



The effect of international performances on the genetic evaluation for jumping of Belgian Warmbloods

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Of 86 olympic horses...

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06-08-2012 OS Jumping: 14 'BWP-gekleurde' paarden aan start



Met 14 waren ze bij aanvang van de Olympische Spelen Jumping, de paarden die in België geboren en geregistreerd zijn bij BWP OF behoren tot de groep van BWP goedgekeurde hengsten.

Alleen al voor de deelname wenst BWP deze fokkers van harte te feliciteren, een overzicht:

- Jur Vrieling & Bubalu: dit is een goedgekeurde hengst voor BWP die het zelfs al tot BWP elitehengst schopte: BALOUBET DU ROUET x NIMMERDOR

- Philippe Le Jeune & Vigo d'Arsouilles - BWP Ambassadeur: Nabab de Reve x Fleuri du Manoir - Fokker: Didier Viaene

- Eric Lamaze & Derly Chin de Muze: FOR PLEASURE x NABAB DE REVE - Fokker: Joris De Brabander

- Dirk Demeersman en BWP elitehengst Bufero vh Panishof: PARCO x POLIDIKTUS VD HELLE - Fokker: John en Jurgen Panis

- Gerco Schroder & London (ex Carembar de Muze): BWP Elitehengst : NABAB DE REVE x CHIN CHIN - Fokker : Joris De Brabander

- Jos Lansink & Valentina van 't Heike: Nabab de Reve x Lys de Darmen - Fokker: Karel Boonen

- Jillian Terceira & Bernadien van Westuur: Toulon x WIBRAMINO - Fokker: Lutgarde Maes

- Reed Kessler & Cylana vd Ruitershoeve: SKIPPY II x DARCO - Fokker : Daniel en Dirk d'Haese

Motivation of the study

- Performances at international level attract media attention
(reports on the international results of Belgian jumpers)
- Breeders value the international performances as very important
 - ⇒ Breeders and the BWP studbook expect that Estimated Breeding Values for jumping “reflect” the international performances
 - ⇒ Request to include the data in EBV-procedure

Why are these data not (yet) included?



- Data collection has been (is still) prohibitive. FEI developed an information system. Quality of this information is increasing but depends heavily on input by national equestrian federations
- Identification issues...
 - name changes of horses
 - not all horses are identified with UELN

Exception = the Netherlands

ebv for show jumping based on the highest lifetime performance including international performances (requires manual collection of data...)



(cont'd)

- The Belgian EBV for show jumping is based on the ranking of horses in individual competitions, so each horse is “evaluated” against all participants,
- Complete rankings of horses, competing at international level, have been unavailable and even if these rankings were available, the pedigree of most participating horses can not easily be obtained



Preliminary study

- Official request for performance data on Belgian horses to FEI
- Merge “manually” collected data on BWP-horses into dataset

=> Objectives:

- evaluate usefulness of datasets
- estimate heritabilities and genetic correlations
- ranking of stallions

	Belgian dataset (used for ebv's jumping)	International (manual)	International (FEI data)
Period	1992-2009	2008-2011 (20 months)	2008-01/2011
Number of performances (max. per horse)	707 221 (248)	11 710 (69)	24108 (121)
Horses	44 757	1325	2240
Stallions	2411	277	??
Max. # progeny of 1 stallion	1120	149	??
Trait	Ranking of all horses in each competition	Rank individual horse	Rank individual horse

International data: manual set

- Incomplete over time
from jan. 2008 – january 2011, 20 months

approx. 500/month

all 1352 horses are BWP (registered) with UELN
(8.66 perf./horse, max 69)

277 stallions

(4.88 progeny/stallion, max 149)

- Very little errors, good link to pedigree-file

Issues with FEI data

- UELN-n° only for 1193 horses (53%)
so very poor link to pedigree
- Most horses in the FEI set were not-BWP registered
(other Belgian studbooks or Belgian sportnumber)
- The overlap of horses between the two sets was very small

The most performing horse
in the manual set was lacking in FEI-data

=> FEI dataset not further used

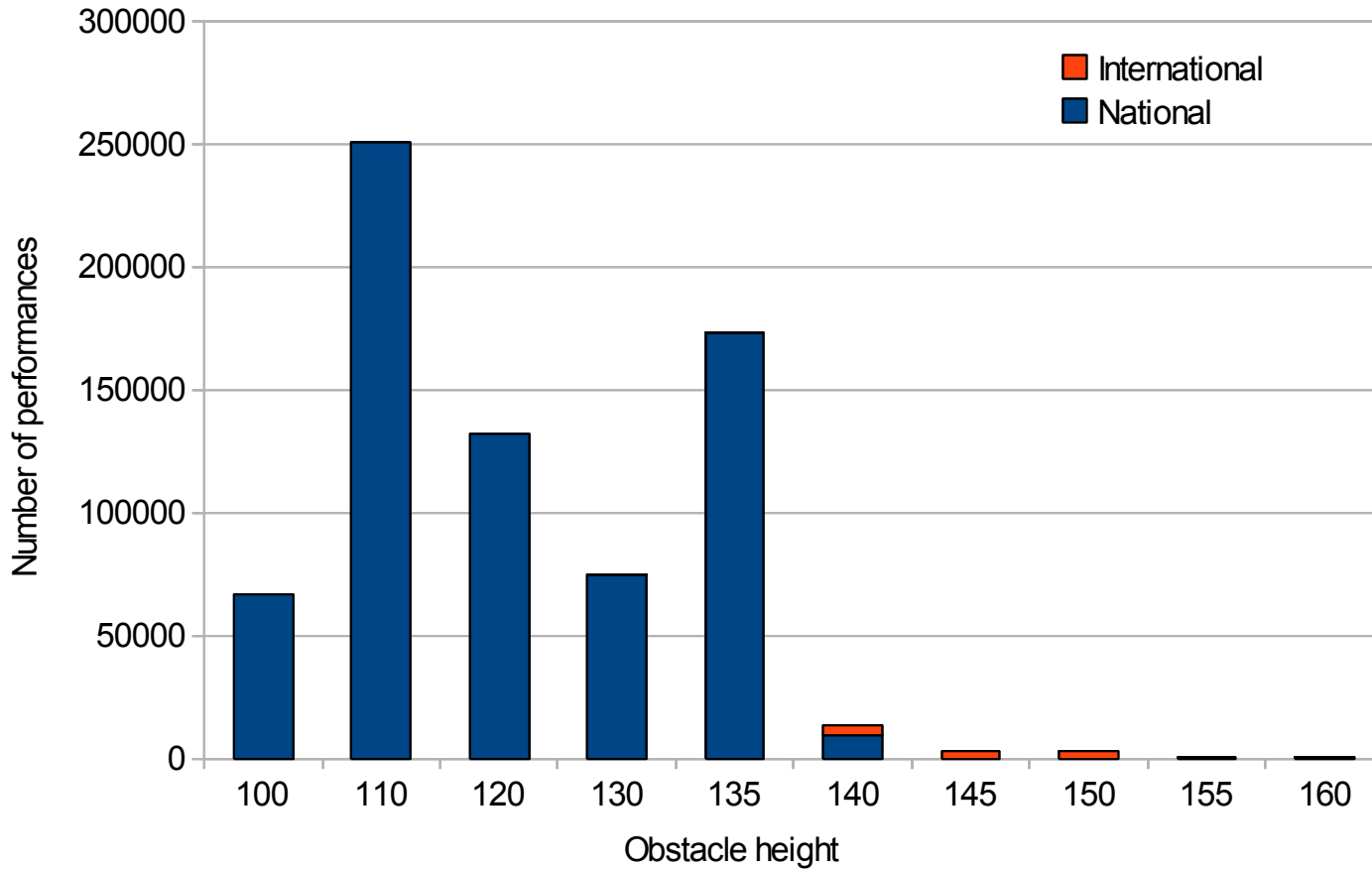


Classification of competitions + lifetime performance

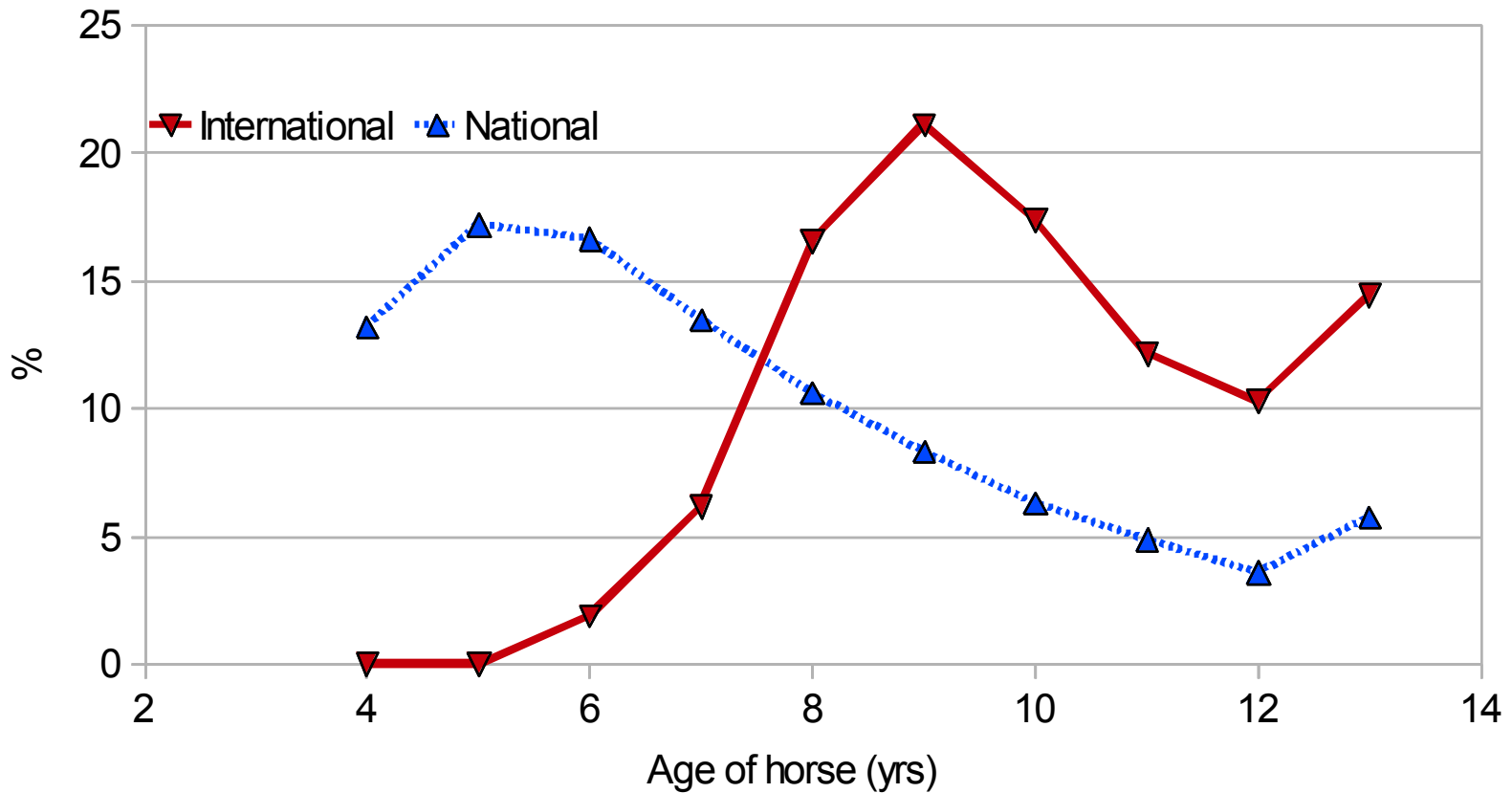
H_class	Obst. height	Recreational (LRV)	Young Horses (BWP)	Cycle Class.	National compet.	International
1	100	Novice(B)	4 yrs			
2	110	Start(L)	5 yrs	4 yrs		
3	120	Medium(M)	6 yrs	5 yrs		
4	130	High(Z)		6 yrs		130
5	135			7 yrs	X	135
6	140					140
7	145					145
8	150					150 +NC+GP+DB
9	155					155
10	160					160+WC

Distribution of data

Distribution of individual performances



Distribution of performance data by age of the horses



Traits and Models (VCE)

- Definition of “Lifetime-performance”
Highest level achieved by a horse
To combine international performances
with usual data
- Models: bi-variate or tri-variate
(recreational, national, lifetime)
- Fixed=year of birth/age/gender
- Random=animal, competition, permanent env.

=> Competition-effect explains no variance

=> Permanent environment-effect

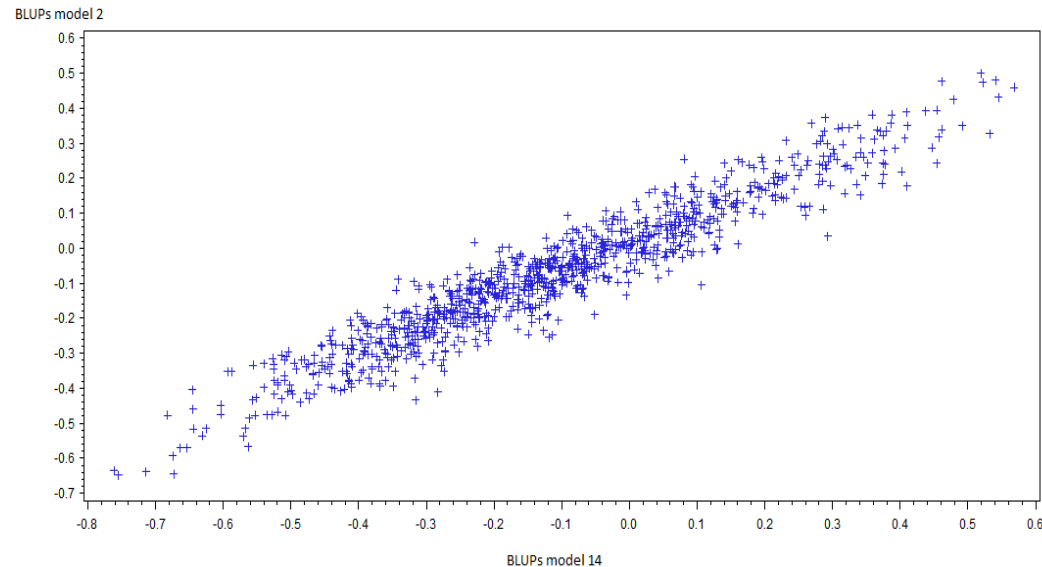
0.08-0.15

Heritability (diag.) genetic corr. (above)

	Recreational	National	Lifetime
Recreational	0.06 - 0.23	0.68 - 0.81 0.88	0.60 - 0.80 0.78
National		0.09 - 0.26	0.40 - 0.55 0.60
Lifetime			0.34 - 0.40

Correlation between stallion ebv's

- “lifetime perf.+recreational+national”
vs.
“recreational+national”
- All horses => 0.92
- All stallions => 0.95
Published stallions
=> 0.92
- Top 100 stallions
=> 0.702



International data are valuable

- Global effect of adding lifetime (incl. international data) larger genetic variance
- Quite some changes in stallions that rank highest

But:

- Intl data incomplete and not overlapping
- Age of int'l horses between 8 and 10 Yrs
=> information of progeny will lag behind by 10 yrs
- Automated data exchange is required because manual data collection (by each studbook) is not tenable

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