



Update on correlations conformation traits between countries 2024

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Introduction

- ▶ WHFF : > 30 years harmonisation (1986)
 - linear traits
 - currently 18
- ▶ Check available : INTERBULL evaluations
 - since 1999
 - correlations between countries
- ▶ Correlation = measure of harmonisation of traits
- ▶ Overview on correlations for
 - linear traits
 - general characteristics



Changes during last 2 years

- ▶ New countries:
none

- ▶ New traits/countries:
 - DEU introduced new definition angularity



Data

- ▶ Correlations of December 2023 Interbull evaluations

- ▶ 24 countries/evaluation systems
 - Countries: AUS BEL(WAL) CAN CHE CZE DEU DFS(DNK,FIN,SWE) ESP EST FRA (FRR) GBR HUN IRL ITA JAP KOR LVA, NLD(NLD+FLA) NZL POL PRT SVN USA ZAF
 - 18 linear traits
 - 3 generals: Udder, F&L, Final Score

- > all in paper
- > summary in presentation

average correlation



trait	<0.80	0.80= <=0.90	>= 0.90
stature			0.91
chest width	0.78		
body depth		0.81	
angularity	0.72		
rump angle			0.92
rump width		0.85	
rear leg set		0.82	
rear leg rear view	0.70		
foot angle	0.74		
fore udder	0.78		
rear udder height		0.80	
central ligament	0.74		
udder depth			0.92
teat placement			0.91
teat length			0.93
rear teat placement			0.92
locomotion	0.64		
body condition		0.86	
overall conformation	0.68		
overall udder	0.79		
overall feet & legs	0.66		



Average correlation per trait

- ▶ 6 linear traits: oke
- ▶ 5 linear traits: moderate
- ▶ 7 linear traits: low
 - Overall stayed on same level

- ▶ generals overall, udder and F&L: low

- ▶ Average correlation production traits
 - milk: 0.88
 - fat : 0.87

Average of genetic correlation between countries for 21 traits analysed by Interbull

Traits	Average correlation											
	May	May	Nov	Sept	Sept	Jan	Aug	April	Dec	Apr	Aug	Dec
	2001	2002	2003	2005	2007	2010	2012	2014	2015	2018	2022	2023
Stature	0.89	0.92	0.91	0.92	0.92	0.91	0.91	0.90	0.90	0.91	0.91	0.91
Chest width	0.76	0.79	0.79	0.80	0.79	0.80	0.78	0.76	0.76	0.79	0.78	0.78
Body depth	0.75	0.79	0.80	0.82	0.81	0.81	0.81	0.81	0.80	0.82	0.81	0.81
Angularity	0.76	0.78	0.76	0.78	0.77	0.75	0.74	0.73	0.72	0.75	0.73	0.72
Rump angle	0.93	0.94	0.94	0.95	0.95	0.94	0.94	0.93	0.93	0.93	0.93	0.92
Rump width	0.75	0.83	0.84	0.84	0.84	0.87	0.87	0.86	0.86	0.87	0.86	0.85
Rear leg set side view	0.82	0.85	0.84	0.85	0.85	0.84	0.83	0.82	0.82	0.84	0.82	0.82
Rear leg rear view	0.77	0.79	0.76	0.76	0.74	0.74	0.74	0.72	0.72	0.72	0.70	0.70
Foot angle	0.57	0.68	0.66	0.68	0.72	0.74	0.73	0.72	0.73	0.75	0.75	0.74
Fore udder	0.74	0.79	0.80	0.83	0.84	0.83	0.83	0.79	0.78	0.80	0.78	0.78
Rear udder height	0.74	0.81	0.82	0.84	0.85	0.82	0.82	0.80	0.80	0.82	0.80	0.80
Central ligament	0.77	0.80	0.78	0.80	0.81	0.78	0.77	0.75	0.75	0.76	0.74	0.74
Udder depth	0.90	0.94	0.95	0.96	0.96	0.97	0.96	0.94	0.93	0.94	0.92	0.92
Teat placement	0.89	0.92	0.91	0.94	0.93	0.93	0.93	0.92	0.91	0.92	0.91	0.91
Teat length	0.96	0.96	0.95	0.96	0.96	0.94	0.94	0.94	0.94	0.94	0.93	0.93
Rear teat placement	--	--	0.96	0.96	0.96	0.90	0.89	0.91	0.92	0.94	0.92	0.92
Locomotion	--	--	--	--	--	0.72	0.66	0.65	0.65	0.64	0.64	0.64
Body condition	--	--	--	--	--	0.77	0.80	0.83	0.85	0.85	0.86	0.86
Overall conformation	0.67	0.73	0.70	0.73	0.75	0.74	0.74	0.70	0.70	0.74	0.69	0.68
Overall udder	0.74	0.77	0.76	0.78	0.81	0.81	0.80	0.77	0.77	0.79	0.79	0.79
Overall feet & legs	0.60	0.67	0.67	0.69	0.69	0.69	0.69	0.65	0.67	0.68	0.66	0.66
Number of countries/groups	18	18	22	19	20	20	22	25	24	23	24	24

Average correlation 8 countries



NLD USA CAN DEU FRA GBR ITA DFS

	2001	2003	2005	2007	2014	2015	2018	2022	2023	2023-2001
stature	0,94	0,95	0,95	0,96	0,96	0,96	0,96	0,96	0,96	0,02
chest width	0,80	0,88	0,88	0,88	0,86	0,84	0,85	0,85	0,84	0,04
body depth	0,81	0,84	0,86	0,85	0,84	0,85	0,85	0,85	0,85	0,04
Angularity*	0,86	0,84	0,85	0,87	0,83	0,82	0,82	0,82	0,77	-0,09
rump angle	0,96	0,97	0,97	0,97	0,97	0,96	0,96	0,96	0,96	0,00
rump width	0,80	0,84	0,91	0,91	0,91	0,91	0,91	0,91	0,90	0,10
rear leg set	0,87	0,88	0,88	0,89	0,89	0,89	0,90	0,90	0,90	0,03
rear leg rear view	0,82	0,80	0,78	0,81	0,79	0,79	0,79	0,79	0,79	-0,03
foot angle	0,75	0,81	0,79	0,79	0,80	0,81	0,81	0,82	0,80	0,05
fore udder	0,84	0,87	0,87	0,89	0,89	0,90	0,90	0,89	0,89	0,05
rear udder height	0,77	0,89	0,88	0,89	0,88	0,88	0,87	0,86	0,86	0,09
central ligament	0,87	0,90	0,89	0,89	0,86	0,85	0,85	0,84	0,83	-0,04
udder depth	0,95	0,96	0,96	0,97	0,97	0,97	0,97	0,96	0,96	0,01
teat placement	0,93	0,94	0,94	0,94	0,93	0,93	0,93	0,92	0,92	-0,01
teat length	0,96	0,97	0,97	0,97	0,95	0,95	0,95	0,95	0,94	-0,02
rear teat placement	-	-	0,95	0,97	0,95	0,95	0,96	0,95	0,95	0,00
average										0,01

- NLD and DEU change to new definition
- On average increase of 0.01

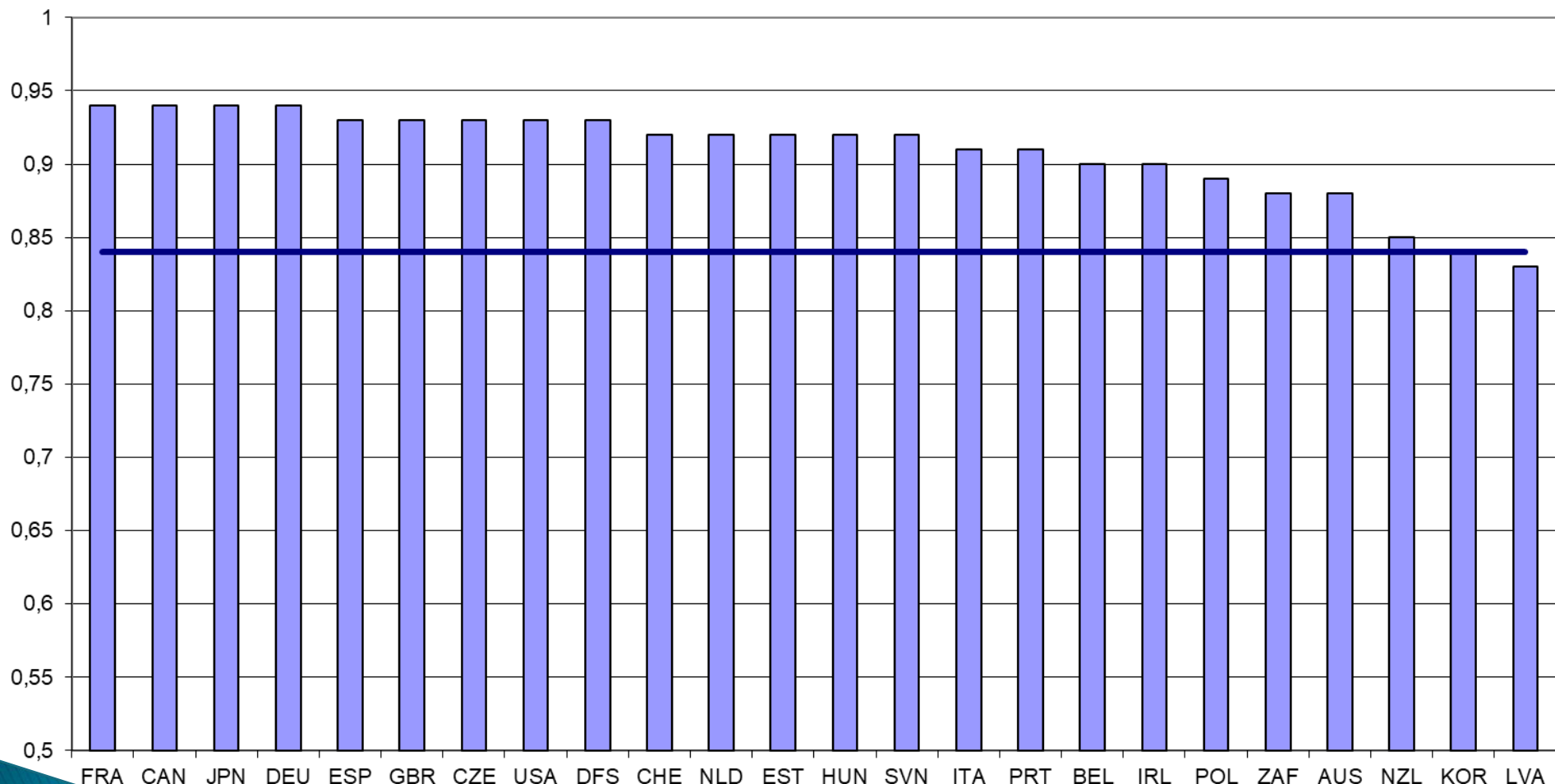


Overview per trait

- Average correlation one country with all other countries
- Horizontal line = highest correlation minus 0.10
 - > all countries should be able to reach this level

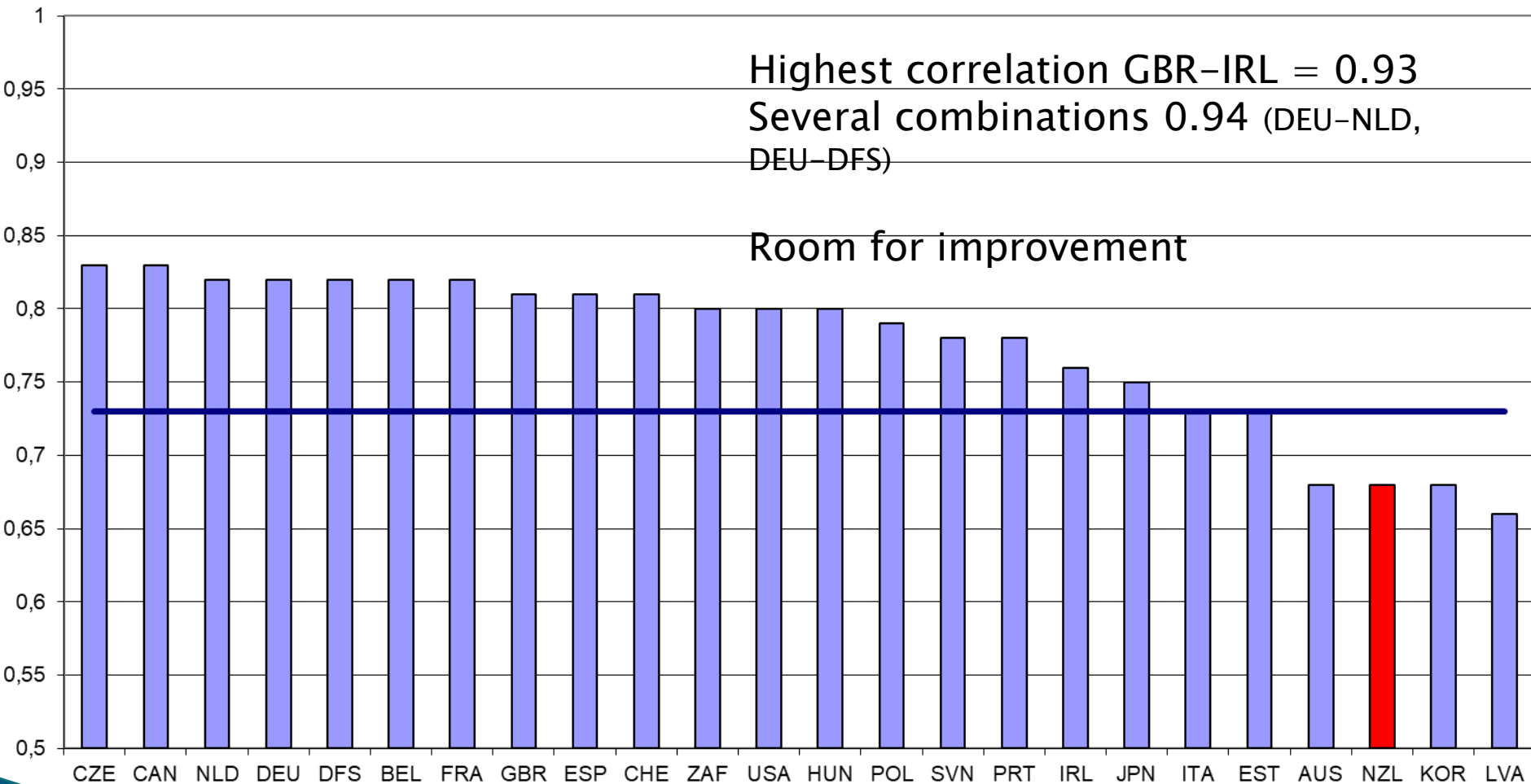


Stature



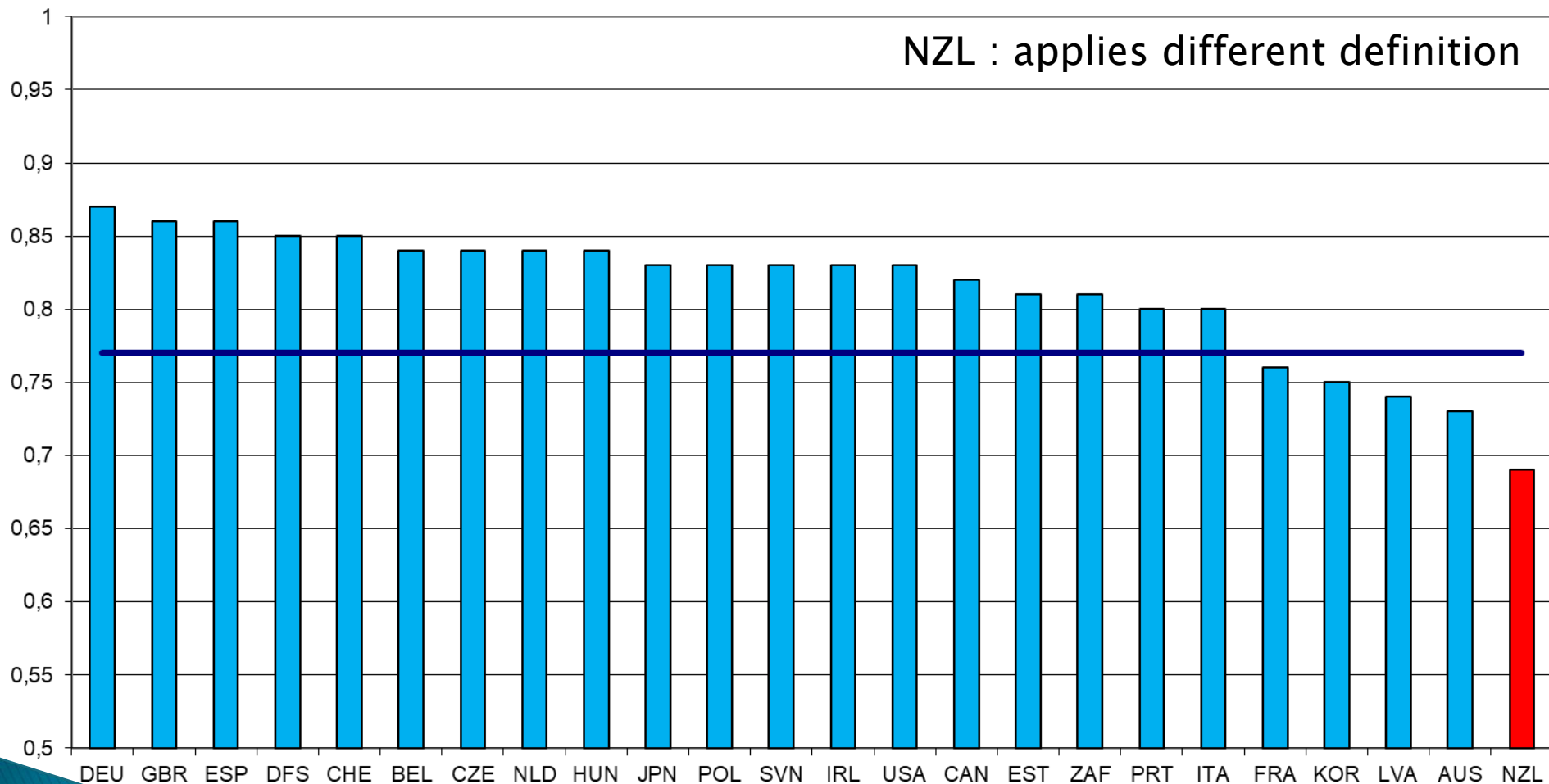


Chest width





Body depth

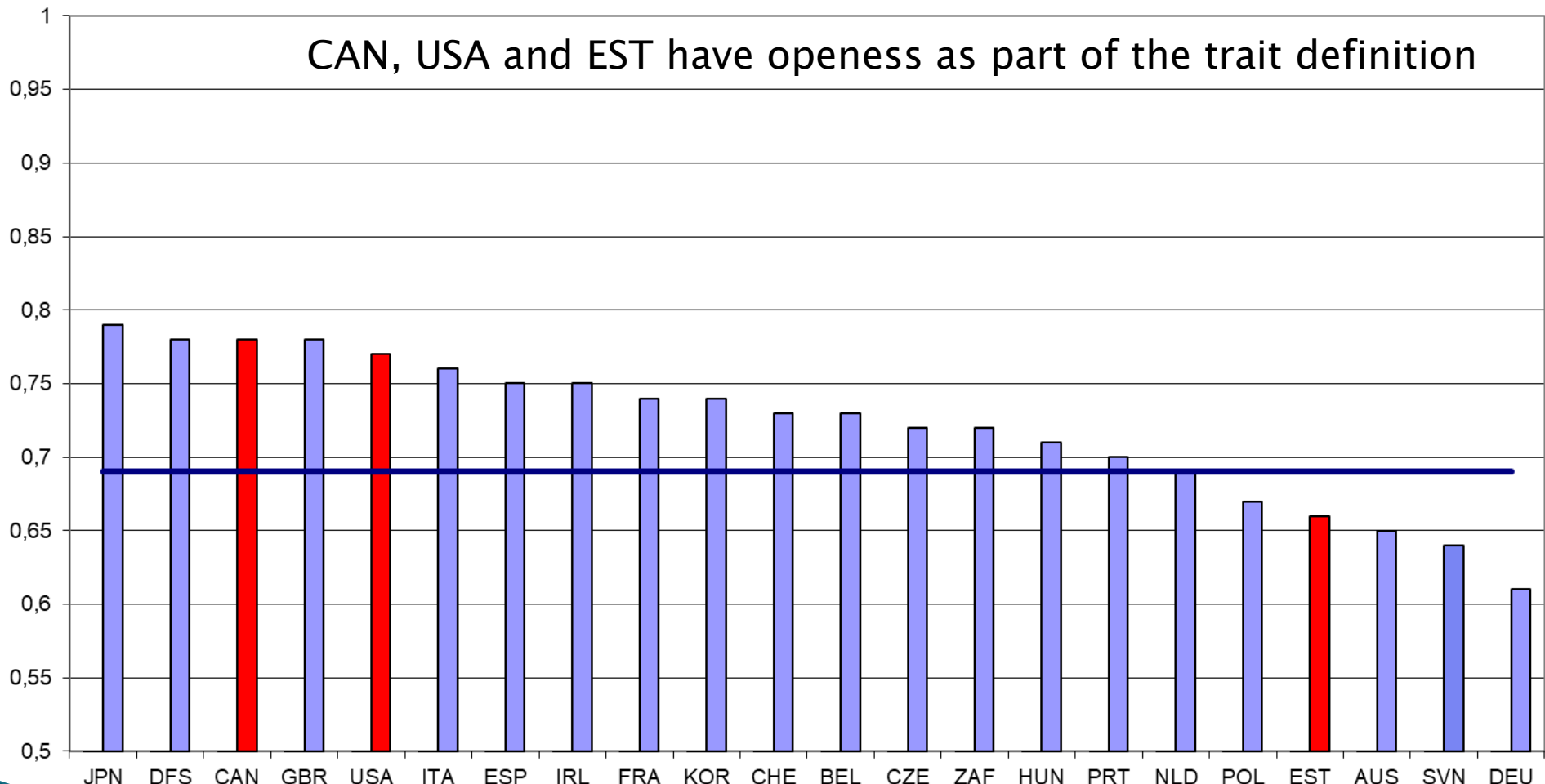


NZL: strength and depth of chest and body, viewed from side, rear and front, in relation to physical size



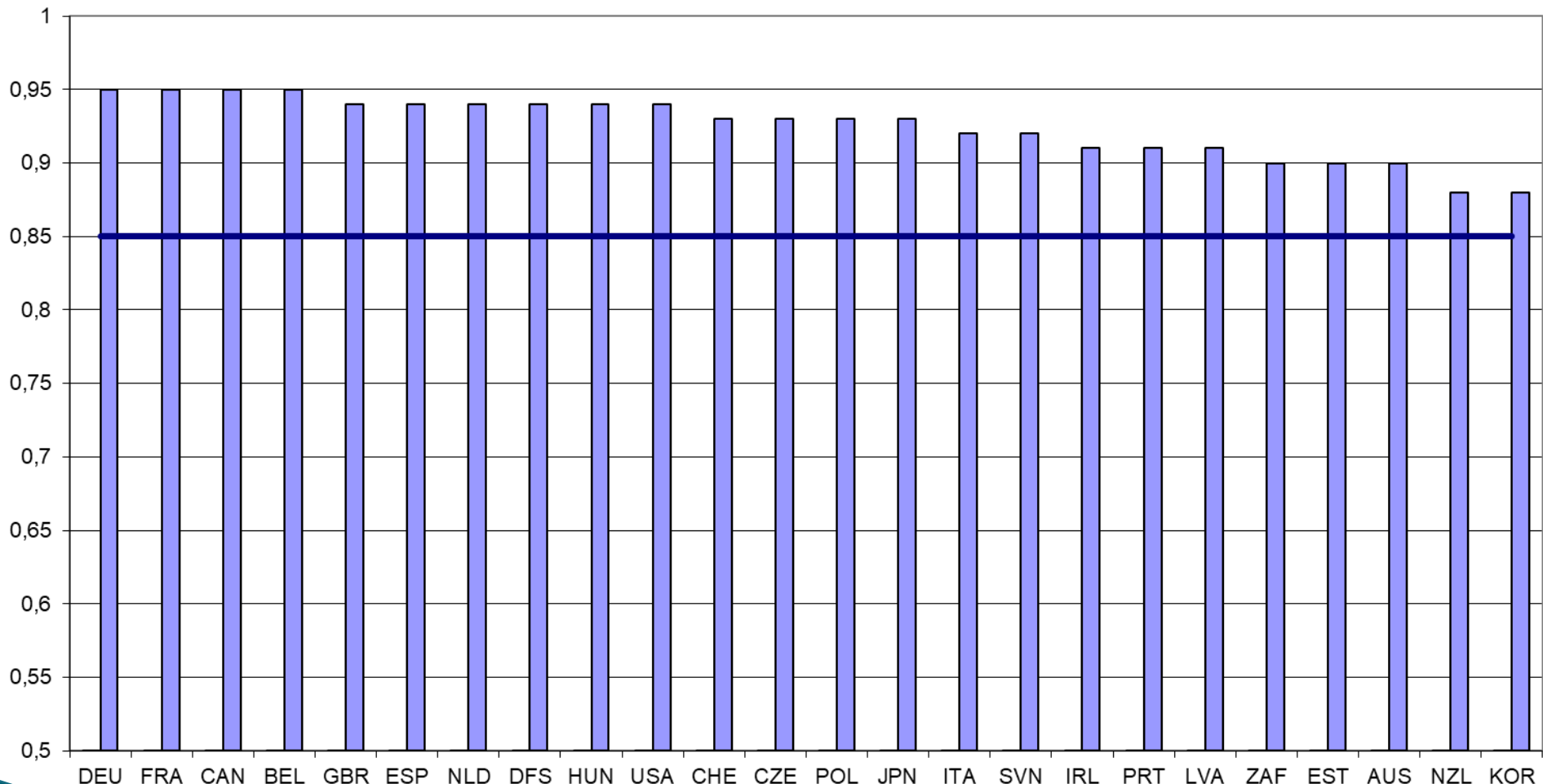
Angularity/Rib Structure

CAN, USA and EST have openness as part of the trait definition



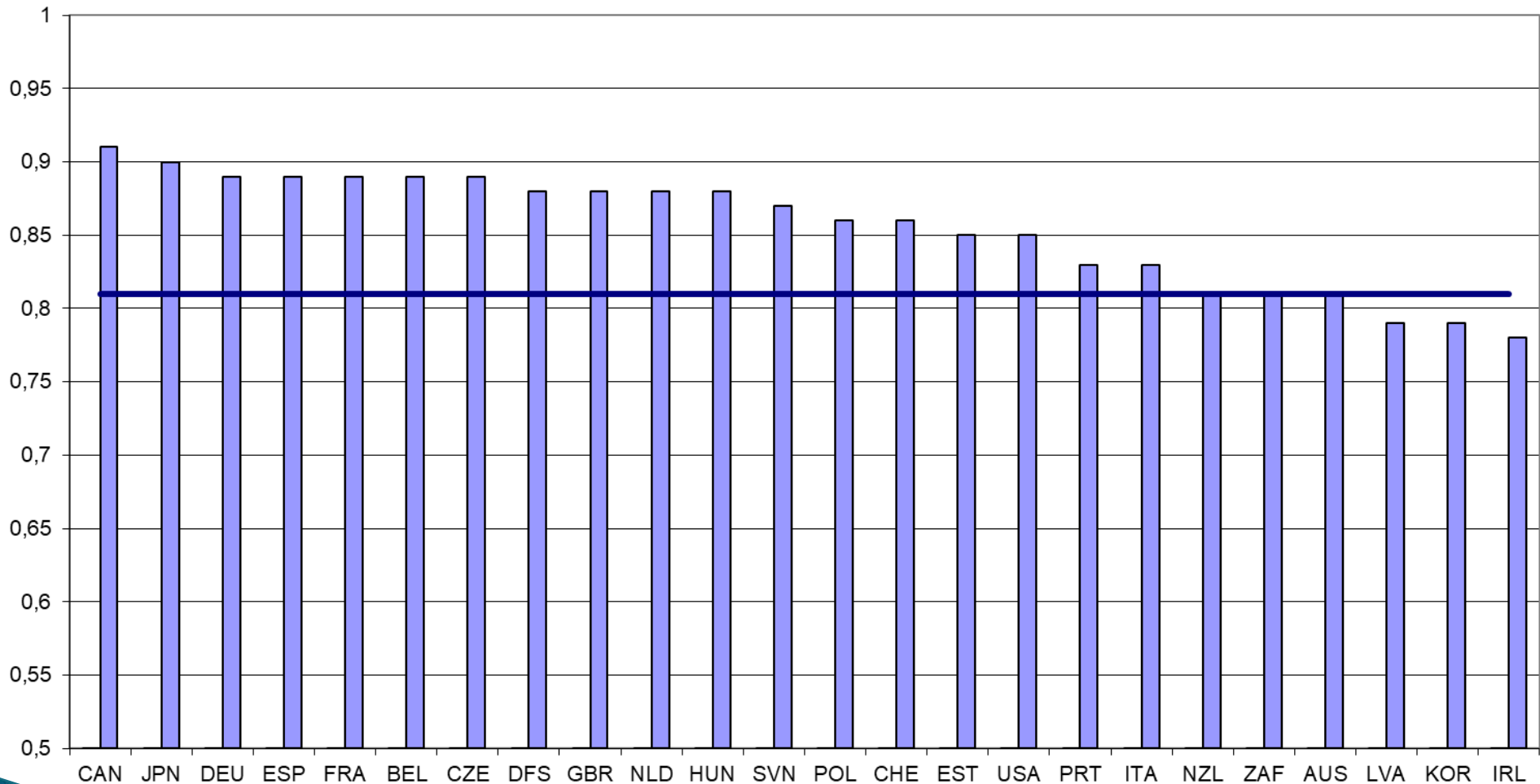


Rump angle



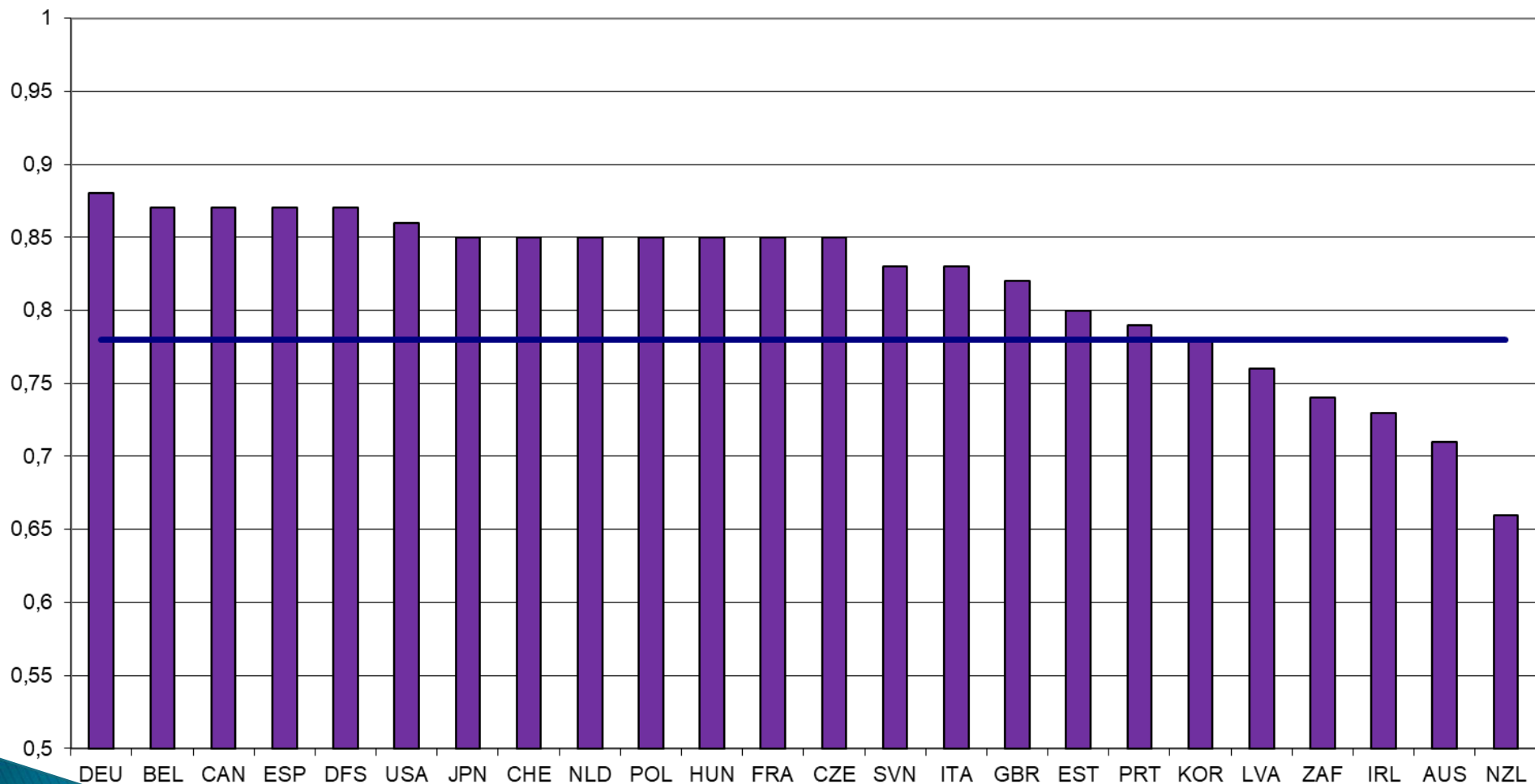


Rump width



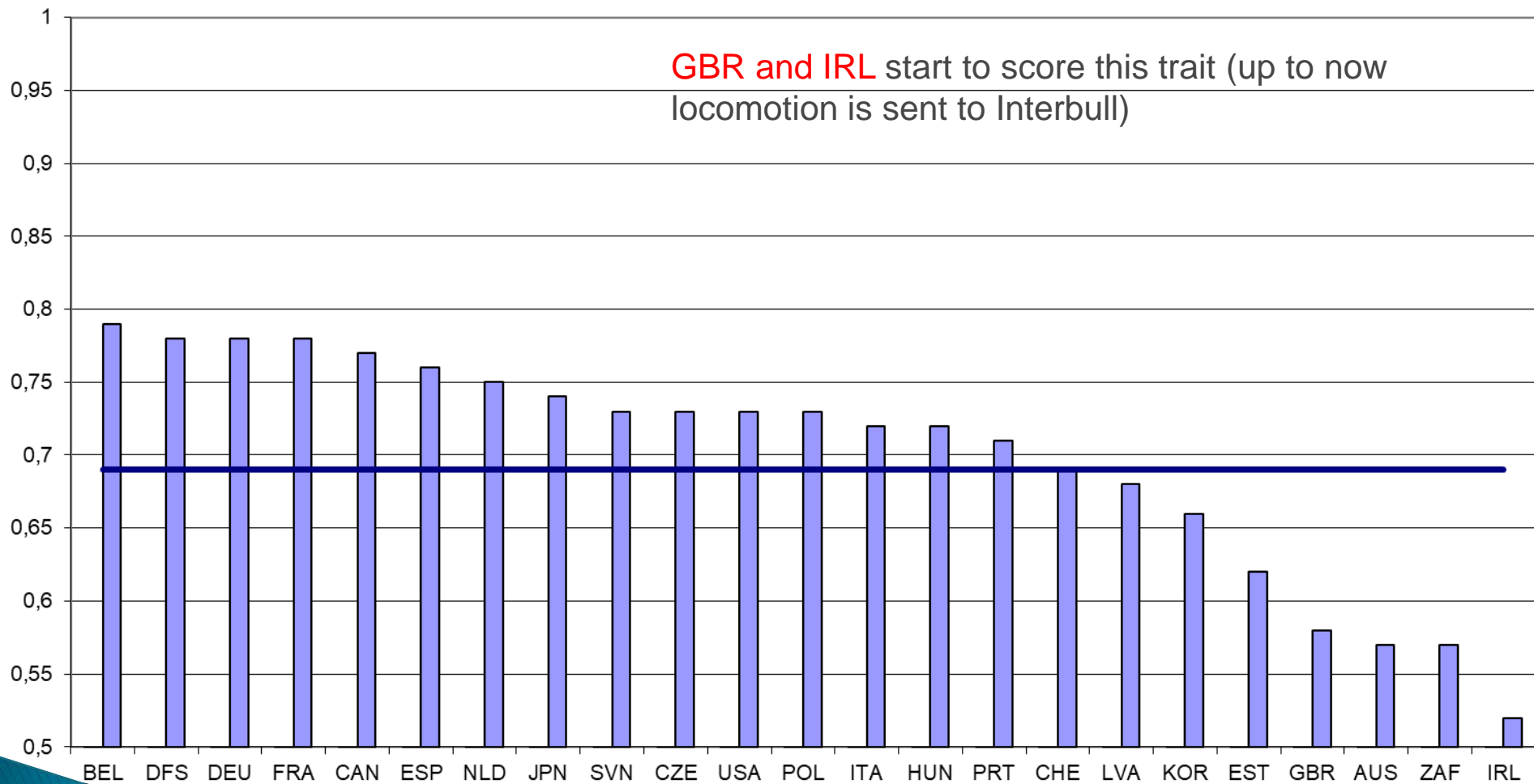


Rear legs side view





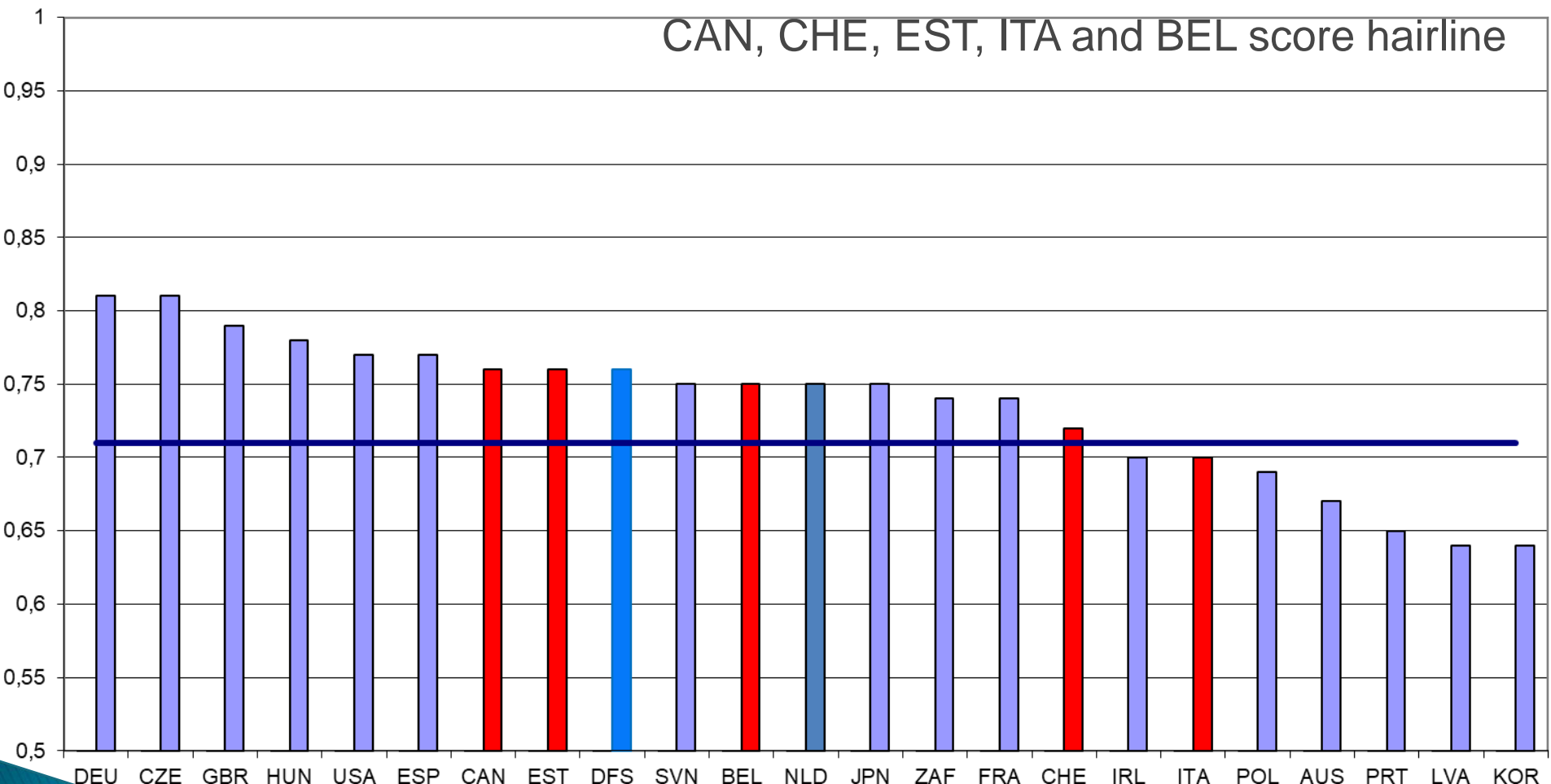
Rear legs rear view





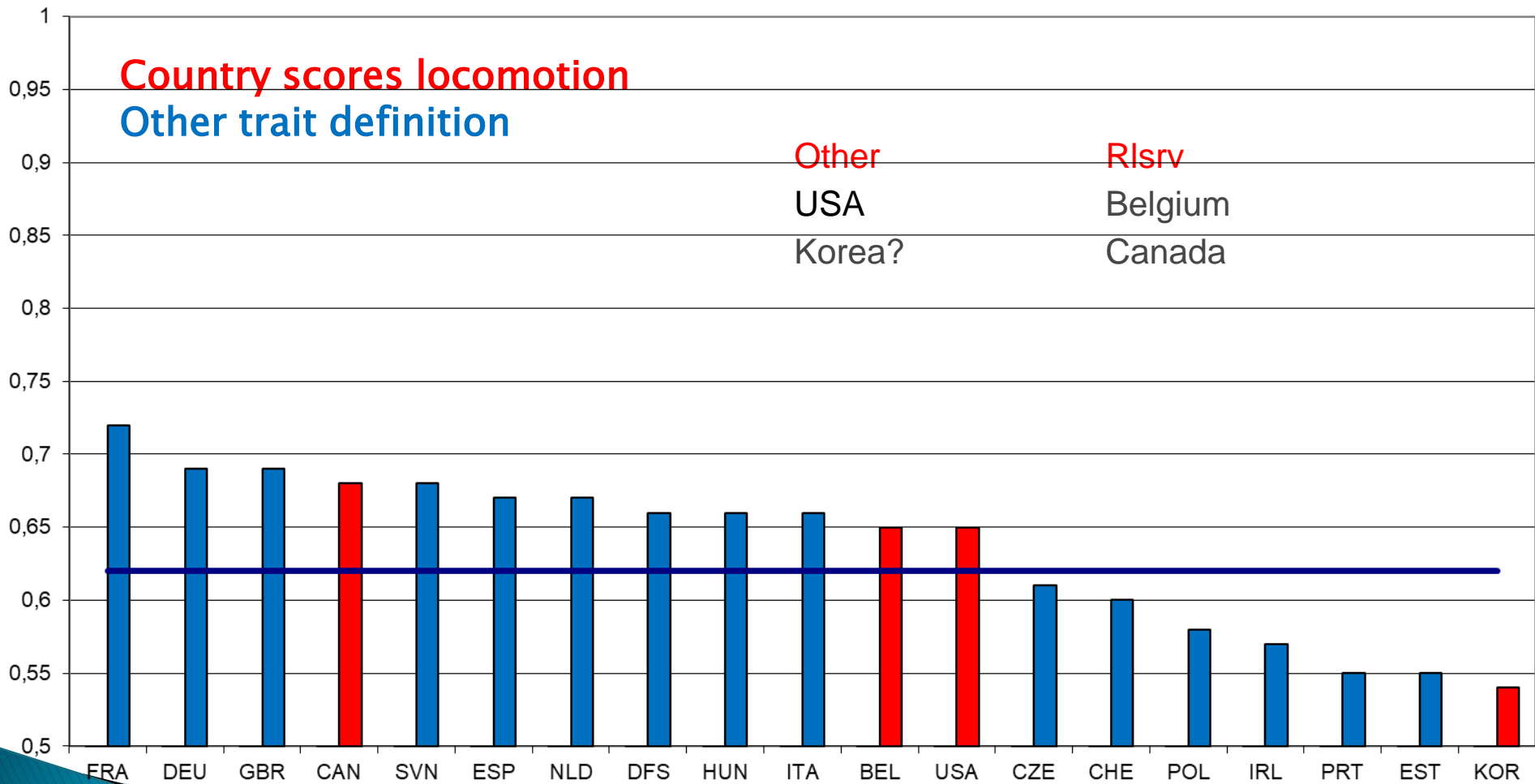
Foot angle

CAN, CHE, EST, ITA and BEL score hairline





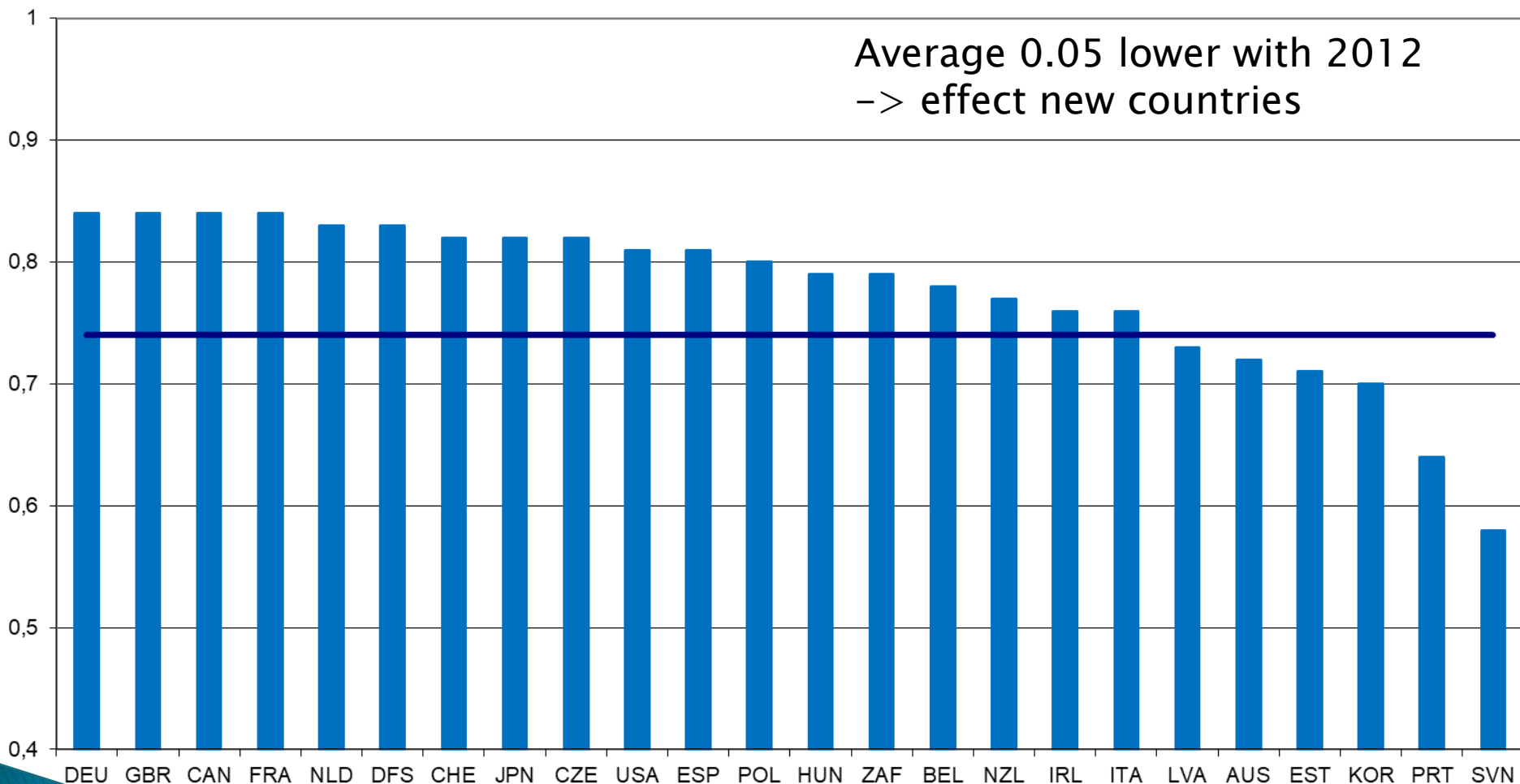
Locomotion



NZL, USA and DFS: stopped scoring

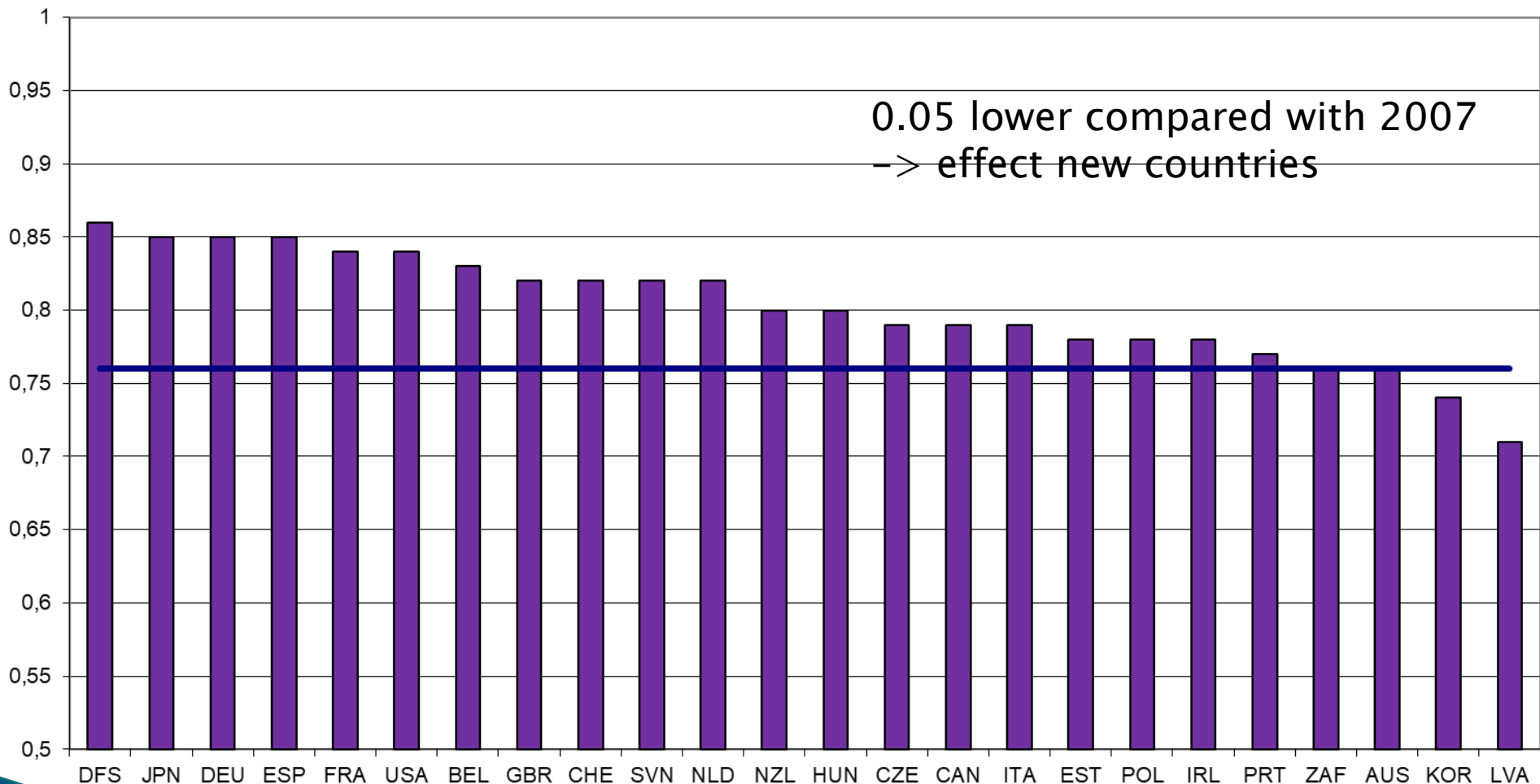


Fore udder





Rear udder height





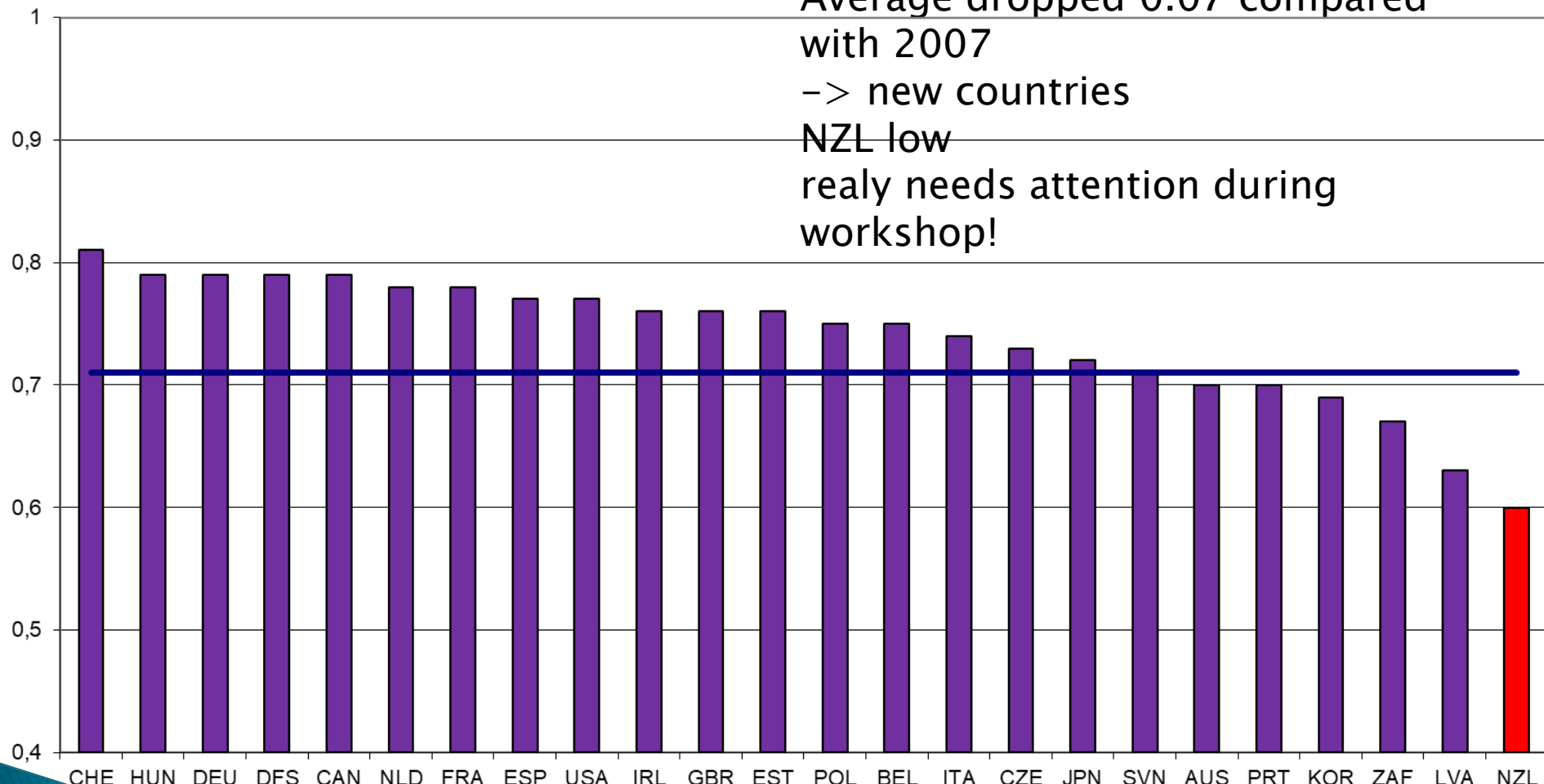
Central ligament

Average dropped 0.07 compared with 2007

-> new countries

NZL low

realy needs attention during workshop!

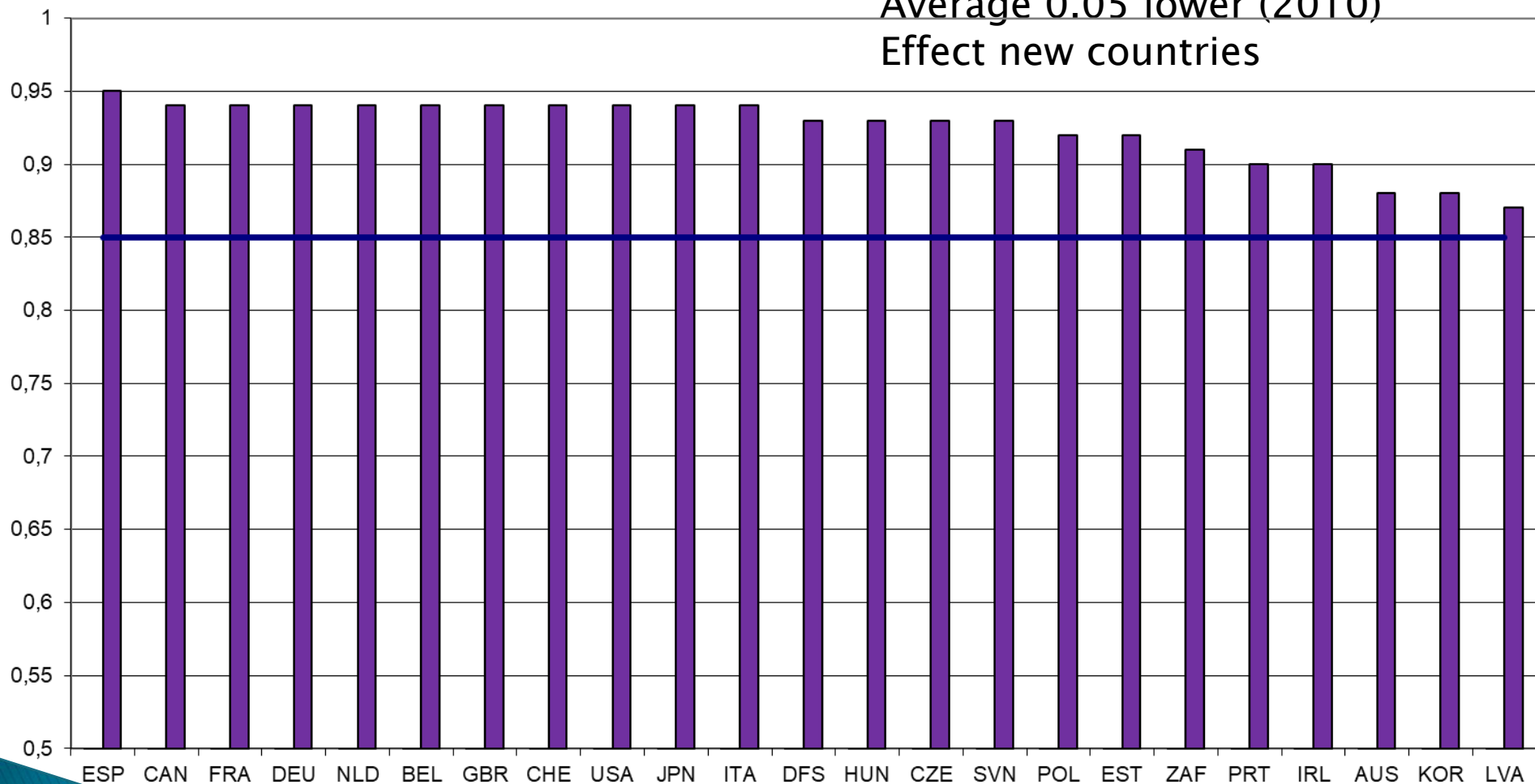


NZL sends a combination/index of central ligament en udder depth



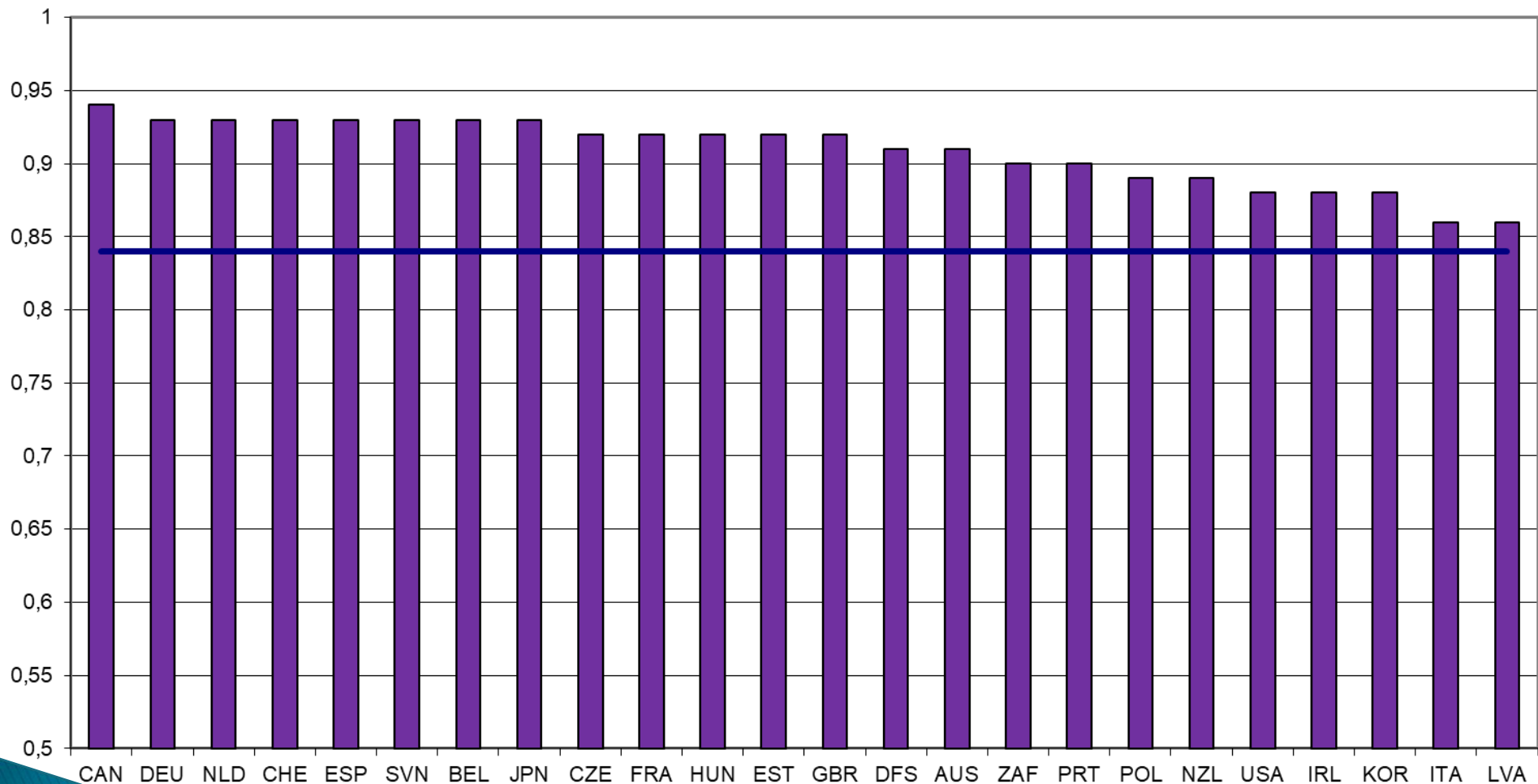
Udder depth

Average 0.05 lower (2010)
Effect new countries



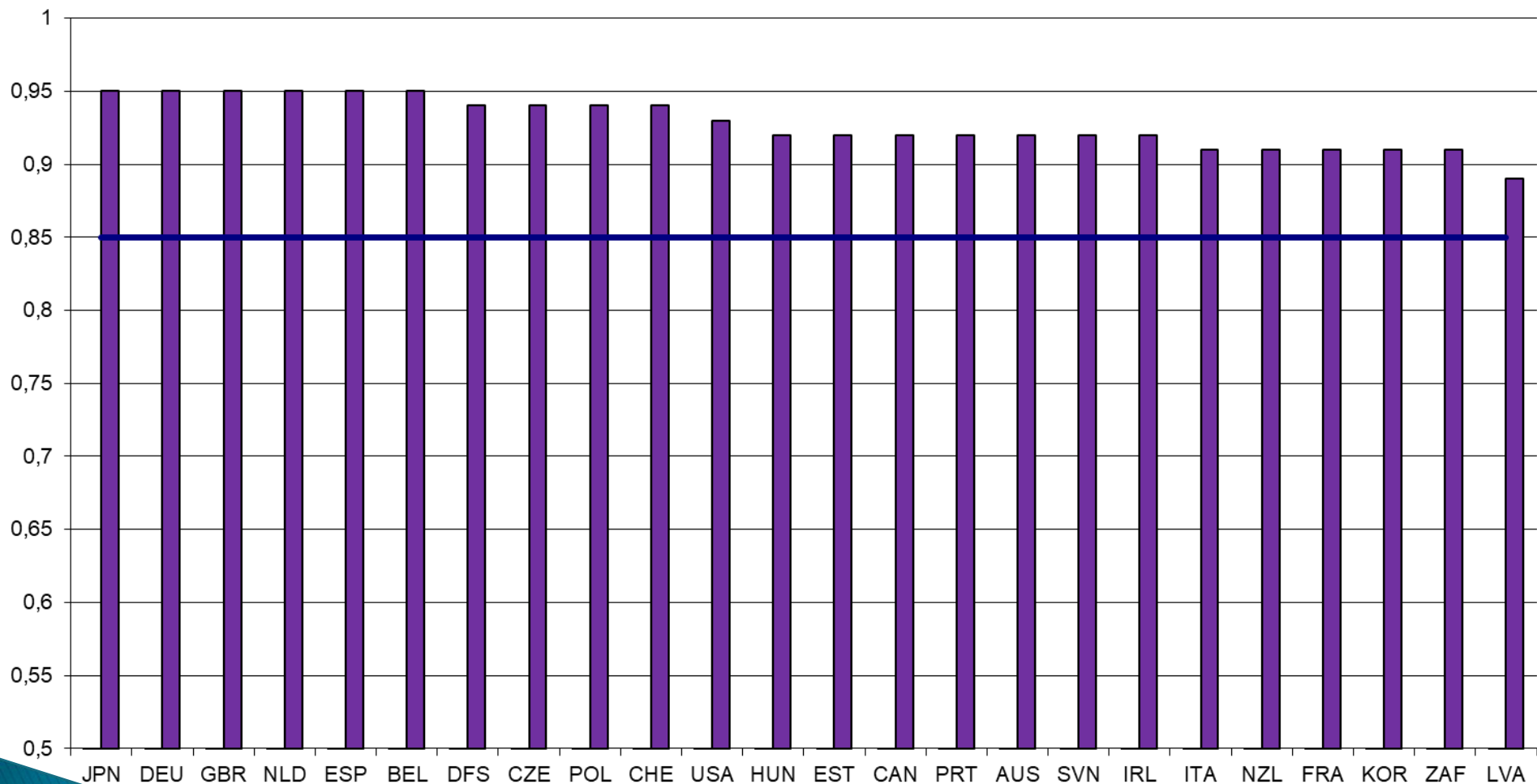


Front teat placement



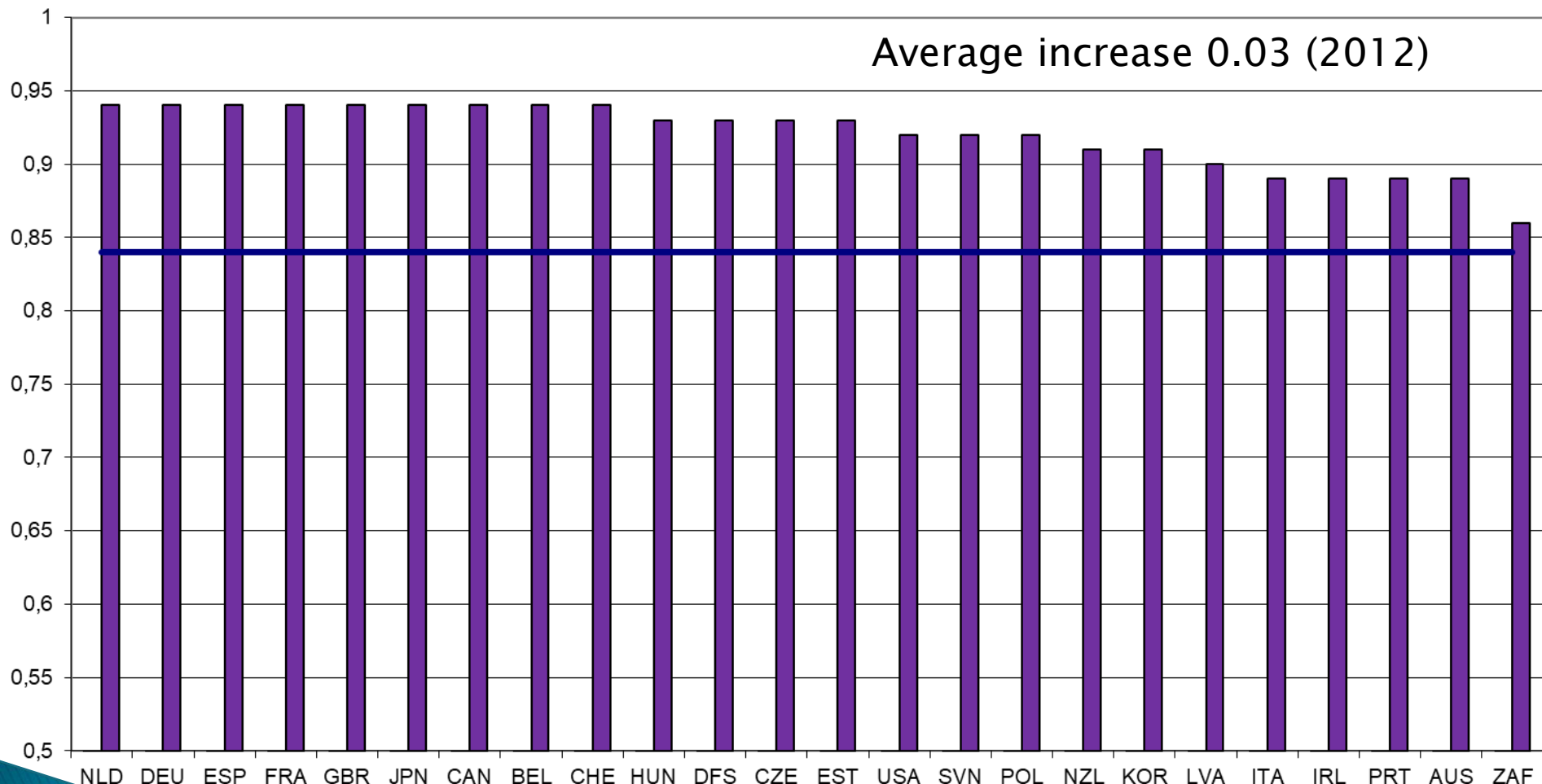


Teat length





Rear teat placement

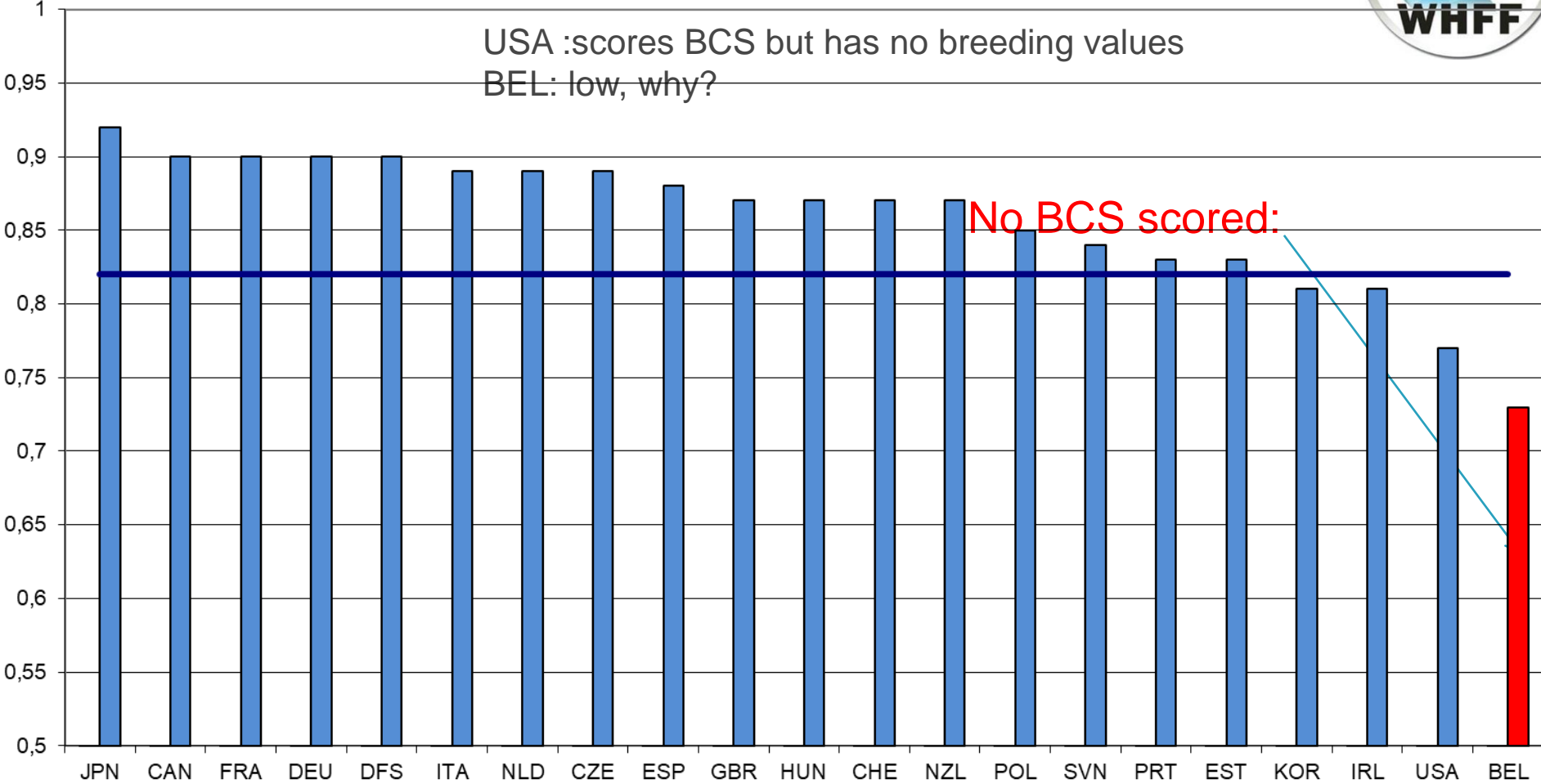


Body condition score



USA :scores BCS but has no breeding values
BEL: low, why?

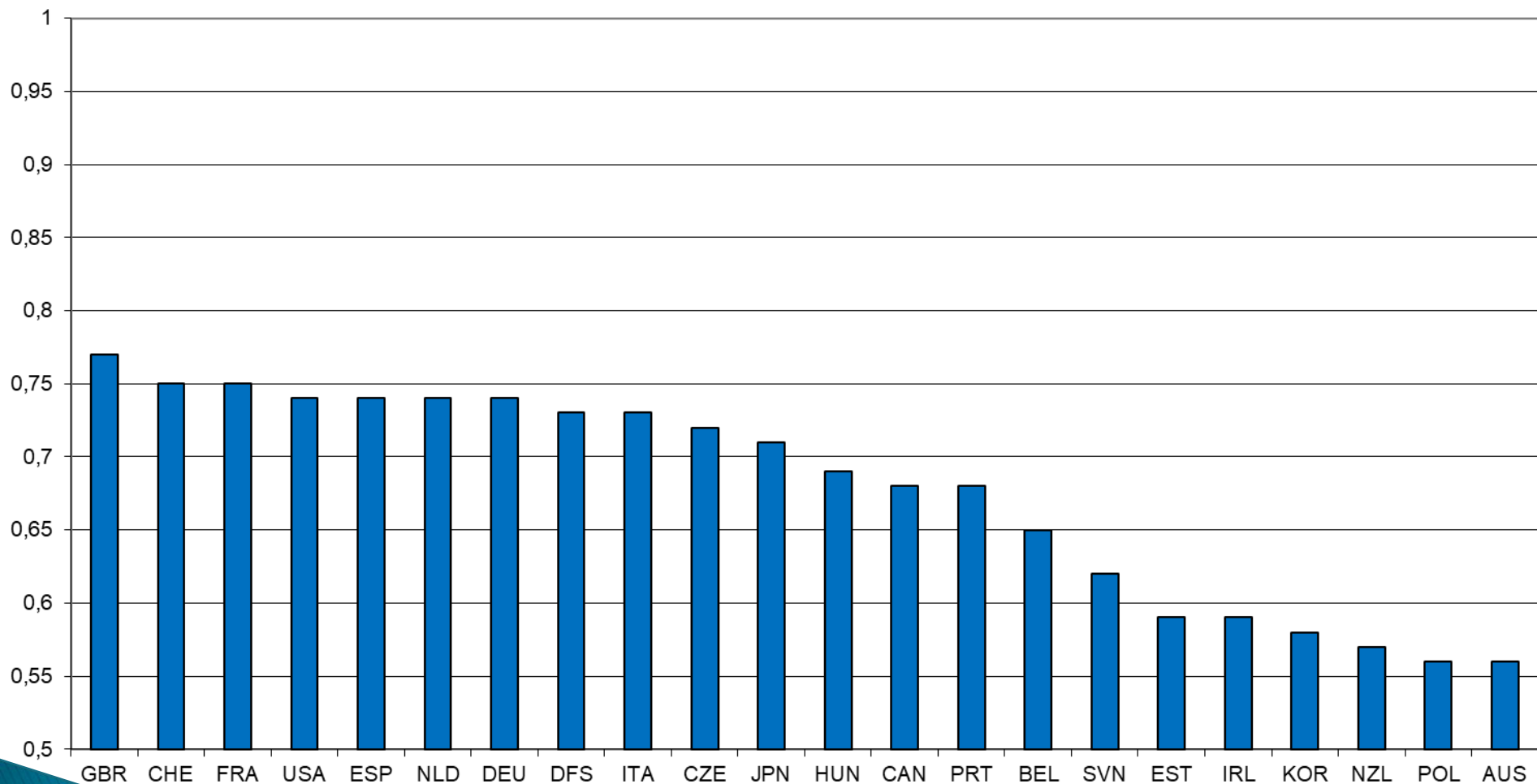
No BCS scored:



Average among countries scoring BCS: 0.86
Average correlation USA : 0.77

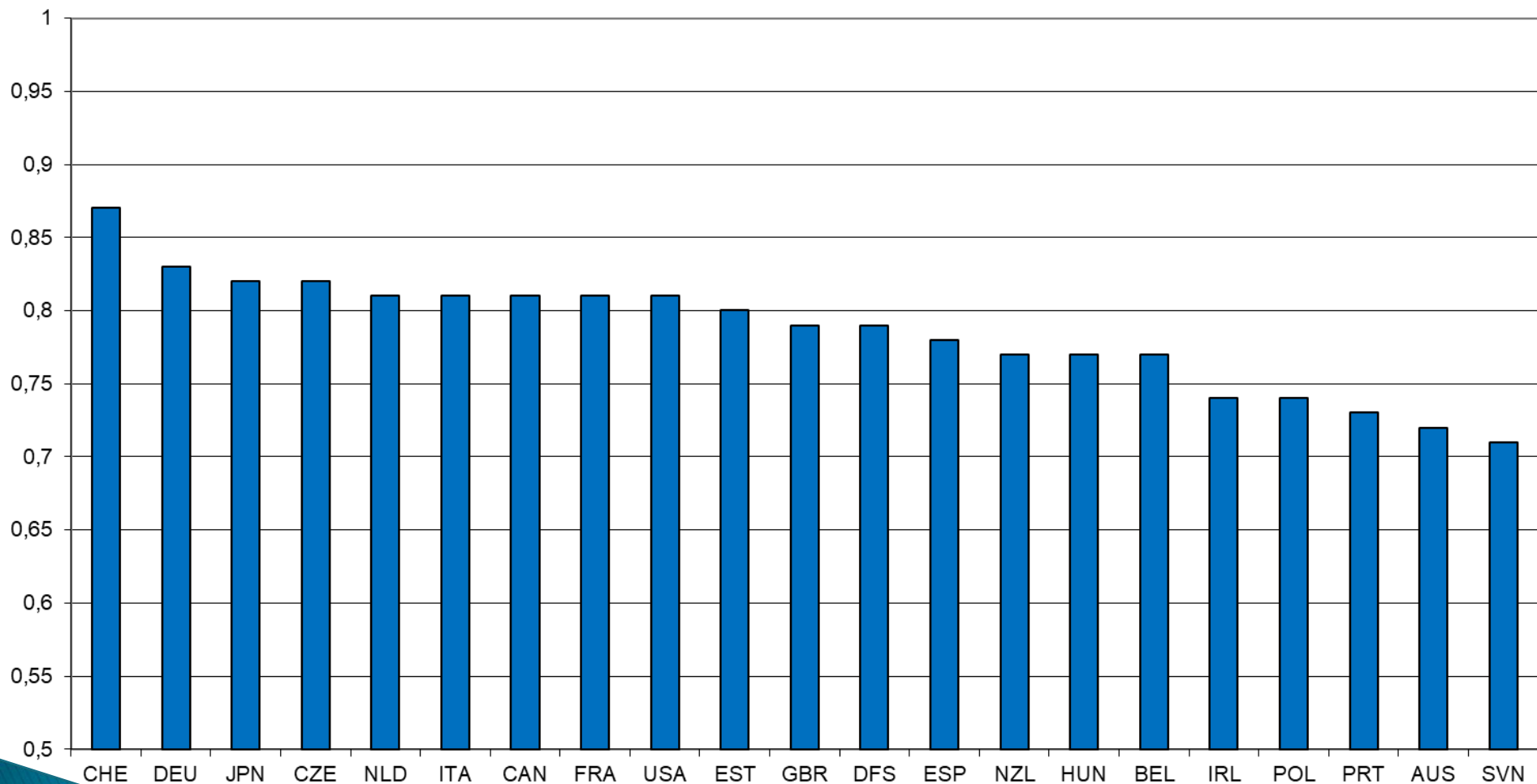


Overall conformation



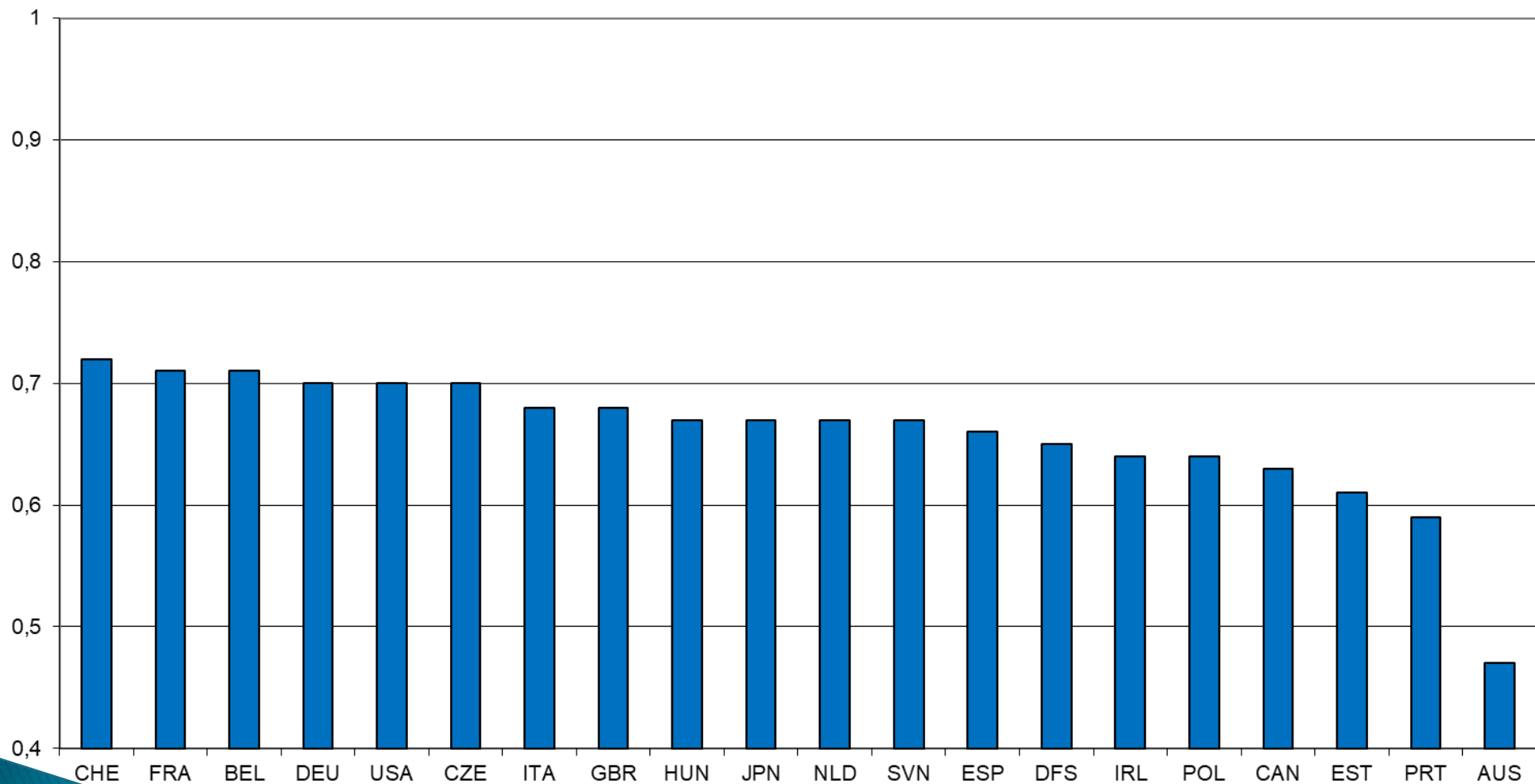


Overall udder





Overall F&L





- ▶ Overview

- ▶ Details in paper



Conclusion

- ▶ Correlations for central ligament and rear leg set rear view decreasing
 - > extra attention during workshop
- ▶ Rib structure:
 - > countries which change should remove old definition scores from the genetic evaluation



Thank you for your attention