The Mendelian sampling test: experience with application to United Kingdom data

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MS test

- GBR participated in the MS test run
- Traits submitted:
- Production (M,F,P) (bulls & cows)
  - HOL, AYR, JER, GUE, BSW and MOB
- SCC: (bulls and cows)
  - HOL, AYR, JER, GUE, BSW and MOB
- Longevity: (bulls only)
  - HOL, AYR, JER, GUE, BSW and MOB
- Fertility: Hol (bulls only)

Easy of Software usage

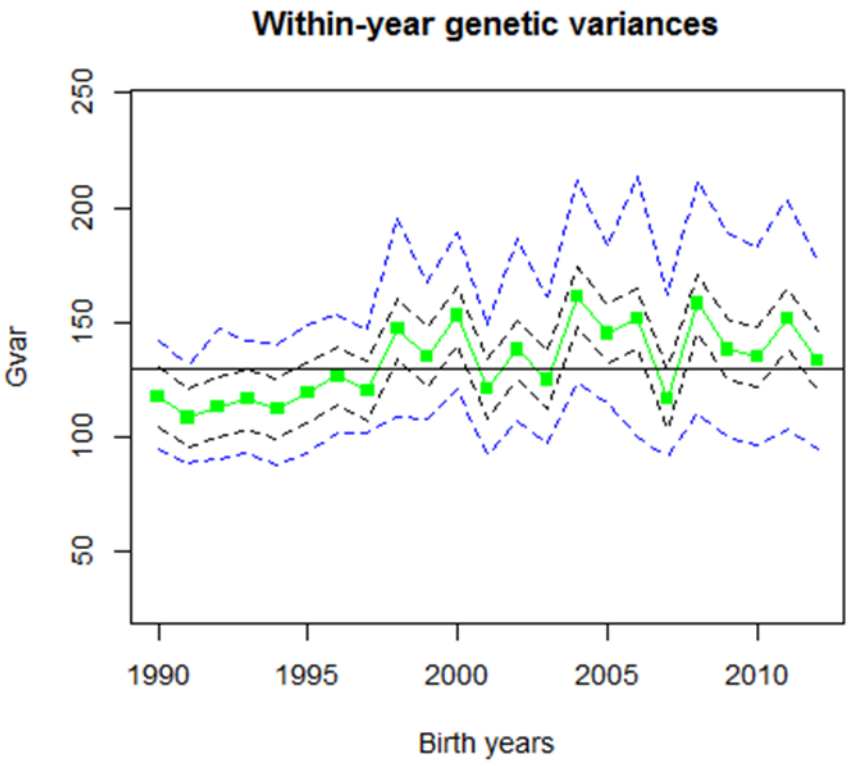
- Software easy to install and use
- Tomasz developed script that allow all traits to be executed at a go
- Manual with examples very helpful
- Possible Improvements:
- Currently Manual has information on the *trait.summary* file
- A bit more information on some of the other output files will be useful
- *Trait.out*; *log-file , trait.dat*

Summary of result

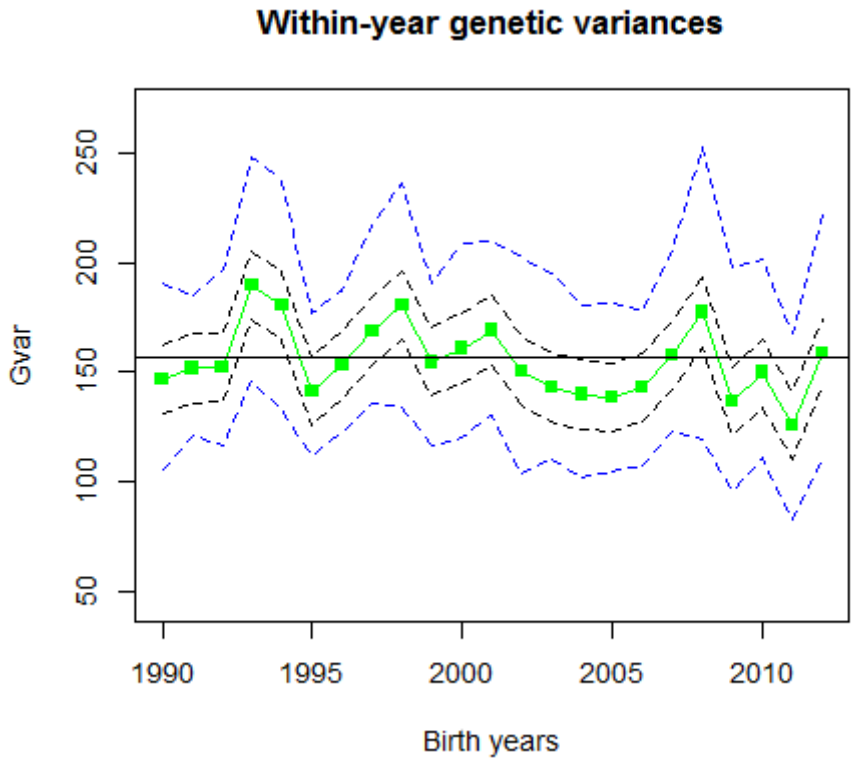
- GBR pass all traits about from calving interval for Hol (bulls) and protein yield for AYR (bulls)

HOL Bull fat yield and SCC

- Fat yield

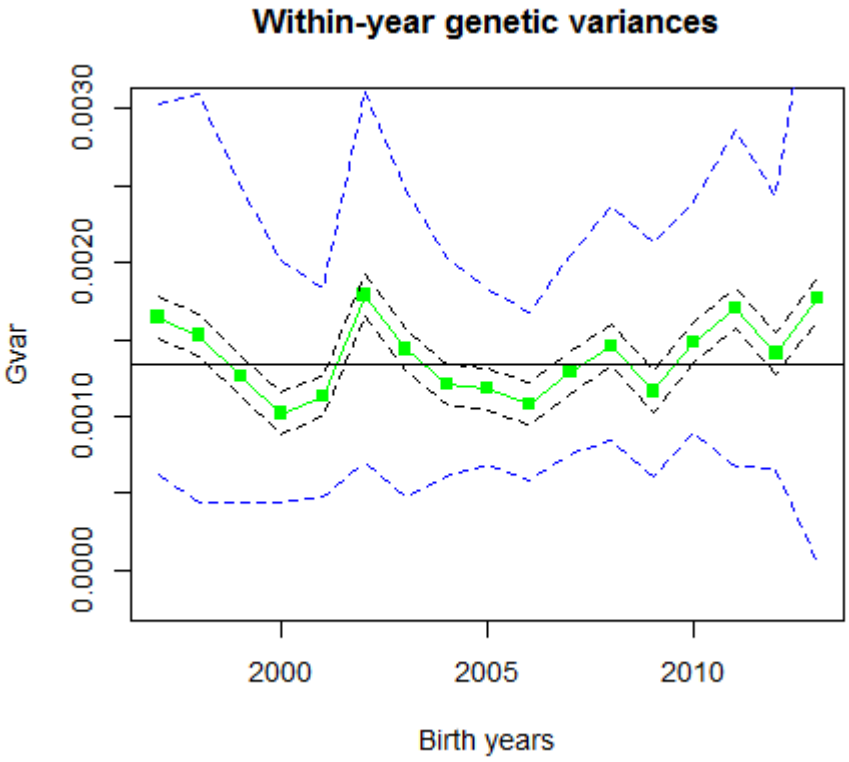


SCC

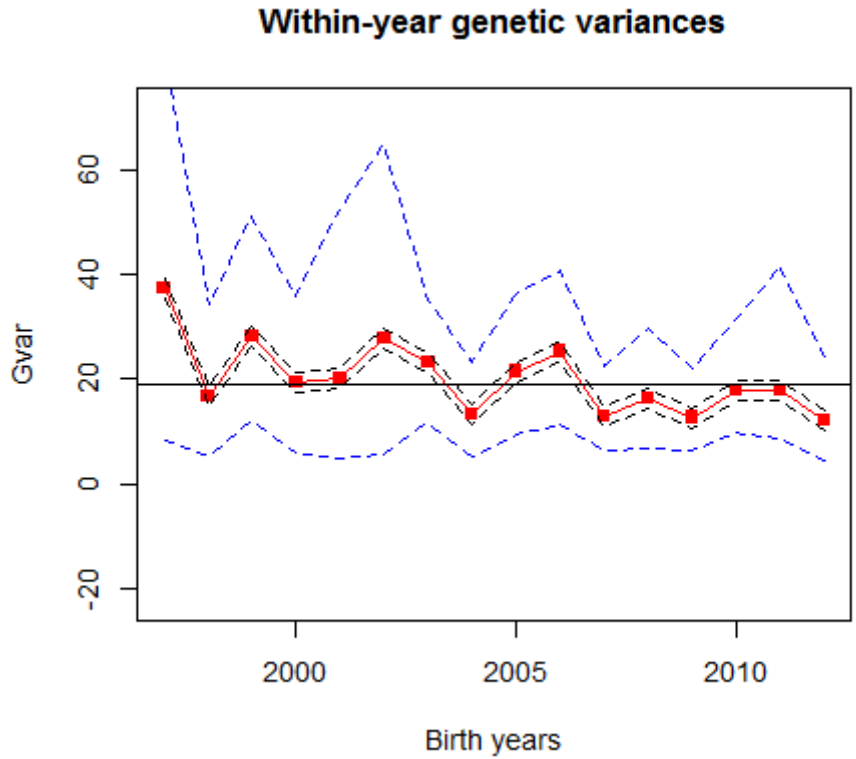


HOL Bulls NR56 and CI

- NR56



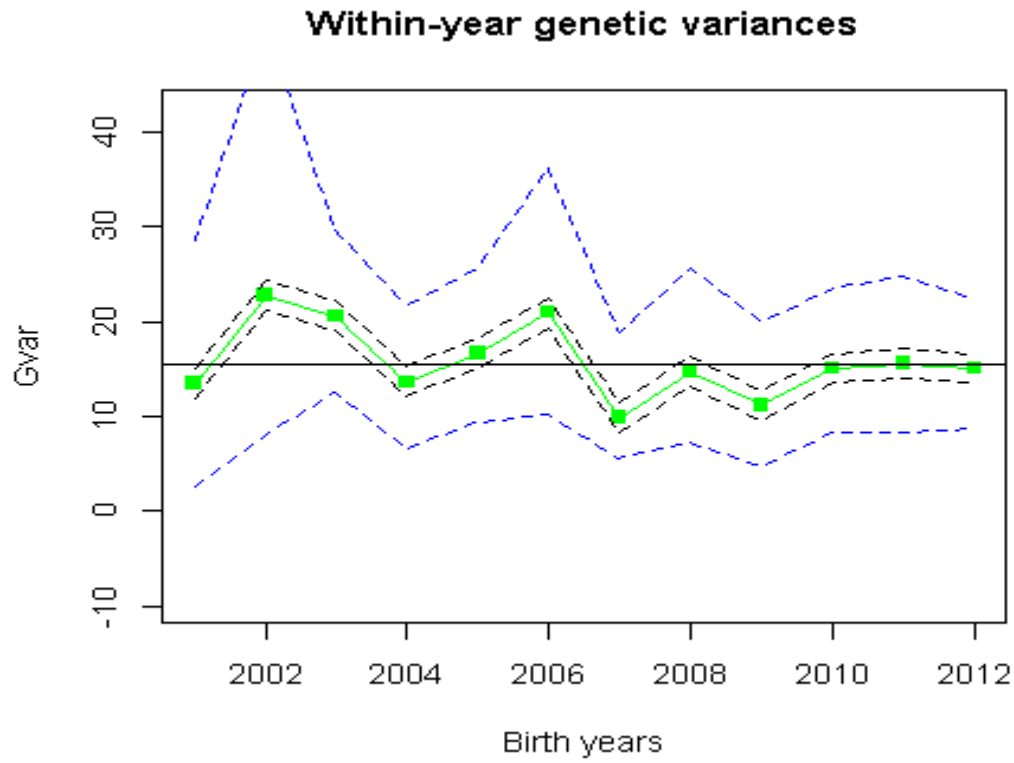
CI



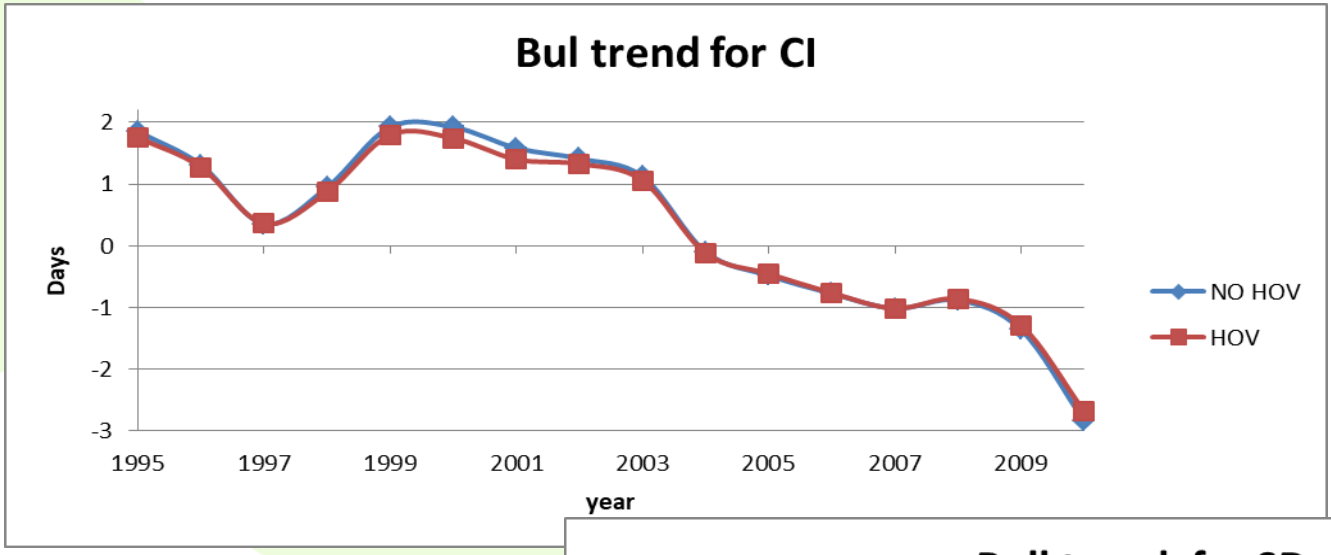
Investigating failure of CI

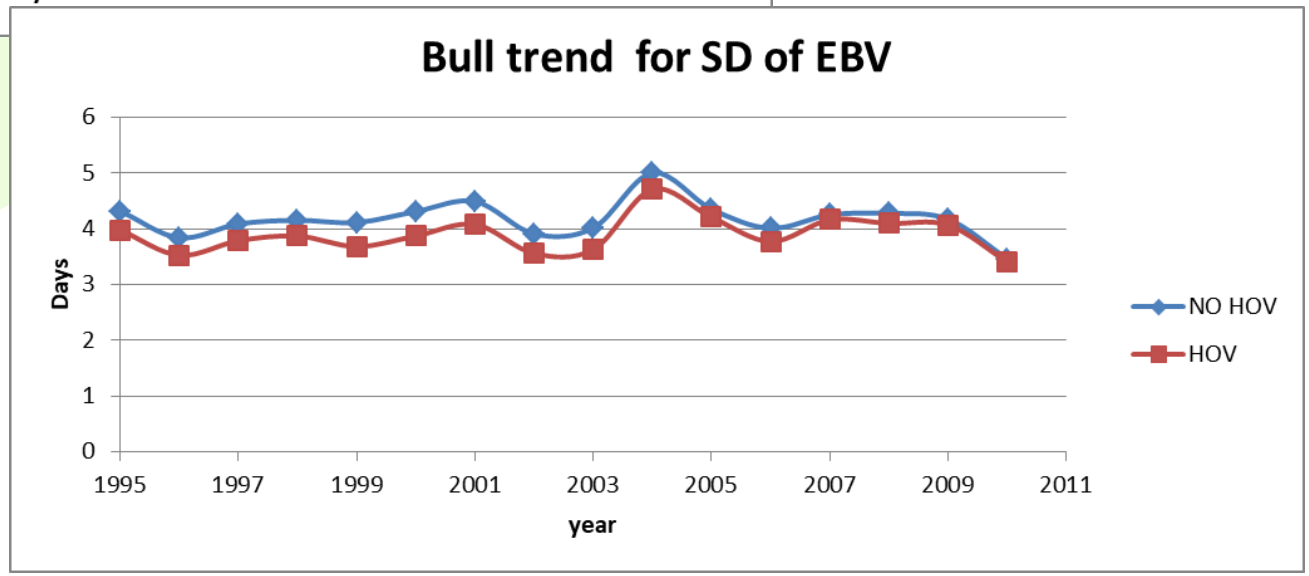
- Currently fertility evaluations is 6traits multivariate animal model evaluation
  - Calving interval, condition score, days to first service, testday milk at about day 110, number of services and NR56,
- Examine possible sources of failure
  - Examine different time periods for test
  - HOV adjustment for milk
  - Exclude milk from the analysis by setting covariance of milk to other traits to zero
  - Univariate CI analysis
  - None of the above corrected the trend in Vg
  - Apply HOV adjustment to CI

MS test with HOV applied



Impact of HOV adjustment on bull trend for CI

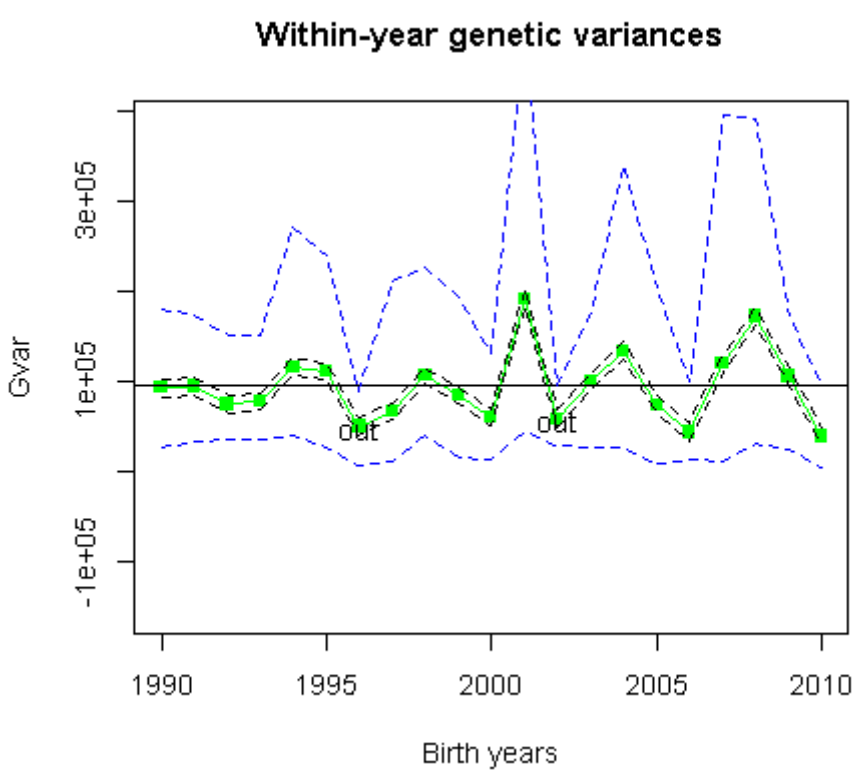


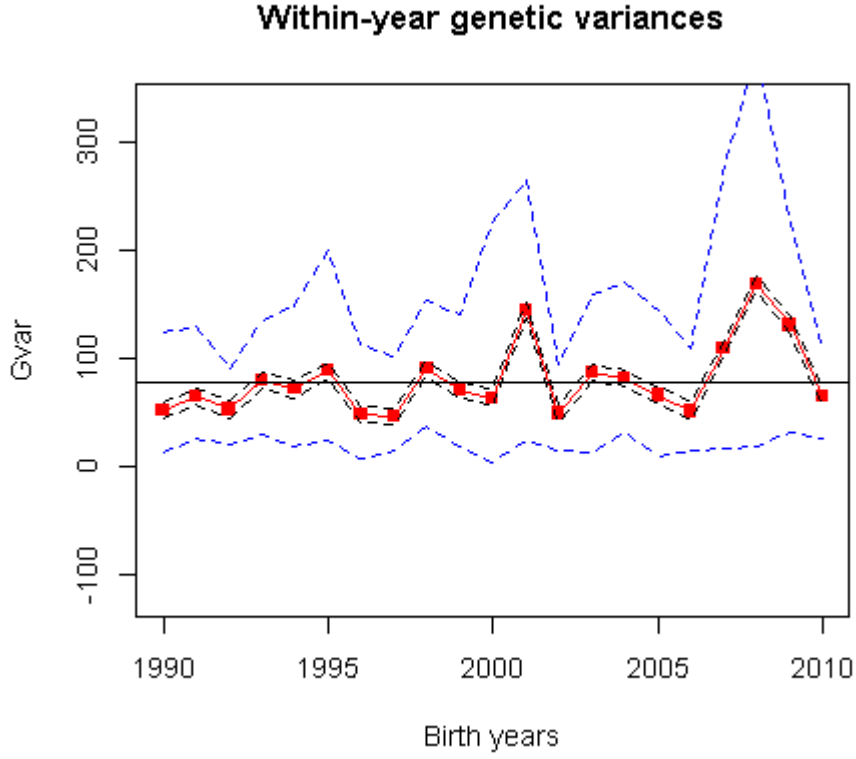


AYR Bulls Milk and Protein

- Milk

Protein

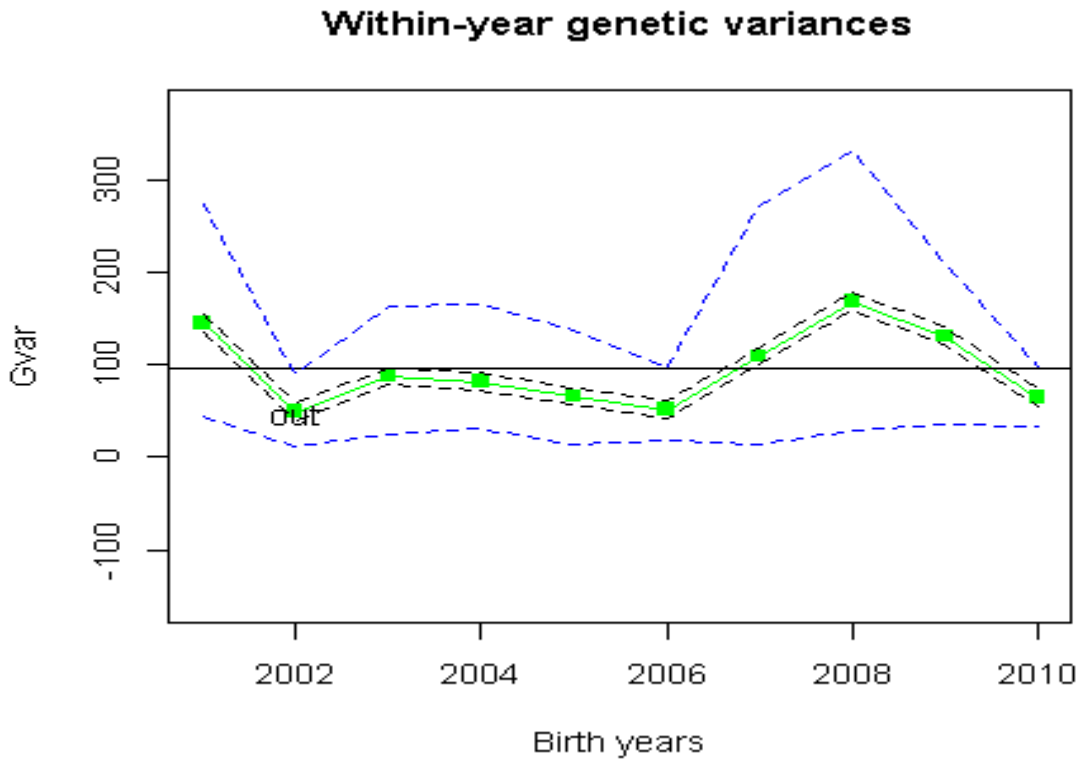




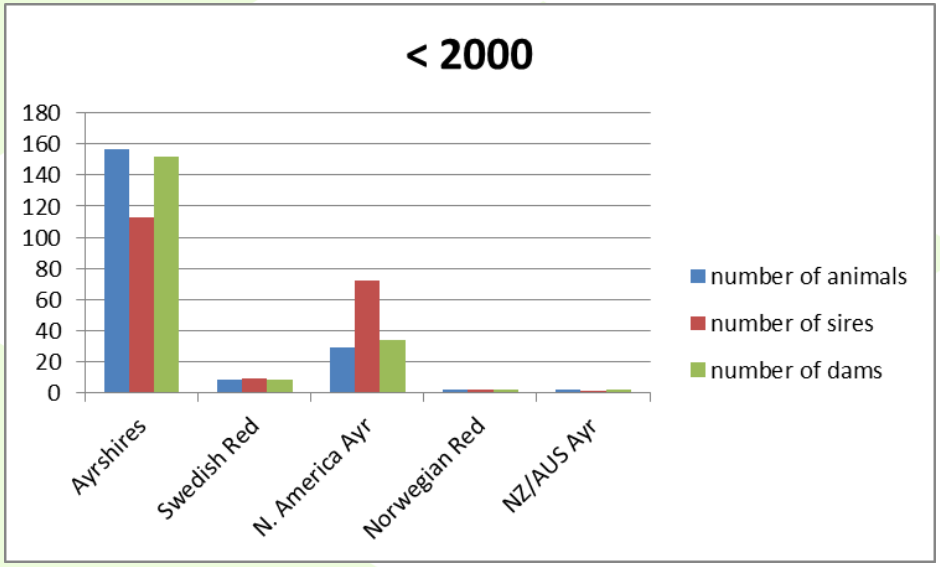
Examining failure of Ayr Protein

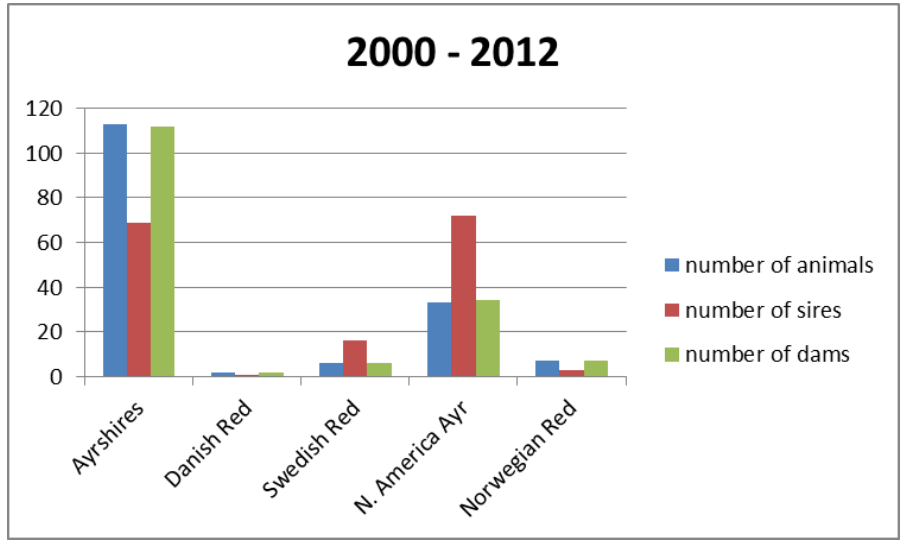
- Currently a GBR model for production is multi-breed but single trait across 5 lactations RRM model
- Pre-adjustment for HOV undertaken before fitting model for evaluations accounting levels of production
- Surprising then why protein would failed but milk and fat did not, given they pass through the same pipeline
- Possible actions
  - Examine different time period for test
  - Examining the HOV adjustment factors
  - Adjustment factors are Hol and versus non-Hol
  - Why will these work for all other breeds apart for AYR (More crossing breeding in AYR?)

Ayrshire Bull based on more recent (2000 or 2001 -2012)



Examine Population structure in the two periods of time





Mean genetic levels for the different populations

Period	AYR		Swedish Red		N.A AYR		Nor Red	
	N	Mean	N	Mean	N	Mean	N	Mean
<2000	157	-6.4	8	8.7	29	-1.0	2	11.10
>2000	113	2.8	6	12.7	33	2.1	7	12.60

Conclusion

- Software easy to use
- Additional information in manual will be useful as I suggested earlier
- Motivates you to have a closer look at your models; so useful in that respect