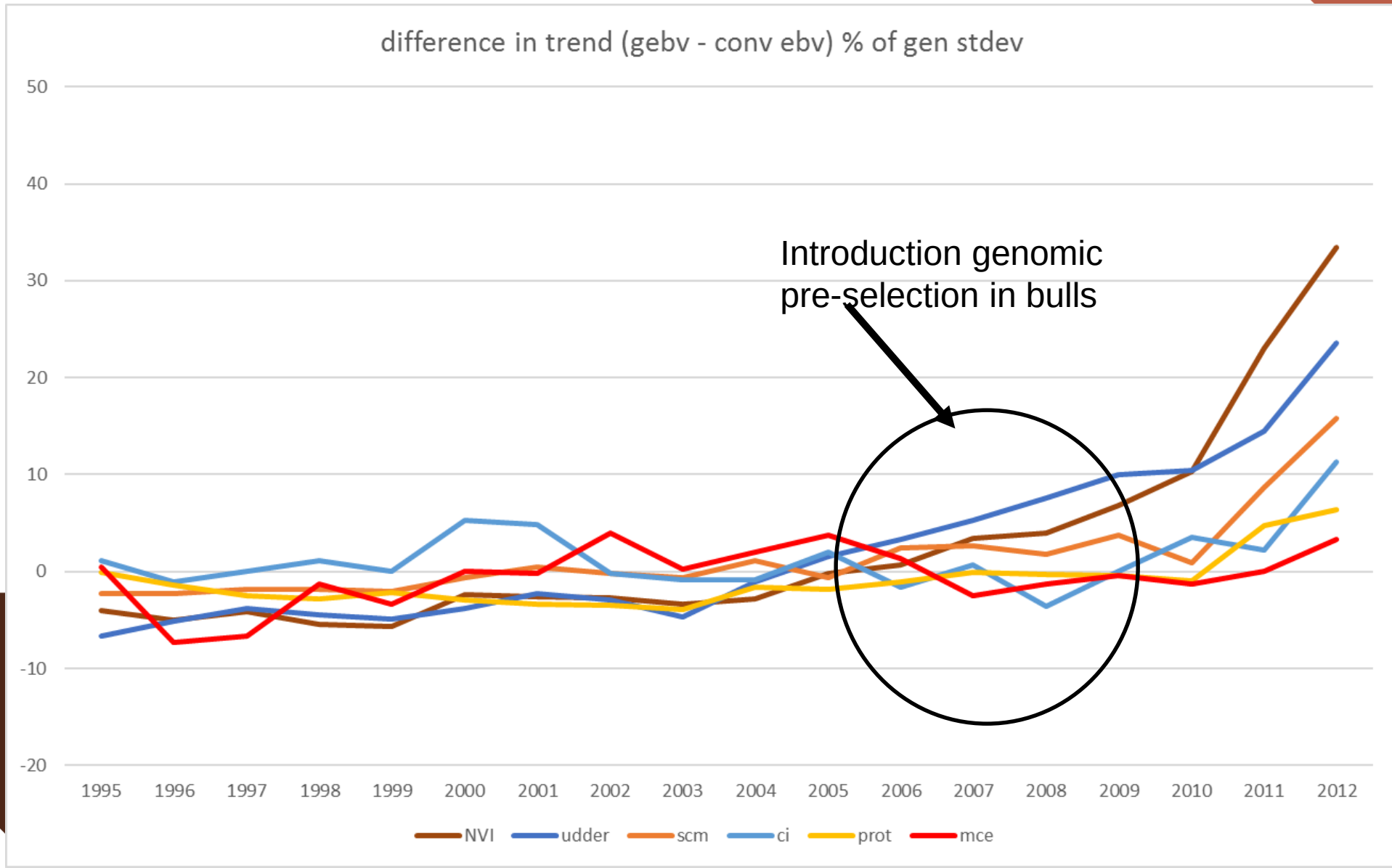


Calving interval



Claw health


claw health
106
104
102
100
98
96
94
92
1995 1996 1997 1998 1999 2000 2001 2002 2003 2004 2005 2006 2007 2008 2009 2010 2011 2012
ebv conv clw
gebv clw


difference in trend (gebv - conv ebv) % of gen stdev
50
40
30
20
10
0
-10
-20
1995
1996
1997
1998
1999
2000
2001
2002
2003
2004
2005
2006
2007
2008
2009
2010
2011
2012
Introduction genomic pre-selection in bulls
NVI
udder
scm
ci
prot
mce

Remarks:
Effect of genomic info on selection in population

- Bulls
  - AI-bulls are pre-selected with higher selection intensity over the years
    2009: 1 out of 10
    2012: 1 out of 20

- Cows
  - Selection in young born calves for herd replacement

- Which pre-selection is worse for GES?
  - Bulls – large daughter groups -> pre-selection bias disappears?
  - Cows – daughter groups are no longer random sample
    - More selection in offspring of worse bulls than in better bulls

Remarks
Do Interbull test II en III still work with genomics??

- Interbull II test -> DYD test
  - DYD -> sum(YD –fixed effects – EBVmate)
  - In case of genomic pre-selection in female calves and pre-selection is not constant over time
    -> test does not work anymore

- Interbull III test
  - In case of genomic pre-selection in female calves and pre-selection is not constant over time
    -> test does not work anymore

Final remarks

- Different genetic trends for conventional en psr system
  - young generation bulls are underestimated
- In genetic evaluation system all information should be used
  - Info on pre-selection/genomic info
- Current Interbull genetic trend validation tests will not work properly

THANK YOU