

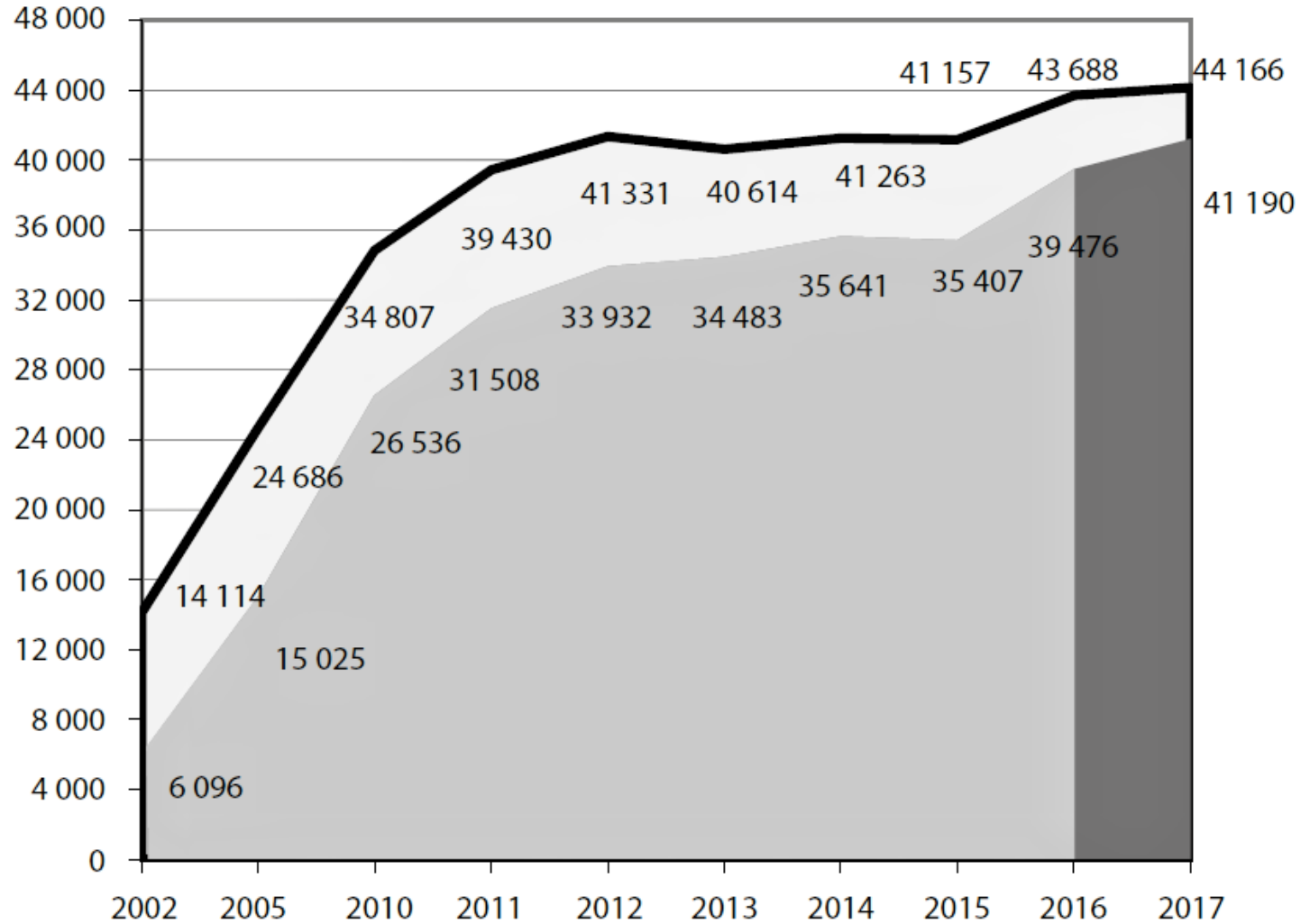
RELATIONSHIPS BETWEEN CONFORMATION TRAITS AND MILK YIELD, LIFETIME PRODUCTION AND NUMBER OF LACTATIONS IN CZECH HOLSTEIN COWS

Nosková Adéla, Příbyl Josef, Kašná Eva

Institute of Animal Science, Prague – Uhřetěves, Czech Republic

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CONFORMATION ASSESSMENT IN THE CZECH REPUBLIC



- Scored >40 000 each year

⇒ EBV

⇒ Mating recommendations

⇒ 24% in SIH

METHODOLOGY

TYPE TRAITS

Trait	Average	Range
20 linear type traits	4,6 – 5,8	1 – 9 bodů
4 characteristics	79 - 81	63 – 91 bodů
Height at Sacrum	146 cm	110 – 168 cm



LINEAR MODELS

- Milk yield
- Longevity

(Lifetime production,
Number of lactations)

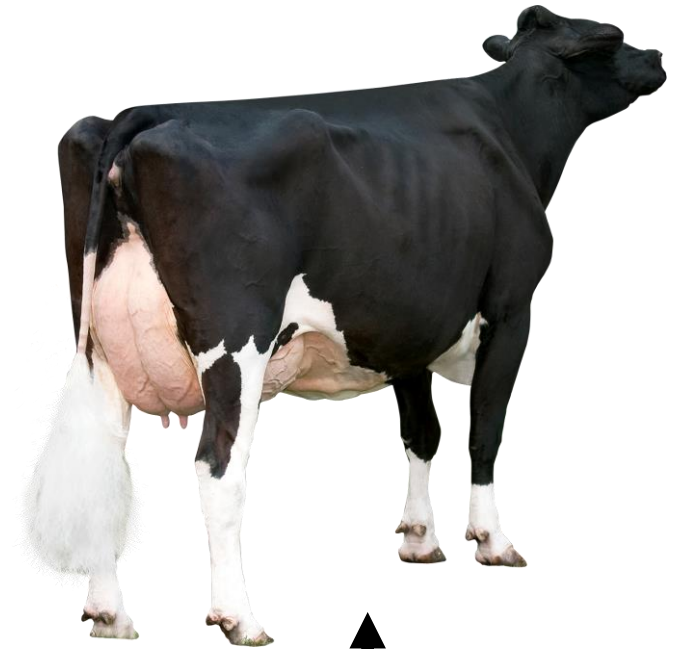
BlupF90



Regression
coefficients

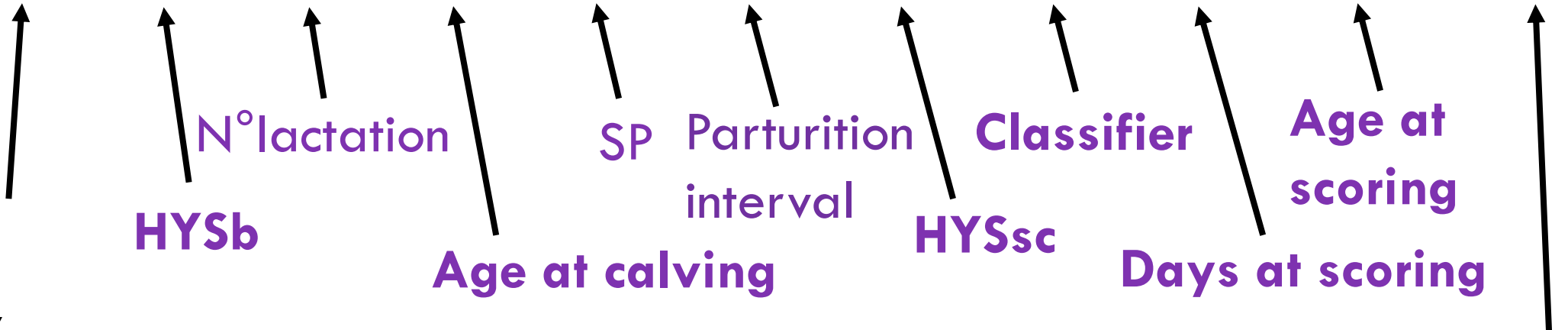


Predictions



MODEL EQUATIONS

$$Y = X_1 + X_2 + X_3 + X_4 + X_5 + X_6 + X_7 + X_8 + X_9 + X_{10}$$



Milk yield

- $R^2 = 61\%$

Lifetime production

Number of lactations

- $R^2 = 36\%$

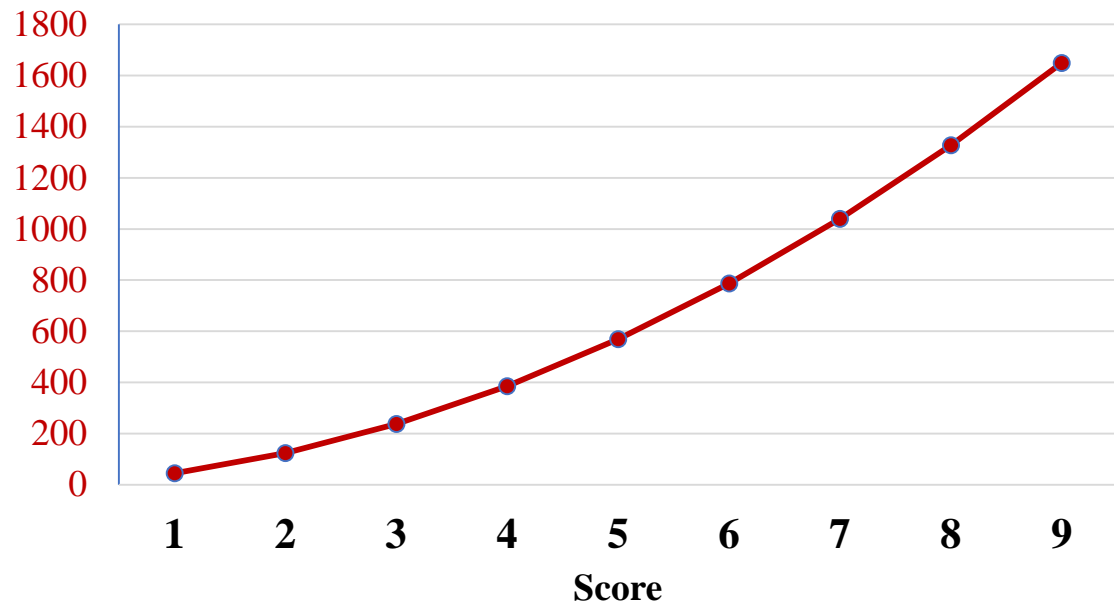
Type traits
• separately
• altogether (linear traits)

DESCRIPTIVE STATISTICS OF THE FINAL DATASETS

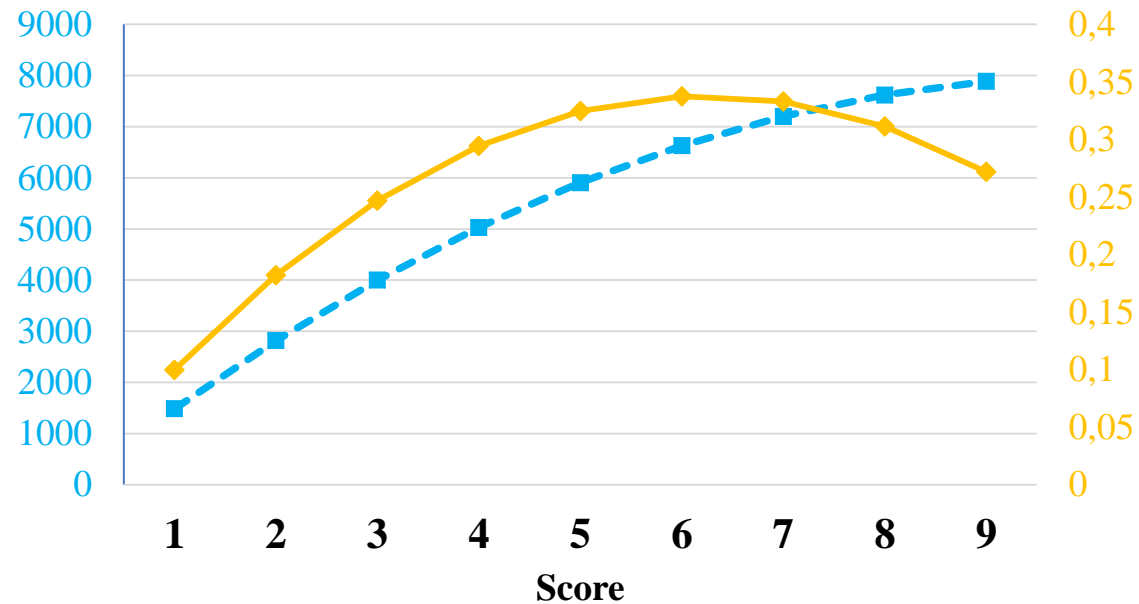
MILK YIELD		
	Average \pm SD	MIN - MAX
Cows: 247 790		
Year of birth		2002 - 2015
Number of lactations (in total 570 671)	1,89 \pm 0,95	1 - 4
Age of the scaled cow	844 \pm 74 days	650 – 1206
Number of days from calving	87 \pm 33	30 - 210
Kg milk	9 749 \pm 2 044 kg	5 079 – 16 622
LONGEVITY		
Cows: 228 161		
Number of days from calving	87 \pm 33 days	30 – 210
Lifetime production	22 174 \pm 14 265 kg	1004 – 95 480 kg
Number of lactations	2,5 \pm 1,3	1 – 6



REAR UDDER WIDTH



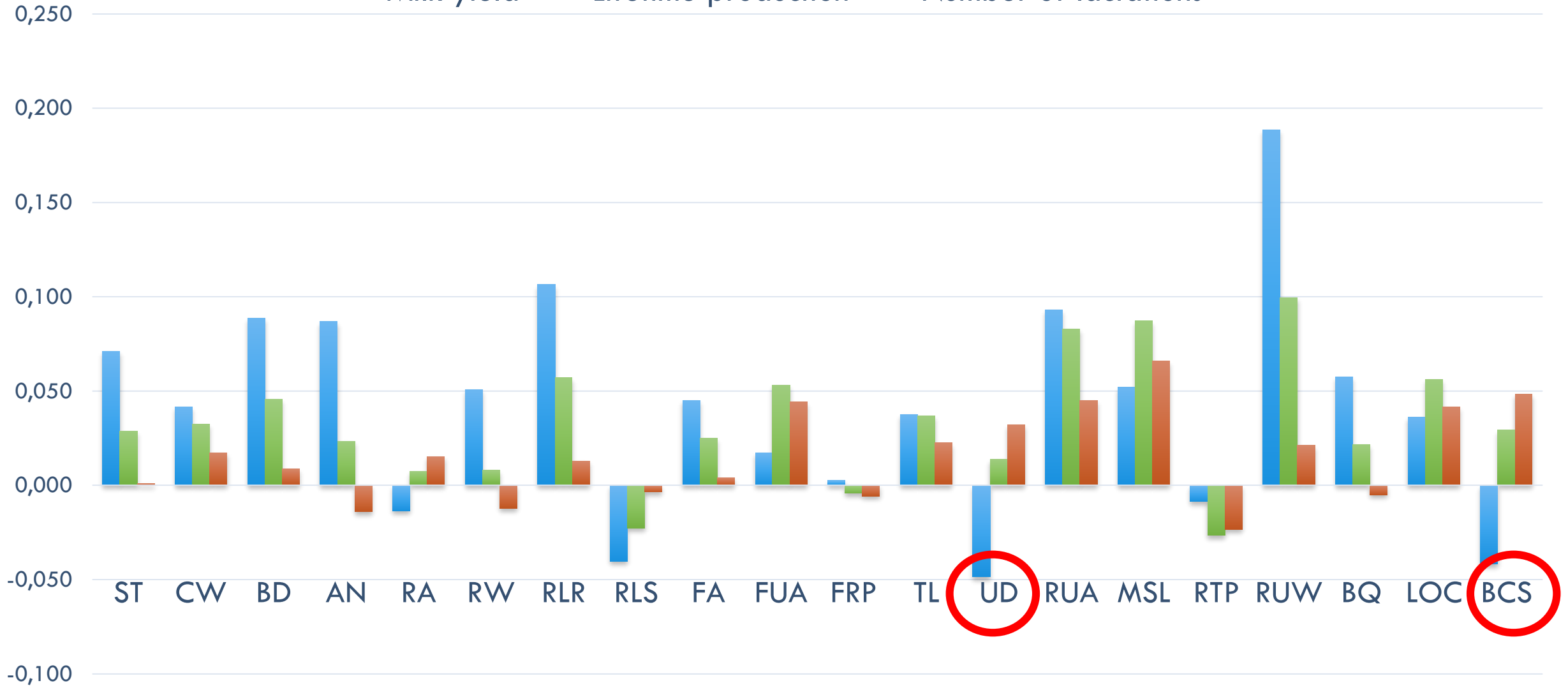
● Milk Yield



■ Lifetime production ◆ Number of lactations

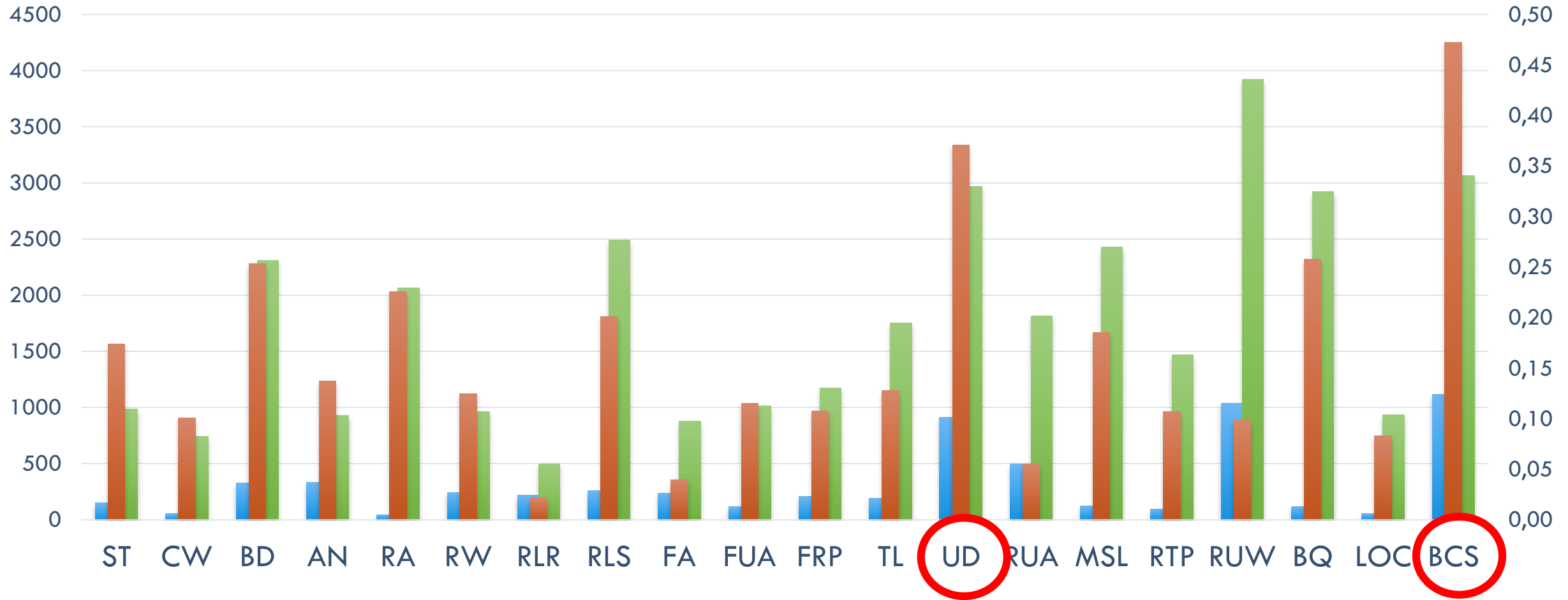
CORRELATIONS

■ Milk yield ■ Lifetime production ■ Number of lactations



CONTRIBUTION OF TRAITS

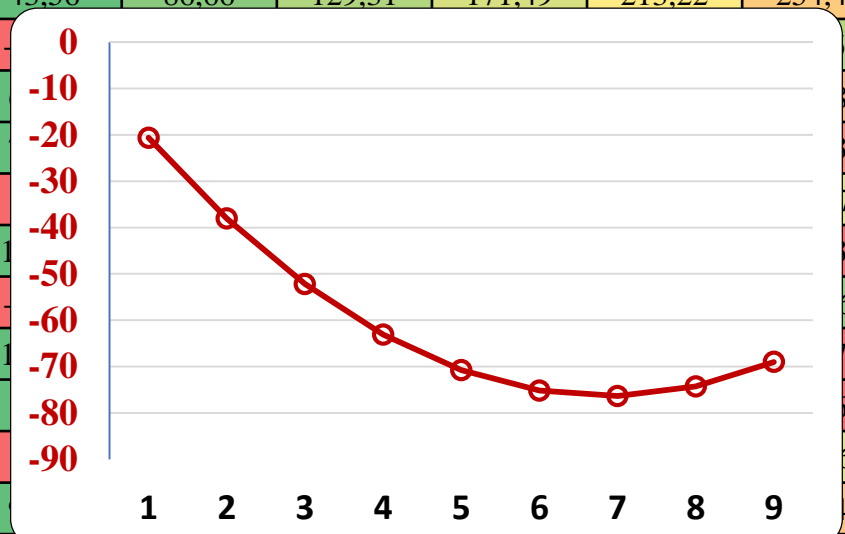
■ Milk yield
 ■ Lifetime production
 ■ Number of lactations



Stature	Chest width	Body depth	Angularity	Rump angle	Rump width	Rear leg set - rear view	Rear leg set - side view	Foot angle	Fore udder attachment	Front teat placement	Teat length	Udder depth	Rear udder attachment	Medial suspensory ligament	Rear teat placement	Rear udder width	Bone quality	Locomotion	Body condition score
ST	CW	BD	AN	RA	RW	RLR	RLS	FA	FUA	FRP	TL	UD	RUA	MSL	RTP	RUW	BQ	LOC	BCS

WITH CONSIDERED INTERACTIONS

Znak	1	2	3	4	5	6	7	8	9
ST	0,93	16,48	28,64	43,43	60,83	80,85	103,49	128,75	156,63
CW	-20,64	-38,03	-52,18	-63,09	-70,76	-75,18	-76,36	-74,31	-69,01
BD	26,62	180,71	252,27	311,31	357,82	391,80	413,26	422,18	418,59
AN	43,56	86,66	129,31	171,49	213,22	254,49	295,30	335,65	
RA						3	-55,90	-57,60	
RW						5	286,55	299,18	
RLR						0	293,75	289,70	
RLS						71	-151,48	-201,30	
FA						6	334,55	309,55	
FUA						60	-157,30	-156,08	
FRP						8	289,92	249,64	
TL						51	268,10	245,33	
UD						56	-540,25	-716,63	
RUA						1	523,18	564,64	
MSL									
RTP	11,57	23,95	37,14	51,14	65,95	81,57	98,00	115,24	133,29
RUW	25,68	43,82	54,41	57,47	52,99	40,97	21,41	-5,69	-40,32
BQ	13,27	52,44	117,51	208,47	325,34	468,09	636,75	831,30	1051,75
LOC	63,46	113,48	150,06	173,21	182,91	179,17	162,00	131,38	87,33
BCS	28,70	51,37	68,02	78,63	83,22	81,78	74,31	60,81	41,29
BCS	122,64	189,20	199,68	154,08	52,39	-105,38	-319,23	-589,16	-915,18



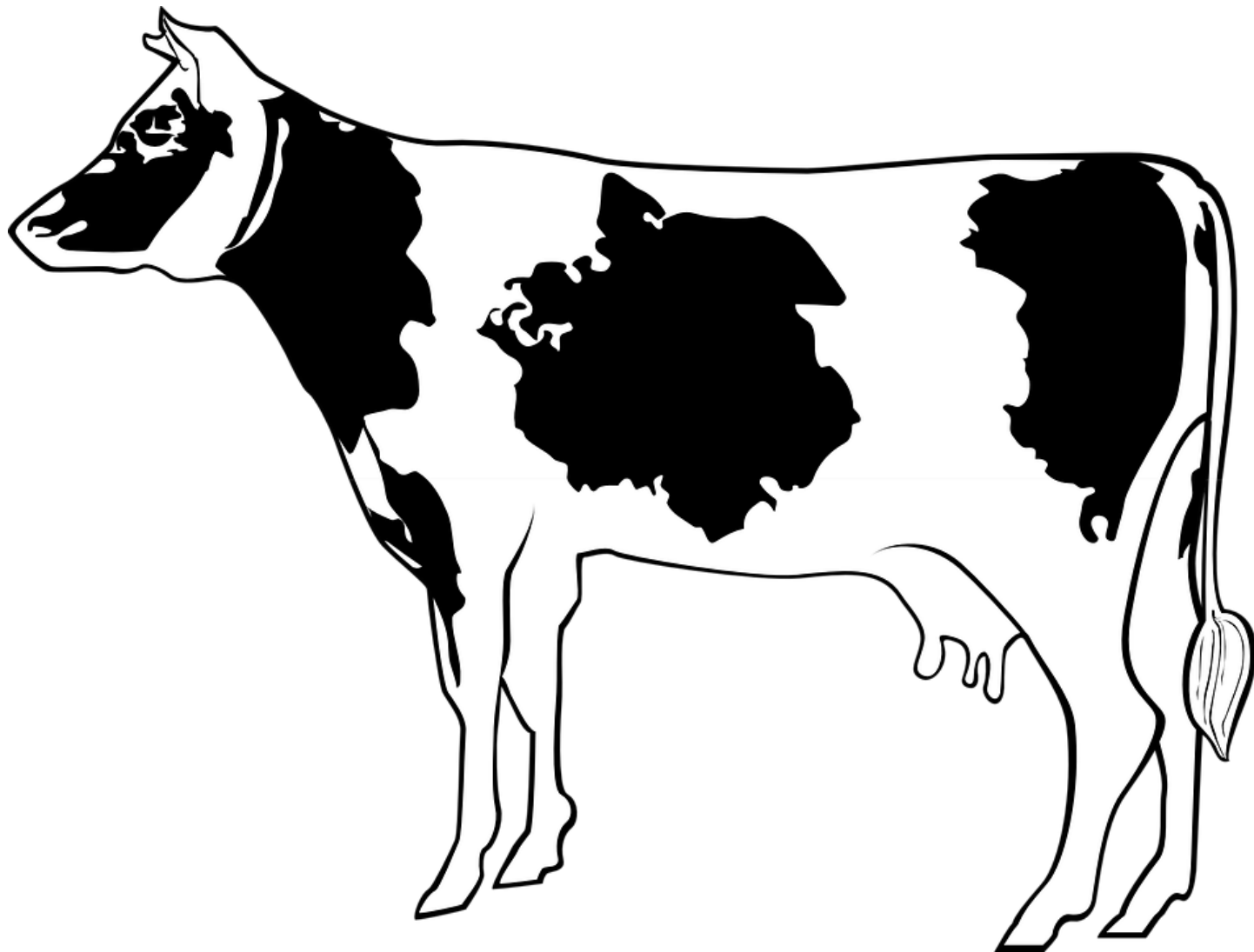
INFLUENCE OF OTHER TRAITS



CONCLUSION

- Correlation X real contribution
- Interactions between traits
- Reliability 2,3% for milk yield

THANK YOU FOR YOUR ATTENTION



noskovaadela@seznam.cz