


Genetic analyses of eventing data of Swedish Warmblood horses

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Swedish Warmblood

55 000 riding horses
 4000-5000 broodmares covered annually

Breeding objective
 Internationally competitive horses in dressage, show jumping or eventing.

Production of eventing horses
 Show jumping mares with good gaits are covered by stallions with high percent of Thoroughbred, or vice versa.

Silver in the Olympics 2012

Sara Algotsson-Ostholt - Wega (SWB)
 (Irco Mena – Labrador)




6th best studbook in 2011

Ranking by the World Breeding Federation for Sport Horses (WBFSH)


Breeding value estimation

www.blup.se



BLUP Animal Model since 1986

Breeding values for




based on results from

Show jumping & Dressage competition

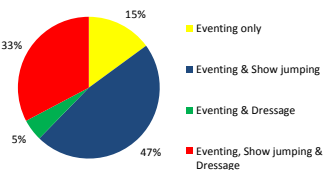
Young horse tests (3- & 4-year-old horses evaluated for conformation, jumping & dressage)

Results from eventing not included or tested at young horse test




Eventing data

Year of competition: 1970 – 2009
 No. of horses: 3800
 Trait: lifetime performance in eventing



22% evaluated at Riding Horse Quality test (RHQT)




Methods

Bivariate BLUP Animal Models:

- Eventing – Show jumping
- Eventing – Dressage
- Eventing – RHQT trait (conformation, walk, trot, canter, rideability, jumping technique, temperament for jumping)

Fixed effects:

- sex and birth year (competition)
- sex, age, event (RHQT)




Heritabilities

Competition

Eventing	0.12
Dressage	0.26
Show jumping	0.33

RHQT

Conformation	0.43
Gait traits	0.31 - 0.40
Jumping traits	0.18 - 0.23



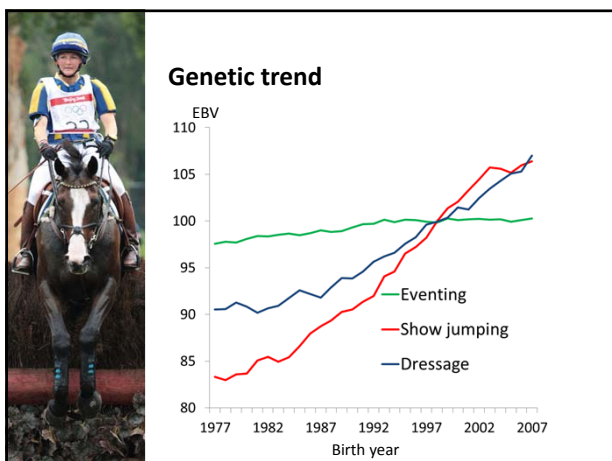

Genetic correlations

Competition

Eventing - Show jumping	0.44
Eventing - Dressage	-0.01

RHQT

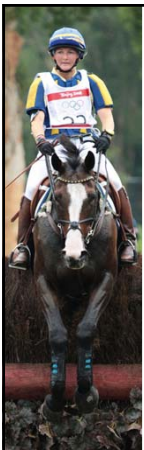
Eventing - Conformation	0.18
Eventing - Gait traits	-0.06 - 0.31
Eventing - Jumping traits	0.34 - 0.41

Top 10 stallions

Stallion	Birth year	No. of prog*	BV Eventing	BV Jumping	BV Dressage
Dalby Jaguar xx	1978	14	129	86	88
Irco Marco	1971	25	127	156	88
Lane Court xx	1972	15	118	67	83
Turban Rose	1985	21	118	125	79
Labrador	1975	33	117	82	91
Feliciano	1986	20	115	147	91
Homosassa xx	1982	27	114	68	90
Mintage xx	1974	32	114	78	66
Swift	1981	30	114	98	99
Irco Mena	1982	18	113	152	76
Cortus	1992	13	113	122	103
Beach Boy	1983	32	113	113	113

*No. of progeny in eventing



Conclusions

- Low heritability for eventing**
 - large environmental impact
 - few horses
- Eventing genetically correlated to jumping...**
 - show jumping
 - jumping at RHQT
- ...but not to dressage or gaits**
 - eventing horses are well trained in dressage?
- Possible to achieve genetic progress**
 - publish breeding values for eventing
 - selection for eventing performance
 - use stallions with high BV for show jumping

