

STØTTET AF

# Mælkeafgiftsfonden

Comparison of Singlestep and current evaluation for type traits

**'HOL summery stastistics for SS and current breeding value for genotyped females without phenotype,  
by birth year**

Obs	BYR	name	no	mean_ss	mean_two	std_ss	std_two	mean_dif	std_dif	corr_SS_Two
1	2019	Stature	28031	100.9	99.9	9.8	9.0	1.0	2.3	0.97
2	2020	Stature	53726	102.5	101.3	9.7	8.8	1.2	2.4	0.97
3	2021	Stature	54876	103.7	102.4	9.3	8.6	1.3	2.4	0.97
4	2022	Stature	3967	104.6	103.2	9.5	8.7	1.4	2.4	0.97
5	2019	Body_depth	28025	99.7	99.6	8.9	8.2	0.1	2.6	0.96
6	2020	Body_depth	53724	99.6	99.5	8.5	7.9	0.1	2.7	0.95
7	2021	Body_depth	54876	100.4	100.1	8.1	7.6	0.3	2.7	0.94
8	2022	Body_depth	3967	100.4	100.0	8.3	7.7	0.4	2.6	0.95
9	2019	Chest_width	28025	99.5	99.3	9.2	8.9	0.2	3.0	0.95
10	2020	Chest_width	53724	99.7	99.2	8.7	8.5	0.4	3.1	0.94
11	2021	Chest_width	54876	99.1	98.5	8.3	8.3	0.6	3.0	0.93
12	2022	Chest_width	3967	99.0	98.5	8.2	8.1	0.5	3.0	0.93
13	2019	Dairy_form	28025	101.0	100.5	7.2	6.7	0.5	2.5	0.94
14	2020	Dairy_form	53724	101.7	101.1	7.5	7.0	0.5	2.5	0.94
15	2021	Dairy_form	54876	103.6	102.8	7.2	6.8	0.8	2.5	0.94
16	2022	Dairy_form	3967	104.4	103.5	7.2	6.9	0.9	2.5	0.94
17	2019	top_line	28025	100.3	100.5	8.0	7.8	-0.2	2.4	0.96
18	2020	top_line	53724	99.3	99.4	7.8	7.7	-0.1	2.4	0.95
19	2021	top_line	54876	99.7	99.7	7.7	7.6	0.0	2.5	0.94
20	2022	top_line	3967	100.0	99.8	7.4	7.5	0.1	2.5	0.94
21	2019	Rump_width	28025	99.6	99.2	10.0	9.7	0.5	2.8	0.96
22	2020	Rump_width	53724	100.4	100.0	9.5	9.2	0.5	2.8	0.95
23	2021	Rump_width	54876	100.9	100.6	9.0	8.9	0.3	2.9	0.95
24	2022	Rump_width	3967	101.8	101.4	9.0	8.8	0.4	2.9	0.95
25	2019	Rump_angle	28025	100.5	100.2	9.4	8.8	0.2	2.4	0.97
26	2020	Rump_angle	53724	101.1	100.8	9.2	8.6	0.3	2.5	0.96
27	2021	Rump_angle	54876	99.4	99.4	9.1	8.6	0.0	2.5	0.96
28	2022	Rump_angle	3967	99.5	99.4	9.1	8.6	0.1	2.6	0.96
29	2019	Rear_legs_sv	28025	98.9	99.7	9.7	8.8	-0.7	3.1	0.95
30	2020	Rear_legs_sv	53724	100.7	100.8	9.4	8.5	-0.1	3.1	0.94
31	2021	Rear_legs_sv	54876	99.5	99.6	9.1	8.3	-0.1	3.1	0.94
32	2022	Rear_legs_sv	3967	99.1	99.3	9.0	8.3	-0.2	3.1	0.94
33	2019	Rear_legs_bv	28025	101.0	99.6	9.1	8.2	1.4	3.3	0.93
34	2020	Rear_legs_bv	53724	100.8	99.6	8.7	8.1	1.3	3.4	0.92
35	2021	Rear_legs_bv	54876	101.6	100.4	8.3	7.7	1.1	3.5	0.91
36	2022	Rear_legs_bv	3967	101.0	99.8	8.4	7.7	1.2	3.5	0.91

**'HOL summery stastistics for SS and current breeding value for genotyped females without phenotype,  
by birth year**

Obs	BYR	name	no	mean_ss	mean_two	std_ss	std_two	mean_dif	std_dif	corr_SS_Two
37	2019	Hock_quality	28025	100.7	100.5	8.4	7.5	0.2	2.6	0.95
38	2020	Hock_quality	53724	102.3	102.0	8.2	7.4	0.3	2.7	0.95
39	2021	Hock_quality	54876	103.6	103.4	8.1	7.3	0.3	2.7	0.94
40	2022	Hock_quality	3967	104.0	103.6	7.8	7.1	0.3	2.7	0.94
41	2019	Bone_quality	28025	101.5	101.5	9.4	8.9	0.1	2.5	0.96
42	2020	Bone_quality	53724	101.7	101.8	9.3	8.8	-0.1	2.6	0.96
43	2021	Bone_quality	54876	103.9	103.8	9.1	8.6	0.1	2.6	0.96
44	2022	Bone_quality	3967	104.0	103.7	8.8	8.5	0.3	2.6	0.96
45	2019	Foot_angle	28025	101.4	100.6	7.8	7.0	0.8	3.3	0.91
46	2020	Foot_angle	53724	101.9	101.1	7.6	6.9	0.7	3.3	0.90
47	2021	Foot_angle	54876	101.5	101.2	7.4	6.8	0.3	3.3	0.89
48	2022	Foot_angle	3967	101.2	101.0	7.5	6.9	0.2	3.3	0.90
49	2019	Fore_udder_att	28026	101.4	99.5	8.3	6.8	1.9	3.0	0.94
50	2020	Fore_udder_att	53725	102.6	100.5	8.2	6.8	2.1	3.0	0.94
51	2021	Fore_udder_att	54876	103.8	101.7	8.3	6.9	2.1	3.1	0.93
52	2022	Fore_udder_att	3967	104.5	102.2	8.0	6.7	2.2	3.0	0.93
53	2019	Rear_udder_hei	28026	101.4	100.2	9.3	8.5	1.2	2.9	0.95
54	2020	Rear_udder_hei	53725	102.8	101.5	9.0	8.2	1.2	3.0	0.94
55	2021	Rear_udder_hei	54876	105.2	103.9	8.7	8.1	1.3	3.1	0.93
56	2022	Rear_udder_hei	3967	107.0	105.1	8.5	8.0	1.8	3.0	0.93
57	2019	Rear_udder_wid	28026	101.2	99.9	8.4	7.4	1.3	2.6	0.95
58	2020	Rear_udder_wid	53725	101.3	100.1	8.3	7.3	1.2	2.7	0.95
59	2021	Rear_udder_wid	54876	103.0	101.8	7.8	6.9	1.2	2.7	0.94
60	2022	Rear_udder_wid	3967	103.9	102.5	7.8	6.9	1.4	2.7	0.94
61	2019	Udder_cleft_su	28026	100.0	99.4	8.7	8.6	0.7	2.8	0.95
62	2020	Udder_cleft_su	53725	100.7	99.8	8.6	8.6	0.9	2.9	0.94
63	2021	Udder_cleft_su	54876	101.2	100.6	8.4	8.4	0.6	3.0	0.94
64	2022	Udder_cleft_su	3967	102.1	101.5	8.1	8.1	0.6	3.0	0.93
65	2019	Udder_depth	28026	101.7	101.2	10.1	9.4	0.4	2.8	0.96
66	2020	Udder_depth	53725	103.5	102.8	9.9	9.2	0.6	2.8	0.96
67	2021	Udder_depth	54876	105.5	104.6	10.0	9.4	1.0	2.9	0.96
68	2022	Udder_depth	3967	106.8	105.7	10.0	9.3	1.1	2.9	0.96
69	2019	Teat_length	28026	100.6	100.6	8.7	8.6	0.0	2.3	0.96
70	2020	Teat_length	53725	100.5	100.6	8.6	8.5	0.0	2.4	0.96
71	2021	Teat_length	54876	99.7	99.8	8.4	8.4	-0.1	2.5	0.96
72	2022	Teat_length	3967	99.5	99.5	8.3	8.3	0.0	2.5	0.96

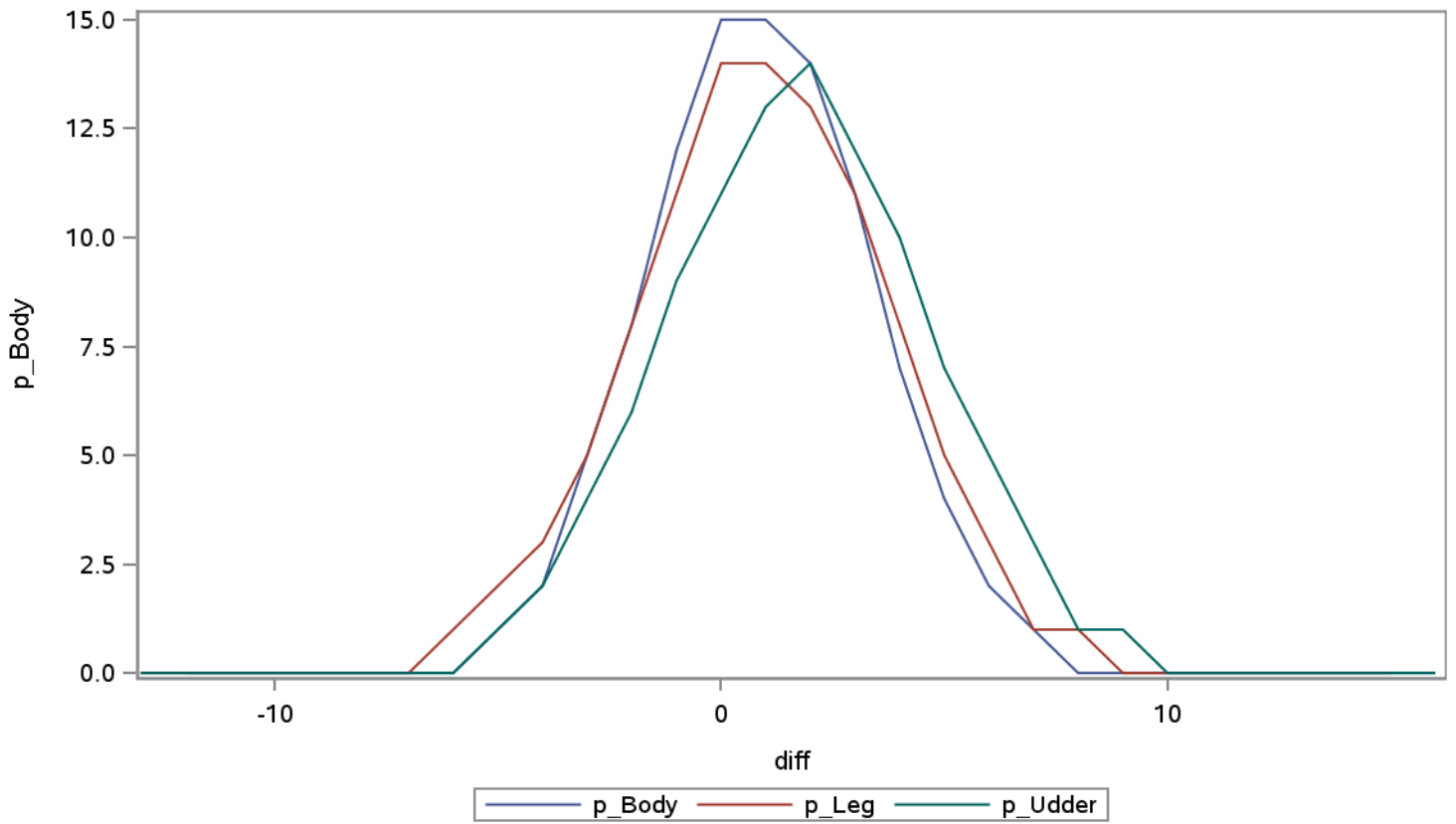
**'HOL summery stastistics for SS and current breeding value for genotyped females without phenotype,  
by birth year**

Obs	BYR	name	no	mean_ss	mean_two	std_ss	std_two	mean_dif	std_dif	corr_SS_Two
73	2019	Teat_thickness	28026	100.1	100.5	9.7	8.1	-0.3	2.8	0.97
74	2020	Teat_thickness	53725	99.8	100.3	9.3	7.9	-0.4	2.7	0.96
75	2021	Teat_thickness	54876	99.1	99.7	9.1	7.8	-0.5	2.8	0.96
76	2022	Teat_thickness	3967	98.4	98.9	9.0	7.8	-0.4	2.8	0.96
77	2019	Teat_place_f	28026	101.1	100.5	9.0	8.3	0.5	2.6	0.96
78	2020	Teat_place_f	53725	100.7	100.1	9.0	8.4	0.7	2.5	0.96
79	2021	Teat_place_f	54876	101.4	100.8	8.9	8.4	0.6	2.5	0.96
80	2022	Teat_place_f	3967	102.0	101.5	8.8	8.3	0.6	2.6	0.96
81	2019	Teat_place_B	28026	100.1	100.3	9.0	9.4	-0.2	2.9	0.95
82	2020	Teat_place_B	53725	101.2	101.1	9.0	9.5	0.1	2.9	0.95
83	2021	Teat_place_B	54876	101.8	101.5	8.9	9.6	0.2	2.9	0.95
84	2022	Teat_place_B	3967	102.9	102.4	8.6	9.4	0.5	2.9	0.95
85	2019	Udder_balance	28026	100.8	100.4	10.7	9.8	0.5	3.1	0.96
86	2020	Udder_balance	53725	100.5	100.0	10.6	9.7	0.5	3.1	0.96
87	2021	Udder_balance	54876	101.7	100.7	10.1	9.3	1.0	3.1	0.95
88	2022	Udder_balance	3967	102.2	101.1	9.9	9.2	1.1	3.1	0.95
89	2019	Body	28031	100.3	99.5	9.7	9.2	0.8	2.6	0.96
90	2020	Body	53726	101.3	100.4	9.5	9.0	0.9	2.6	0.96
91	2021	Body	54876	102.5	101.4	9.1	8.7	1.1	2.6	0.96
92	2022	Body	3967	103.3	102.1	9.3	8.9	1.2	2.6	0.96
93	2019	leg	28025	101.3	100.3	7.7	7.3	1.0	2.7	0.94
94	2020	leg	53724	102.0	101.0	7.5	7.2	0.9	2.8	0.93
95	2021	leg	54876	103.6	102.9	7.2	7.0	0.8	2.9	0.92
96	2022	leg	3967	103.5	102.6	7.1	6.9	0.9	2.8	0.92
97	2019	udder	28026	101.6	100.0	8.9	8.3	1.6	2.9	0.95
98	2020	udder	53725	103.4	101.7	8.8	8.4	1.8	2.9	0.94
99	2021	udder	54876	105.4	103.7	8.9	8.4	1.7	3.0	0.94
100	2022	udder	3967	106.7	104.9	8.5	8.0	1.8	2.9	0.94

**distribution of differences in number of females and in percentage**

Obs	diff	d_Body	d_Leg	d_Udder	p_Body	p_Leg	p_Udder
1	-13	.	1	1	.	0	0
2	-12	1	1	.	0	0	.
3	-11	2	7	.	0	0	.
4	-10	1	8	9	0	0	0
5	-9	12	45	17	0	0	0
6	-8	53	174	102	0	0	0
7	-7	196	387	236	0	0	0
8	-6	610	1029	653	0	1	0
9	-5	1484	2198	1420	1	2	1
10	-4	3408	4338	2836	2	3	2
11	-3	6767	7549	5202	5	5	4
12	-2	11270	11787	8529	8	8	6
13	-1	16407	15990	12330	12	11	9
14	0	20525	19253	16066	15	14	11
15	1	21743	20100	18676	15	14	13
16	2	20106	18468	19014	14	13	14
17	3	15667	14827	17545	11	11	12
18	4	10282	10709	14276	7	8	10
19	5	6208	6702	10105	4	5	7
20	6	3253	3701	6590	2	3	5
21	7	1538	1910	3765	1	1	3
22	8	636	847	1851	0	1	1
23	9	244	354	819	0	0	1
24	10	88	135	340	0	0	0
25	11	55	43	135	0	0	0
26	12	22	16	47	0	0	0
27	13	12	6	16	0	0	0
28	14	8	6	10	0	0	0
29	15	1	1	2	0	0	0
30	16	1	.	2	0	.	0

## distribution of differences in number of females and in percentage



**'JER summary statistics for SS and current breeding value for genotyped females without phenotype, by birth year**

Obs	BYR	name	no	mean_ss	mean_two	std_ss	std_two	mean_dif	std_dif	corr_SS_Two
1	2019	Stature	8070	103.2	101.3	8.9	9.5	1.9	2.2	0.97
2	2020	Stature	13943	103.7	101.3	8.5	9.1	2.4	2.2	0.97
3	2021	Stature	14226	103.3	101.2	8.7	9.3	2.1	2.3	0.97
4	2022	Stature	3282	104.0	101.7	8.7	9.1	2.3	2.2	0.97
5	2019	Body_depth	8064	100.3	99.9	9.2	9.1	0.4	2.4	0.96
6	2020	Body_depth	13943	100.4	99.9	8.8	8.9	0.4	2.5	0.96
7	2021	Body_depth	14226	98.8	98.4	8.3	8.5	0.4	2.5	0.96
8	2022	Body_depth	3282	98.8	98.3	8.7	8.7	0.5	2.5	0.96
9	2019	Chest_width	8064	100.4	100.2	9.9	11.6	0.2	3.6	0.96
10	2020	Chest_width	13943	101.1	100.8	10.2	11.9	0.3	3.6	0.96
11	2021	Chest_width	14226	100.4	100.2	9.2	10.7	0.2	3.7	0.94
12	2022	Chest_width	3282	99.8	99.6	9.2	10.8	0.3	3.7	0.94
13	2019	Dairy_form	8064	102.4	99.9	8.9	7.4	2.5	2.7	0.96
14	2020	Dairy_form	13943	102.3	99.9	9.2	7.7	2.4	2.7	0.97
15	2021	Dairy_form	14226	102.7	100.3	8.4	7.1	2.4	2.6	0.96
16	2022	Dairy_form	3282	103.0	100.4	8.2	7.0	2.6	2.6	0.95
17	2019	top_line	8064	102.4	101.8	8.8	9.2	0.6	2.4	0.97
18	2020	top_line	13943	102.9	102.4	8.4	8.8	0.6	2.4	0.96
19	2021	top_line	14226	103.0	102.4	8.8	9.0	0.6	2.5	0.96
20	2022	top_line	3282	101.7	101.4	9.0	9.2	0.3	2.4	0.97
21	2019	Rump_width	8064	100.3	99.6	9.1	10.6	0.7	2.7	0.97
22	2020	Rump_width	13943	100.4	99.4	8.5	10.0	1.0	2.7	0.97
23	2021	Rump_width	14226	100.0	99.1	8.1	9.7	0.9	2.9	0.96
24	2022	Rump_width	3282	101.2	100.9	8.0	9.5	0.3	2.8	0.97
25	2019	Rump_angle	8064	101.0	100.8	8.6	9.1	0.2	2.2	0.97
26	2020	Rump_angle	13943	100.6	100.3	8.0	8.6	0.3	2.2	0.97
27	2021	Rump_angle	14226	99.8	99.4	8.1	8.8	0.4	2.2	0.97
28	2022	Rump_angle	3282	101.3	100.9	8.0	8.8	0.4	2.2	0.97
29	2019	Rear_legs_sv	8064	101.4	101.6	7.9	8.4	-0.3	2.5	0.95
30	2020	Rear_legs_sv	13943	99.8	100.3	7.6	8.0	-0.5	2.5	0.95
31	2021	Rear_legs_sv	14226	101.2	101.5	7.3	7.9	-0.3	2.6	0.94
32	2022	Rear_legs_sv	3282	99.8	100.3	7.9	8.2	-0.5	2.6	0.95
33	2019	Rear_legs_bv	8064	99.7	98.9	8.3	9.9	0.7	3.0	0.96
34	2020	Rear_legs_bv	13943	102.3	102.2	8.0	9.5	0.1	3.0	0.95
35	2021	Rear_legs_bv	14226	101.0	100.7	7.5	8.9	0.3	3.2	0.94
36	2022	Rear_legs_bv	3282	101.2	100.7	7.4	8.7	0.5	3.0	0.94

**'JER summery statistics for SS and current breeding value for genotyped females without phenotype, by birth year**

Obs	BYR	name	no	mean_ss	mean_two	std_ss	std_two	mean_dif	std_dif	corr_SS_Two
37	2019	Hock_quality	8064	100.7	100.7	11.6	14.7	-0.1	4.4	0.97
38	2020	Hock_quality	13943	100.2	100.2	11.3	14.3	0.0	4.4	0.97
39	2021	Hock_quality	14226	102.6	103.3	10.0	12.7	-0.7	4.3	0.96
40	2022	Hock_quality	3282	103.0	102.8	9.9	12.6	0.2	4.3	0.95
41	2019	Bone_quality	8064	100.5	101.4	10.1	12.3	-0.9	3.6	0.97
42	2020	Bone_quality	13943	100.5	101.7	10.5	12.9	-1.2	3.8	0.97
43	2021	Bone_quality	14226	101.1	102.3	8.9	10.8	-1.2	3.7	0.95
44	2022	Bone_quality	3282	101.0	102.0	9.1	11.1	-1.0	3.8	0.95
45	2019	Foot_angle	8064	101.1	100.1	8.8	8.8	1.0	2.7	0.95
46	2020	Foot_angle	13943	102.2	101.1	7.8	7.9	1.0	2.7	0.94
47	2021	Foot_angle	14226	102.1	101.3	7.9	8.0	0.8	2.7	0.94
48	2022	Foot_angle	3282	104.0	103.2	8.0	8.0	0.8	3.0	0.93
49	2019	Fore_udder_att	8065	101.8	101.1	9.6	9.8	0.7	2.3	0.97
50	2020	Fore_udder_att	13943	102.5	101.6	9.1	9.4	0.9	2.4	0.97
51	2021	Fore_udder_att	14226	103.3	102.3	8.3	8.6	1.0	2.3	0.96
52	2022	Fore_udder_att	3282	103.3	102.3	8.0	8.4	1.0	2.3	0.96
53	2019	Rear_udder_hei	8065	101.9	100.8	7.3	6.5	1.1	2.2	0.96
54	2020	Rear_udder_hei	13943	102.3	101.0	7.4	6.7	1.2	2.1	0.96
55	2021	Rear_udder_hei	14226	103.4	102.3	7.2	6.4	1.1	2.2	0.96
56	2022	Rear_udder_hei	3282	104.3	103.0	6.9	6.1	1.3	2.1	0.95
57	2019	Rear_udder_wid	8065	101.3	100.1	7.4	6.9	1.2	2.1	0.96
58	2020	Rear_udder_wid	13943	103.3	102.1	7.5	7.1	1.3	2.1	0.96
59	2021	Rear_udder_wid	14226	101.7	100.5	7.1	6.8	1.1	2.0	0.96
60	2022	Rear_udder_wid	3282	102.3	101.3	6.8	6.3	1.0	2.0	0.95
61	2019	Udder_cleft_su	8065	99.8	99.8	8.9	9.6	0.0	2.7	0.96
62	2020	Udder_cleft_su	13943	99.5	99.2	8.8	9.6	0.2	2.8	0.96
63	2021	Udder_cleft_su	14226	100.8	100.5	8.2	8.9	0.3	2.8	0.95
64	2022	Udder_cleft_su	3282	101.3	101.2	8.3	9.1	0.1	2.8	0.95
65	2019	Udder_depth	8065	103.2	102.0	10.3	9.7	1.2	2.2	0.98
66	2020	Udder_depth	13943	102.9	101.6	9.6	9.1	1.3	2.2	0.97
67	2021	Udder_depth	14226	105.1	103.7	9.4	8.9	1.4	2.3	0.97
68	2022	Udder_depth	3282	105.3	103.8	9.1	8.6	1.5	2.3	0.97
69	2019	Teat_length	8064	100.6	100.1	11.4	11.4	0.5	2.4	0.98
70	2020	Teat_length	13943	99.9	99.7	10.9	11.0	0.2	2.4	0.98
71	2021	Teat_length	14226	99.3	99.3	10.8	11.0	0.0	2.5	0.97
72	2022	Teat_length	3282	98.9	98.8	9.9	10.1	0.1	2.5	0.97



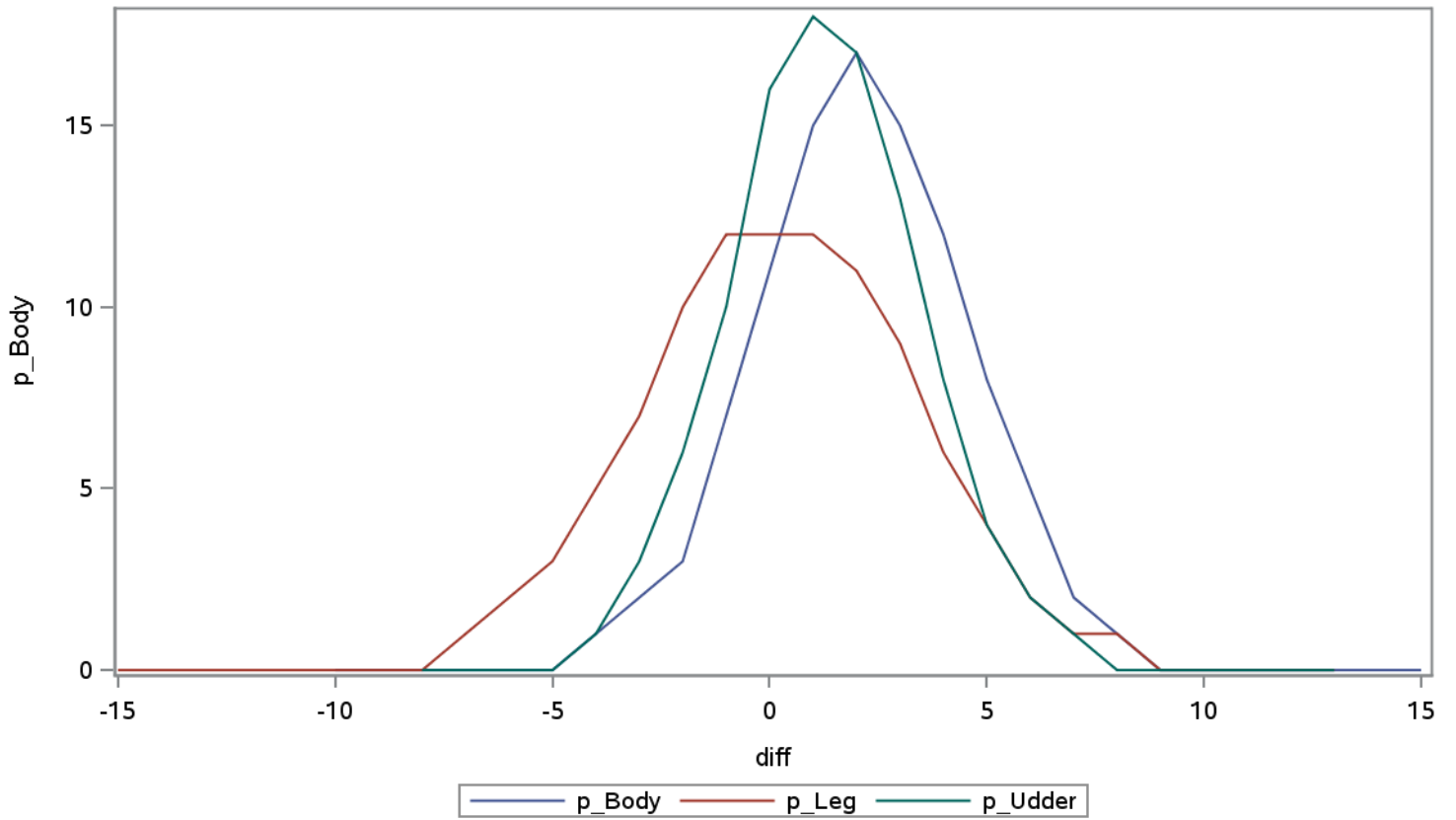
**'JER summery statistics for SS and current breeding value for genotyped females without phenotype,  
by birth year**

Obs	BYR	name	no	mean_ss	mean_two	std_ss	std_two	mean_dif	std_dif	corr_SS_Two
73	2019	Teat_thickness	8064	100.6	100.3	8.9	8.8	0.2	2.0	0.98
74	2020	Teat_thickness	13943	100.5	100.5	8.4	8.4	0.0	2.0	0.97
75	2021	Teat_thickness	14226	100.7	100.6	8.0	8.1	0.0	2.0	0.97
76	2022	Teat_thickness	3282	100.3	100.3	7.9	7.9	0.0	2.0	0.97
77	2019	Teat_place_f	8065	100.4	100.1	9.8	10.6	0.3	2.6	0.97
78	2020	Teat_place_f	13943	101.2	100.7	9.8	10.6	0.4	2.5	0.97
79	2021	Teat_place_f	14226	100.2	100.1	8.8	9.7	0.1	2.6	0.97
80	2022	Teat_place_f	3282	101.4	101.5	8.8	9.9	-0.1	2.6	0.97
81	2019	Teat_place_B	8065	100.3	100.3	10.7	12.1	0.0	3.3	0.96
82	2020	Teat_place_B	13943	100.1	99.6	10.5	12.2	0.5	3.4	0.96
83	2021	Teat_place_B	14226	99.8	99.5	9.7	11.5	0.3	3.5	0.96
84	2022	Teat_place_B	3282	100.9	100.8	10.0	12.2	0.0	3.8	0.96
85	2019	Udder_balance	8065	100.7	100.7	9.0	10.1	-0.1	2.4	0.97
86	2020	Udder_balance	13943	100.5	100.6	8.2	9.3	-0.1	2.5	0.97
87	2021	Udder_balance	14226	100.1	100.3	8.4	9.6	-0.2	2.5	0.97
88	2022	Udder_balance	3282	99.7	99.9	8.3	9.6	-0.2	2.6	0.97
89	2019	Body	8070	102.8	100.8	9.0	9.6	2.0	2.4	0.97
90	2020	Body	13943	103.6	101.3	8.5	9.2	2.4	2.4	0.97
91	2021	Body	14226	103.4	101.2	8.7	9.1	2.2	2.5	0.96
92	2022	Body	3282	103.1	101.0	9.2	9.5	2.1	2.4	0.97
93	2019	leg	8064	100.2	99.6	8.8	10.2	0.6	3.1	0.96
94	2020	leg	13943	102.2	101.8	8.4	10.1	0.4	3.2	0.95
95	2021	leg	14226	102.1	102.1	7.8	9.1	0.0	3.2	0.94
96	2022	leg	3282	103.8	103.2	8.3	9.4	0.6	3.2	0.94
97	2019	udder	8065	102.5	101.4	9.5	9.3	1.1	2.2	0.97
98	2020	udder	13943	102.7	101.5	9.0	8.9	1.2	2.3	0.97
99	2021	udder	14226	104.8	103.5	8.6	8.4	1.3	2.2	0.97
100	2022	udder	3282	105.0	103.5	8.2	8.0	1.4	2.3	0.96

**distribution of differences in number of females and in percentage**

Obs	diff	d_Body	d_Leg	d_Udder	p_Body	p_Leg	p_Udder
1	-15	.	1	.	.	0	.
2	-13	.	1	.	.	0	.
3	-12	.	2	.	.	0	.
4	-11	.	6	.	.	0	.
5	-10	1	16	.	0	0	.
6	-9	.	83	.	.	0	.
7	-8	3	161	7	0	0	0
8	-7	7	328	14	0	1	0
9	-6	16	701	56	0	2	0
10	-5	62	1275	173	0	3	0
11	-4	221	1952	507	1	5	1
12	-3	605	2862	1186	2	7	3
13	-2	1357	3853	2346	3	10	6
14	-1	2785	4608	4121	7	12	10
15	0	4365	4826	6139	11	12	16
16	1	5977	4925	6965	15	12	18
17	2	6636	4187	6673	17	11	17
18	3	6045	3474	5231	15	9	13
19	4	4644	2553	3330	12	6	8
20	5	3269	1712	1709	8	4	4
21	6	1835	968	724	5	2	2
22	7	942	569	235	2	1	1
23	8	450	246	72	1	1	0
24	9	190	133	21	0	0	0
25	10	75	50	5	0	0	0
26	11	17	15	1	0	0	0
27	12	13	5	.	0	0	.
28	13	4	3	1	0	0	0
29	14	1	.	.	0	.	.
30	15	1	.	.	0	.	.

distribution of differences in number of females and in percentage



**'RDC summery statistics for SS and current breeding value for genotyped females without phenotype, by birth year**

Obs	BYR	name	no	mean_ss	mean_two	std_ss	std_two	mean_dif	std_dif	corr_SS_Two
1	2019	Stature	10668	101.1	99.5	10.3	6.4	1.6	4.4	0.96
2	2020	Stature	21497	101.6	99.8	9.9	6.2	1.9	4.3	0.96
3	2021	Stature	22063	102.7	100.4	9.7	6.2	2.3	4.1	0.96
4	2022	Stature	1983	101.6	99.8	9.2	6.0	1.8	3.9	0.95
5	2019	Body_depth	10668	101.9	101.1	9.1	8.0	0.9	2.5	0.97
6	2020	Body_depth	21497	103.4	102.2	9.3	8.1	1.3	2.6	0.96
7	2021	Body_depth	22063	102.6	101.6	9.1	8.0	1.1	2.6	0.96
8	2022	Body_depth	1983	101.5	100.7	8.5	7.5	0.8	2.6	0.96
9	2019	Chest_width	10668	100.9	101.0	8.7	8.3	-0.2	2.5	0.96
10	2020	Chest_width	21497	102.0	102.0	8.3	7.9	0.0	2.5	0.95
11	2021	Chest_width	22063	101.6	101.7	8.3	7.9	-0.1	2.6	0.95
12	2022	Chest_width	1983	100.2	100.5	7.7	7.2	-0.3	2.6	0.94
13	2019	Dairy_form	10668	101.8	100.8	4.8	4.8	1.0	1.8	0.93
14	2020	Dairy_form	21497	101.9	101.0	4.5	4.4	0.9	1.9	0.91
15	2021	Dairy_form	22063	102.0	101.2	4.5	4.5	0.7	2.0	0.90
16	2022	Dairy_form	1983	102.6	101.8	4.3	4.4	0.8	2.0	0.89
17	2019	top_line	10668	99.8	99.5	8.6	8.3	0.3	2.3	0.96
18	2020	top_line	21497	101.2	100.8	7.9	7.7	0.4	2.3	0.96
19	2021	top_line	22063	100.9	100.4	7.8	7.7	0.5	2.3	0.96
20	2022	top_line	1983	101.0	100.3	7.4	7.2	0.6	2.2	0.96
21	2019	Rump_width	10668	101.2	100.8	9.6	7.9	0.4	2.8	0.97
22	2020	Rump_width	21497	101.2	100.7	9.3	7.6	0.5	2.8	0.96
23	2021	Rump_width	22063	101.8	101.1	9.1	7.5	0.7	2.8	0.96
24	2022	Rump_width	1983	100.6	100.2	8.9	7.3	0.4	2.8	0.96
25	2019	Rump_angle	10668	100.5	100.5	7.3	7.3	0.0	1.9	0.97
26	2020	Rump_angle	21497	100.5	100.6	7.2	7.2	-0.1	1.9	0.97
27	2021	Rump_angle	22063	99.9	100.0	7.1	7.1	-0.1	1.9	0.96
28	2022	Rump_angle	1983	99.4	99.4	6.8	6.8	0.0	2.0	0.96
29	2019	Rear_legs_sv	10668	100.8	101.2	6.4	6.9	-0.5	1.9	0.96
30	2020	Rear_legs_sv	21497	100.5	100.7	6.8	7.4	-0.2	2.0	0.97
31	2021	Rear_legs_sv	22063	99.7	99.8	6.5	7.0	0.0	2.0	0.96
32	2022	Rear_legs_sv	1983	100.2	100.4	6.2	6.7	-0.3	2.1	0.95
33	2019	Rear_legs_bv	10668	102.0	101.3	7.4	7.4	0.7	2.3	0.95
34	2020	Rear_legs_bv	21497	102.4	101.9	6.5	6.5	0.5	2.3	0.94
35	2021	Rear_legs_bv	22063	102.7	102.4	6.4	6.5	0.3	2.3	0.93
36	2022	Rear_legs_bv	1983	103.0	102.6	6.5	6.5	0.4	2.4	0.93

**'RDC summery statistics for SS and current breeding value for genotyped females without phenotype, by birth year**

Obs	BYR	name	no	mean_ss	mean_two	std_ss	std_two	mean_dif	std_dif	corr_SS_Two
37	2019	Hock_quality	10668	101.0	99.8	8.4	6.0	1.2	3.0	0.97
38	2020	Hock_quality	21497	102.6	101.1	8.1	5.7	1.6	3.0	0.96
39	2021	Hock_quality	22063	101.6	100.5	8.4	6.0	1.0	3.1	0.96
40	2022	Hock_quality	1983	103.4	101.8	8.0	5.7	1.7	3.0	0.96
41	2019	Bone_quality	10668	101.1	99.8	9.6	7.2	1.3	3.0	0.97
42	2020	Bone_quality	21497	102.2	100.8	9.3	6.9	1.5	3.0	0.97
43	2021	Bone_quality	22063	101.9	100.6	9.5	7.3	1.3	3.0	0.97
44	2022	Bone_quality	1983	103.6	101.8	9.1	7.0	1.9	2.9	0.97
45	2019	Foot_angle	10668	100.7	100.4	6.0	5.5	0.3	2.1	0.94
46	2020	Foot_angle	21497	100.9	100.8	5.9	5.4	0.2	2.1	0.93
47	2021	Foot_angle	22063	101.2	101.2	5.5	5.0	0.0	2.2	0.92
48	2022	Foot_angle	1983	100.5	100.6	5.3	5.0	-0.1	2.2	0.91
49	2019	Fore_udder_att	10669	102.3	100.5	7.6	6.3	1.8	2.6	0.95
50	2020	Fore_udder_att	21497	103.4	101.3	7.8	6.4	2.1	2.7	0.94
51	2021	Fore_udder_att	22063	103.4	101.7	7.4	6.1	1.6	2.8	0.93
52	2022	Fore_udder_att	1983	104.5	102.6	7.9	6.4	1.9	2.8	0.94
53	2019	Rear_udder_hei	10669	101.5	99.6	7.4	6.0	1.9	2.6	0.95
54	2020	Rear_udder_hei	21497	102.3	100.3	7.3	6.0	2.0	2.6	0.94
55	2021	Rear_udder_hei	22063	103.4	101.4	6.7	5.6	2.0	2.7	0.92
56	2022	Rear_udder_hei	1983	104.5	102.5	7.1	5.8	2.0	2.7	0.93
57	2019	Rear_udder_wid	10669	102.2	100.4	7.5	7.0	1.7	2.1	0.96
58	2020	Rear_udder_wid	21497	102.5	100.7	6.8	6.4	1.8	2.1	0.95
59	2021	Rear_udder_wid	22063	103.1	101.5	6.8	6.4	1.7	2.2	0.95
60	2022	Rear_udder_wid	1983	103.3	101.7	6.8	6.6	1.7	2.2	0.95
61	2019	Udder_cleft_su	10669	101.1	100.0	9.0	8.3	1.2	2.5	0.96
62	2020	Udder_cleft_su	21497	101.9	101.0	8.4	7.8	0.9	2.6	0.95
63	2021	Udder_cleft_su	22063	102.6	101.7	8.3	7.7	0.9	2.6	0.95
64	2022	Udder_cleft_su	1983	102.3	101.7	7.9	7.3	0.7	2.6	0.94
65	2019	Udder_depth	10669	101.8	100.2	8.8	7.9	1.6	2.2	0.97
66	2020	Udder_depth	21497	102.7	100.9	8.5	7.6	1.8	2.2	0.97
67	2021	Udder_depth	22063	102.5	101.2	8.2	7.4	1.3	2.2	0.97
68	2022	Udder_depth	1983	103.8	102.5	8.2	7.5	1.4	2.2	0.97
69	2019	Teat_length	10669	100.5	100.7	8.9	8.0	-0.3	2.1	0.97
70	2020	Teat_length	21497	101.6	101.7	8.4	7.6	-0.1	2.1	0.97
71	2021	Teat_length	22063	102.1	102.1	8.4	7.6	0.0	2.1	0.97
72	2022	Teat_length	1983	101.6	101.9	8.3	7.6	-0.3	2.1	0.97

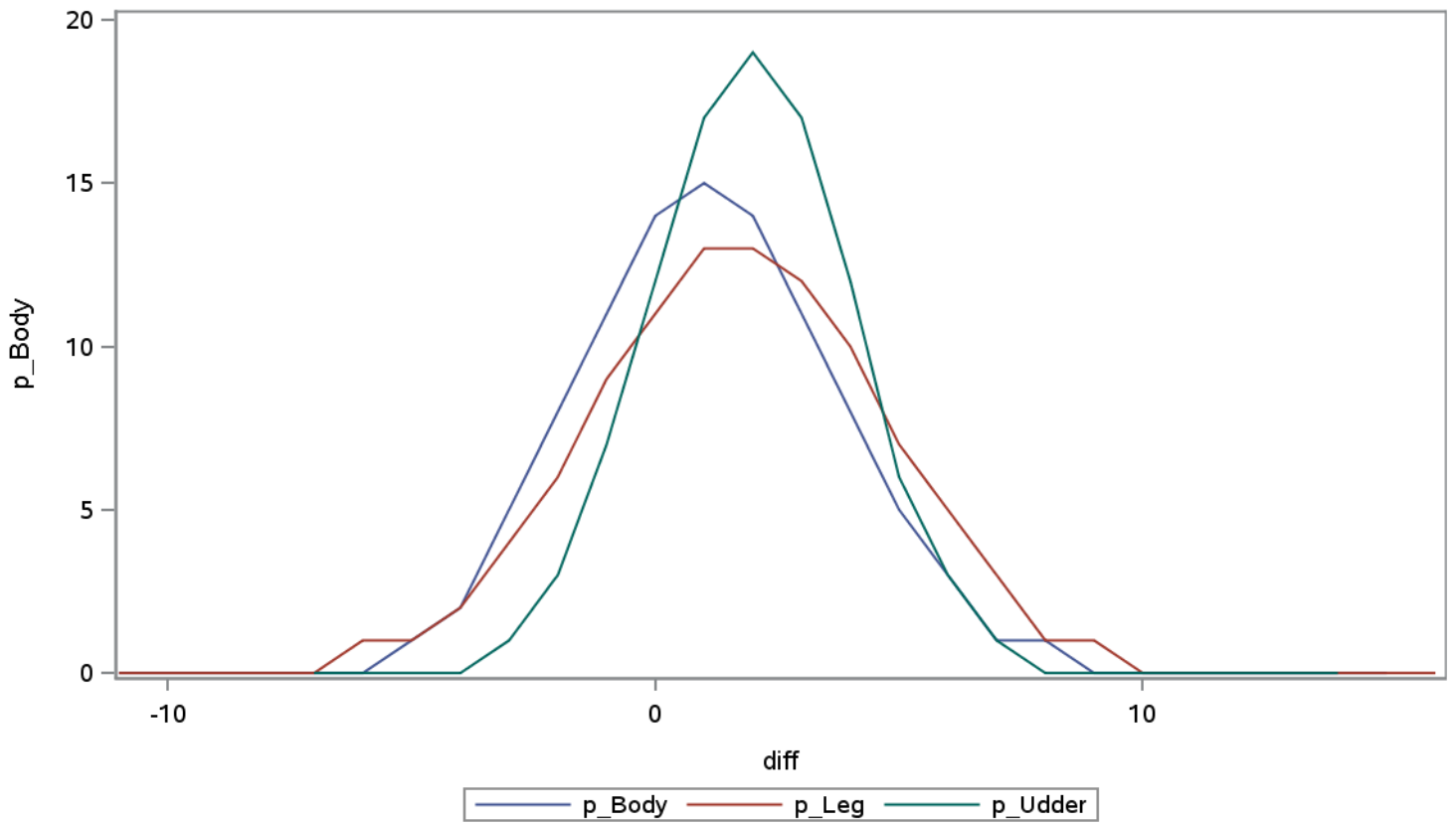
**'RDC summery statistics for SS and current breeding value for genotyped females without phenotype,  
by birth year**

Obs	BYR	name	no	mean_ss	mean_two	std_ss	std_two	mean_dif	std_dif	corr_SS_Two
73	2019	Teat_thickness	10669	100.7	100.9	8.0	8.1	-0.2	1.9	0.97
74	2020	Teat_thickness	21497	100.7	101.1	7.6	7.8	-0.4	1.9	0.97
75	2021	Teat_thickness	22063	100.9	101.2	7.4	7.6	-0.3	2.0	0.97
76	2022	Teat_thickness	1983	101.2	101.4	7.2	7.5	-0.2	2.0	0.96
77	2019	Teat_place_f	10669	101.2	99.8	9.8	8.8	1.4	2.4	0.97
78	2020	Teat_place_f	21497	101.6	100.1	8.4	7.7	1.5	2.4	0.96
79	2021	Teat_place_f	22063	102.6	101.1	8.5	7.7	1.4	2.5	0.95
80	2022	Teat_place_f	1983	102.6	101.4	8.4	7.6	1.3	2.4	0.96
81	2019	Teat_place_B	10669	101.4	100.3	9.5	9.2	1.0	3.0	0.95
82	2020	Teat_place_B	21497	101.3	100.4	8.9	8.9	0.9	3.0	0.94
83	2021	Teat_place_B	22063	102.7	101.6	8.5	8.7	1.1	3.1	0.93
84	2022	Teat_place_B	1983	102.8	101.8	8.2	8.5	1.1	3.2	0.93
85	2019	Udder_balance	10669	101.3	100.4	9.1	8.4	0.9	2.4	0.96
86	2020	Udder_balance	21497	101.3	100.4	9.2	8.6	1.0	2.4	0.97
87	2021	Udder_balance	22063	100.9	100.2	7.9	7.5	0.7	2.4	0.95
88	2022	Udder_balance	1983	101.4	101.1	8.1	7.6	0.3	2.5	0.95
89	2019	Body	10668	102.0	101.1	9.6	8.1	0.9	2.6	0.97
90	2020	Body	21497	103.2	102.1	9.6	8.1	1.1	2.7	0.97
91	2021	Body	22063	103.1	102.0	9.6	8.1	1.2	2.7	0.97
92	2022	Body	1983	101.6	100.8	8.8	7.4	0.8	2.7	0.96
93	2019	leg	10668	101.6	99.9	8.9	7.1	1.8	3.0	0.95
94	2020	leg	21497	103.3	101.4	8.5	6.7	1.9	3.1	0.94
95	2021	leg	22063	102.9	101.6	8.7	6.9	1.3	3.0	0.95
96	2022	leg	1983	104.6	102.6	8.5	6.8	2.0	3.0	0.95
97	2019	udder	10669	102.1	100.1	7.2	6.4	1.9	2.1	0.96
98	2020	udder	21497	103.5	101.4	7.1	6.4	2.1	2.1	0.96
99	2021	udder	22063	104.0	102.3	6.8	6.1	1.7	2.1	0.95
100	2022	udder	1983	105.0	103.3	7.2	6.4	1.8	2.1	0.96

**distribution of differences in number of females and in percentage**

Obs	diff	d_Body	d_Leg	d_Udder	p_Body	p_Leg	p_Udder
1	-11	2	5	.	0	0	.
2	-10	2	5	.	0	0	.
3	-9	2	29	.	0	0	.
4	-8	21	66	.	0	0	.
5	-7	71	148	4	0	0	0
6	-6	237	366	16	0	1	0
7	-5	593	733	69	1	1	0
8	-4	1350	1277	238	2	2	0
9	-3	2579	2383	751	5	4	1
10	-2	4336	3543	1915	8	6	3
11	-1	6236	4959	3982	11	9	7
12	0	7846	6268	6841	14	11	12
13	1	8592	7241	9665	15	13	17
14	2	7948	7223	10648	14	13	19
15	3	6314	6681	9593	11	12	17
16	4	4463	5545	6638	8	10	12
17	5	2785	4070	3609	5	7	6
18	6	1502	2712	1578	3	5	3
19	7	766	1528	486	1	3	1
20	8	339	809	132	1	1	0
21	9	139	390	38	0	1	0
22	10	57	153	7	0	0	0
23	11	22	46	1	0	0	0
24	12	4	21	.	0	0	.
25	13	4	5	.	0	0	.
26	14	.	4	1	.	0	0
27	15	1	.	.	0	.	.
28	16	.	1	.	.	0	.

### distribution of differences in number of females and in percentage





## HOL summery stastistics for SS and current breeding value for genotyped females with phenotype, by birth year

Obs	BYR	name	no	mean_ss	mean_two	std_ss	std_two	mean_dif	std_dif	corr_SS_Two
1	2015	Stature	8005	98.3	97.5	11.0	10.2	0.7	2.2	0.98
2	2016	Stature	11695	98.2	97.5	10.8	10.0	0.7	2.2	0.98
3	2017	Stature	16140	99.5	98.7	10.7	9.9	0.8	2.2	0.98
4	2018	Stature	20848	100.2	99.4	10.6	9.8	0.8	2.2	0.98
5	2019	Stature	20742	101.6	100.5	10.5	9.7	1.0	2.3	0.98
6	2020	Stature	4367	102.8	101.7	10.3	9.6	1.0	2.2	0.98
7	2015	Body_depth	8007	102.2	101.4	9.2	9.1	0.8	2.4	0.96
8	2016	Body_depth	11705	101.6	101.0	8.8	8.5	0.6	2.5	0.96
9	2017	Body_depth	16146	99.8	99.2	9.4	9.1	0.5	2.5	0.97
10	2018	Body_depth	20860	99.5	99.0	9.4	9.1	0.5	2.5	0.96
11	2019	Body_depth	20748	100.3	99.7	9.2	8.9	0.5	2.5	0.96
12	2020	Body_depth	4369	100.0	99.6	9.0	8.7	0.4	2.5	0.96
13	2015	Chest_width	8007	101.3	100.9	9.1	9.0	0.4	2.9	0.95
14	2016	Chest_width	11705	101.6	101.0	8.9	8.9	0.5	2.9	0.94
15	2017	Chest_width	16146	100.4	99.8	9.0	9.0	0.6	3.0	0.95
16	2018	Chest_width	20860	100.3	99.7	9.2	9.2	0.6	2.9	0.95
17	2019	Chest_width	20748	99.6	99.2	9.4	9.4	0.4	2.9	0.95
18	2020	Chest_width	4369	99.9	99.5	9.1	9.1	0.4	3.0	0.95
19	2015	Dairy_form	8007	99.0	98.8	8.2	8.0	0.2	2.4	0.96
20	2016	Dairy_form	11705	98.8	98.7	8.4	8.0	0.1	2.4	0.96
21	2017	Dairy_form	16145	99.9	99.7	7.9	7.6	0.2	2.4	0.95
22	2018	Dairy_form	20858	99.8	99.7	8.2	7.9	0.1	2.4	0.96
23	2019	Dairy_form	20748	101.7	101.4	7.6	7.4	0.4	2.4	0.95
24	2020	Dairy_form	4369	101.8	101.4	7.8	7.6	0.3	2.4	0.95
25	2015	top_line	8007	100.4	100.3	8.5	8.3	0.1	2.2	0.97
26	2016	top_line	11705	100.1	100.0	8.2	8.1	0.1	2.2	0.96
27	2017	top_line	16145	99.5	99.5	8.4	8.3	0.1	2.2	0.96
28	2018	top_line	20858	100.5	100.4	8.2	8.0	0.1	2.3	0.96
29	2019	top_line	20748	100.4	100.5	8.3	8.1	-0.1	2.3	0.96
30	2020	top_line	4369	99.5	99.7	8.0	7.9	-0.2	2.3	0.96
31	2015	Rump_width	8007	98.3	97.8	10.5	10.3	0.5	2.6	0.97
32	2016	Rump_width	11705	98.5	98.0	10.3	10.2	0.5	2.6	0.97
33	2017	Rump_width	16144	100.0	99.5	10.1	9.9	0.5	2.6	0.97
34	2018	Rump_width	20858	100.2	99.7	10.2	10.1	0.5	2.6	0.97
35	2019	Rump_width	20748	100.3	99.8	10.2	10.1	0.4	2.7	0.96
36	2020	Rump_width	4369	100.5	100.1	10.1	10.0	0.4	2.7	0.96

## HOL summery stastistics for SS and current breeding value for genotyped females with phenotype, by birth year

Obs	BYR	name	no	mean_ss	mean_two	std_ss	std_two	mean_dif	std_dif	corr_SS_Two
37	2015	Rump_angle	8007	101.8	101.5	9.8	9.4	0.3	2.3	0.97
38	2016	Rump_angle	11705	101.5	101.3	9.9	9.5	0.2	2.3	0.97
39	2017	Rump_angle	16145	100.2	99.9	9.8	9.5	0.2	2.3	0.97
40	2018	Rump_angle	20858	100.4	100.1	9.9	9.5	0.3	2.4	0.97
41	2019	Rump_angle	20748	100.4	100.1	9.7	9.4	0.3	2.4	0.97
42	2020	Rump_angle	4369	101.0	100.7	9.2	8.9	0.3	2.4	0.97
43	2015	Rear_legs_sv	8007	101.1	101.3	9.9	9.6	-0.2	3.0	0.95
44	2016	Rear_legs_sv	11704	100.7	100.9	10.3	10.0	-0.2	3.0	0.96
45	2017	Rear_legs_sv	16146	100.7	101.2	9.9	9.6	-0.5	3.0	0.95
46	2018	Rear_legs_sv	20858	101.1	101.6	9.9	9.5	-0.4	3.0	0.95
47	2019	Rear_legs_sv	20748	99.0	99.9	9.9	9.6	-0.9	3.0	0.95
48	2020	Rear_legs_sv	4369	100.3	100.8	9.7	9.4	-0.5	3.0	0.95
49	2015	Rear_legs_bv	8007	98.9	98.5	9.4	9.2	0.4	3.2	0.94
50	2016	Rear_legs_bv	11704	99.2	98.7	9.4	9.0	0.5	3.3	0.94
51	2017	Rear_legs_bv	16146	100.1	99.2	9.3	8.9	0.9	3.3	0.94
52	2018	Rear_legs_bv	20858	100.9	99.8	9.3	9.0	1.1	3.3	0.93
53	2019	Rear_legs_bv	20748	101.1	99.5	9.2	8.9	1.5	3.3	0.93
54	2020	Rear_legs_bv	4369	101.0	99.6	9.1	8.9	1.5	3.4	0.93
55	2015	Hock_quality	8007	99.8	99.9	9.6	8.9	-0.1	2.5	0.97
56	2016	Hock_quality	11704	98.6	98.8	9.3	8.7	-0.2	2.5	0.96
57	2017	Hock_quality	16145	99.7	99.9	9.1	8.5	-0.1	2.5	0.96
58	2018	Hock_quality	20858	100.6	100.6	9.0	8.4	0.0	2.5	0.96
59	2019	Hock_quality	20748	100.8	100.7	8.6	8.0	0.0	2.5	0.96
60	2020	Hock_quality	4369	101.6	101.4	8.5	7.9	0.2	2.5	0.96
61	2015	Bone_quality	8007	98.6	99.0	10.4	9.9	-0.3	2.4	0.97
62	2016	Bone_quality	11704	98.0	98.4	10.0	9.6	-0.4	2.4	0.97
63	2017	Bone_quality	16145	99.6	99.9	9.9	9.5	-0.4	2.4	0.97
64	2018	Bone_quality	20858	100.6	100.8	10.1	9.6	-0.2	2.4	0.97
65	2019	Bone_quality	20748	101.5	101.6	9.7	9.3	-0.1	2.4	0.97
66	2020	Bone_quality	4369	100.8	100.9	9.5	9.2	-0.1	2.4	0.97
67	2015	Foot_angle	8007	98.1	97.9	8.3	8.0	0.1	3.3	0.92
68	2016	Foot_angle	11704	99.6	99.3	8.6	8.1	0.4	3.3	0.92
69	2017	Foot_angle	16145	100.1	99.6	8.1	7.8	0.5	3.2	0.92
70	2018	Foot_angle	20858	100.3	99.8	7.9	7.6	0.5	3.3	0.91
71	2019	Foot_angle	20748	101.3	100.5	7.9	7.6	0.8	3.3	0.91
72	2020	Foot_angle	4369	101.7	100.8	7.9	7.6	0.9	3.3	0.91

## HOL summery stastistics for SS and current breeding value for genotyped females with phenotype, by birth year

Obs	BYR	name	no	mean_ss	mean_two	std_ss	std_two	mean_dif	std_dif	corr_SS_Two
73	2015	Fore_udder_att	8007	95.5	95.4	8.9	8.1	0.0	2.8	0.95
74	2016	Fore_udder_att	11704	97.6	97.2	9.1	8.3	0.4	2.8	0.95
75	2017	Fore_udder_att	16144	99.7	98.9	9.2	8.4	0.9	2.8	0.95
76	2018	Fore_udder_att	20857	100.9	99.9	8.8	8.1	1.0	2.8	0.95
77	2019	Fore_udder_att	20747	101.8	100.5	8.6	8.0	1.3	2.7	0.95
78	2020	Fore_udder_att	4368	102.4	101.0	8.6	8.0	1.4	2.9	0.94
79	2015	Rear_udder_hei	8007	96.7	96.4	9.3	9.1	0.3	2.8	0.96
80	2016	Rear_udder_hei	11704	96.8	96.5	9.6	9.3	0.3	2.8	0.96
81	2017	Rear_udder_hei	16144	99.5	99.0	9.4	9.2	0.5	2.8	0.96
82	2018	Rear_udder_hei	20857	100.2	99.6	9.5	9.2	0.6	2.8	0.95
83	2019	Rear_udder_hei	20747	102.3	101.4	9.5	9.2	0.9	2.9	0.95
84	2020	Rear_udder_hei	4368	102.9	102.0	9.0	8.8	0.9	2.9	0.95
85	2015	Rear_udder_wid	8007	98.3	97.8	8.3	7.9	0.5	2.3	0.96
86	2016	Rear_udder_wid	11704	98.1	97.7	8.5	8.0	0.5	2.4	0.96
87	2017	Rear_udder_wid	16145	99.8	99.1	8.5	8.1	0.7	2.4	0.96
88	2018	Rear_udder_wid	20856	100.0	99.2	8.8	8.3	0.8	2.4	0.96
89	2019	Rear_udder_wid	20747	101.8	100.7	8.6	8.2	1.1	2.5	0.96
90	2020	Rear_udder_wid	4368	101.5	100.5	8.5	8.1	1.0	2.5	0.95
91	2015	Udder_cleft_su	8007	100.9	100.4	9.8	9.7	0.5	2.8	0.96
92	2016	Udder_cleft_su	11704	99.5	98.9	9.4	9.4	0.6	2.8	0.96
93	2017	Udder_cleft_su	16144	99.5	98.9	9.4	9.3	0.6	2.8	0.96
94	2018	Udder_cleft_su	20857	99.6	99.0	9.1	9.1	0.6	2.8	0.95
95	2019	Udder_cleft_su	20747	100.1	99.3	8.9	9.0	0.8	2.8	0.95
96	2020	Udder_cleft_su	4368	100.5	99.6	8.8	8.8	0.9	2.8	0.95
97	2015	Udder_depth	8007	94.2	94.7	10.8	9.8	-0.5	2.6	0.97
98	2016	Udder_depth	11704	95.8	96.2	10.5	9.7	-0.3	2.5	0.97
99	2017	Udder_depth	16143	99.7	99.5	11.0	10.1	0.1	2.6	0.97
100	2018	Udder_depth	20857	101.5	101.3	10.5	9.8	0.2	2.5	0.97
101	2019	Udder_depth	20747	101.9	101.7	10.3	9.8	0.2	2.5	0.97
102	2020	Udder_depth	4368	103.4	103.2	10.4	9.8	0.3	2.6	0.97
103	2015	Teat_length	8007	99.5	99.7	9.3	9.1	-0.1	2.1	0.97
104	2016	Teat_length	11704	100.3	100.4	9.4	9.3	-0.1	2.1	0.97
105	2017	Teat_length	16144	99.7	99.8	9.1	9.0	-0.2	2.1	0.97
106	2018	Teat_length	20856	100.9	101.0	8.9	8.8	-0.1	2.2	0.97
107	2019	Teat_length	20747	100.8	100.8	8.9	8.9	0.0	2.2	0.97
108	2020	Teat_length	4368	100.2	100.3	8.8	8.8	-0.1	2.2	0.97

## HOL summery stastistics for SS and current breeding value for genotyped females with phenotype, by birth year

Obs	BYR	name	no	mean_ss	mean_two	std_ss	std_two	mean_dif	std_dif	corr_SS_Two
109	2015	Teat_thickness	8007	100.8	100.8	10.2	9.2	0.1	2.4	0.97
110	2016	Teat_thickness	11704	101.3	101.3	10.4	9.5	0.0	2.4	0.98
111	2017	Teat_thickness	16144	99.4	99.5	9.8	8.9	-0.1	2.4	0.97
112	2018	Teat_thickness	20856	100.8	100.7	10.3	9.3	0.1	2.4	0.97
113	2019	Teat_thickness	20747	100.2	100.4	10.0	9.1	-0.2	2.4	0.97
114	2020	Teat_thickness	4368	99.6	99.8	9.6	8.9	-0.3	2.4	0.97
115	2015	Teat_place_f	8007	97.6	97.4	10.1	9.6	0.1	2.3	0.97
116	2016	Teat_place_f	11704	99.0	98.7	9.7	9.3	0.3	2.3	0.97
117	2017	Teat_place_f	16145	100.2	99.7	9.7	9.2	0.4	2.3	0.97
118	2018	Teat_place_f	20857	100.6	100.2	9.4	9.1	0.4	2.3	0.97
119	2019	Teat_place_f	20747	100.9	100.6	9.2	8.9	0.3	2.3	0.97
120	2020	Teat_place_f	4368	101.5	101.1	9.3	8.9	0.4	2.3	0.97
121	2015	Teat_place_B	8007	99.5	99.4	10.2	10.8	0.1	2.7	0.97
122	2016	Teat_place_B	11704	99.4	99.3	9.8	10.5	0.1	2.7	0.97
123	2017	Teat_place_B	16145	99.8	99.8	9.6	10.4	0.1	2.7	0.97
124	2018	Teat_place_B	20857	99.8	100.0	9.3	10.1	-0.2	2.8	0.96
125	2019	Teat_place_B	20747	100.0	100.3	9.3	10.1	-0.3	2.8	0.96
126	2020	Teat_place_B	4368	101.2	101.4	9.3	10.1	-0.2	2.8	0.96
127	2015	Udder_balance	8007	98.1	98.4	10.8	10.2	-0.2	2.7	0.97
128	2016	Udder_balance	11704	98.9	99.0	10.8	10.2	-0.1	2.7	0.97
129	2017	Udder_balance	16143	99.3	99.3	10.7	10.1	0.1	2.7	0.97
130	2018	Udder_balance	20856	100.7	100.5	10.6	10.1	0.2	2.7	0.97
131	2019	Udder_balance	20747	101.0	100.6	10.8	10.2	0.4	2.8	0.97
132	2020	Udder_balance	4368	100.7	100.3	10.9	10.4	0.4	2.8	0.97
133	2015	Body	8005	99.7	98.8	10.6	10.3	0.9	2.4	0.97
134	2016	Body	11695	99.6	98.8	10.2	9.9	0.8	2.4	0.97
135	2017	Body	16140	99.8	98.9	10.4	10.1	0.9	2.5	0.97
136	2018	Body	20848	100.0	99.2	10.4	10.2	0.8	2.5	0.97
137	2019	Body	20742	101.1	100.2	10.2	9.9	0.9	2.5	0.97
138	2020	Body	4367	101.7	100.8	9.9	9.7	0.8	2.5	0.97
139	2015	leg	8007	97.6	97.5	8.1	8.1	0.1	2.7	0.94
140	2016	leg	11704	97.5	97.4	8.1	7.9	0.1	2.8	0.94
141	2017	leg	16145	99.2	98.7	8.1	7.9	0.5	2.7	0.94
142	2018	leg	20858	100.4	99.7	7.8	7.7	0.7	2.7	0.94
143	2019	leg	20748	101.3	100.2	8.0	7.9	1.1	2.7	0.94
144	2020	leg	4369	101.4	100.3	7.7	7.6	1.1	2.7	0.94

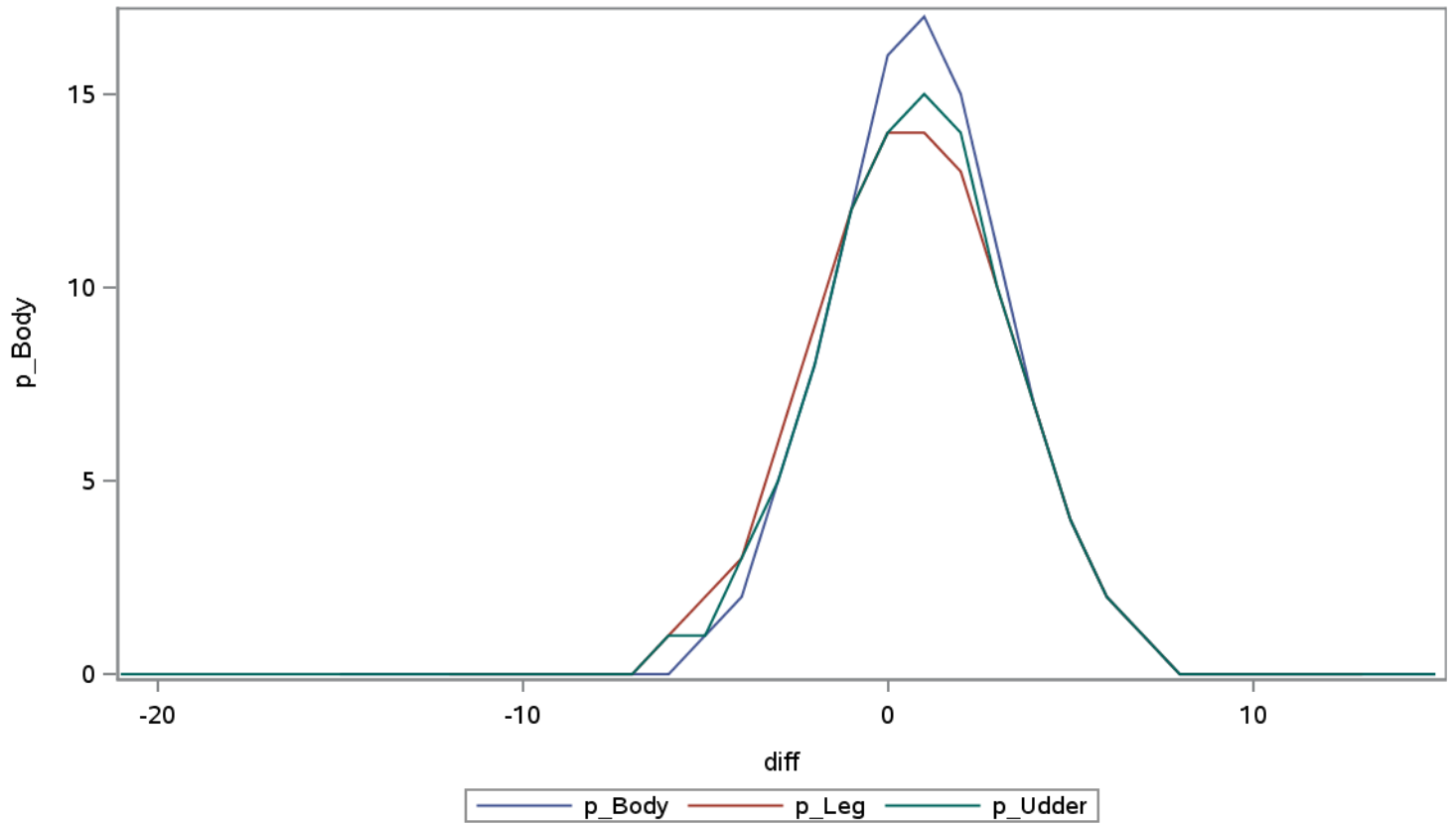
**HOL summery stastistics for SS and current breeding value for genotyped females with phenotype, by birth year**

Obs	BYR	name	no	mean_ss	mean_two	std_ss	std_two	mean_dif	std_dif	corr_SS_Two
145	2015	udder	8007	95.1	95.0	9.5	9.0	0.0	2.7	0.96
146	2016	udder	11704	96.2	95.9	9.4	9.0	0.3	2.7	0.96
147	2017	udder	16143	99.5	98.8	9.7	9.2	0.8	2.7	0.96
148	2018	udder	20857	101.0	100.0	9.2	9.0	1.0	2.7	0.96
149	2019	udder	20747	102.1	100.9	9.1	9.0	1.2	2.7	0.96
150	2020	udder	4368	103.3	101.9	9.0	8.8	1.3	2.8	0.95

**distribution of differences in number of females and in percentage**

Obs	diff	d_Body	d_Leg	d_Udder	p_Body	p_Leg	p_Udder
1	-21	.	.	1	.	.	0
2	-16	.	.	1	.	.	0
3	-15	2	.	1	0	.	0
4	-14	1	.	4	0	.	0
5	-12	1	4	3	0	0	0
6	-11	5	3	5	0	0	0
7	-10	9	17	12	0	0	0
8	-9	14	43	28	0	0	0
9	-8	28	95	88	0	0	0
10	-7	80	284	199	0	0	0
11	-6	258	697	568	0	1	1
12	-5	744	1432	1172	1	2	1
13	-4	1724	2821	2475	2	3	3
14	-3	3760	4942	4397	5	6	5
15	-2	6645	7549	6904	8	9	8
16	-1	10088	10077	9515	12	12	12
17	0	12743	11532	11390	16	14	14
18	1	13516	11764	12197	17	14	15
19	2	11931	10595	11195	15	13	14
20	3	9094	8094	8573	11	10	10
21	4	5727	5544	6043	7	7	7
22	5	3127	3255	3624	4	4	4
23	6	1415	1702	1874	2	2	2
24	7	575	796	945	1	1	1
25	8	199	396	369	0	0	0
26	9	62	120	152	0	0	0
27	10	32	48	57	0	0	0
28	11	9	14	26	0	0	0
29	12	3	3	4	0	0	0
30	13	2	4	2	0	0	0
31	14	1	.	1	0	.	0
32	15	2	.	1	0	.	0

distribution of differences in number of females and in percentage



**JER summery statistics for SS and current breeding value for genotyped females with phenotype, by birth year**

Obs	BYR	name	no	mean_ss	mean_two	std_ss	std_two	mean_dif	std_dif	corr_SS_Two
1	2015	Stature	3062	98.2	97.2	9.7	9.9	1.0	1.8	0.98
2	2016	Stature	3373	98.0	96.7	9.2	9.4	1.3	1.9	0.98
3	2017	Stature	4120	100.9	99.5	9.2	9.3	1.4	1.9	0.98
4	2018	Stature	4702	101.3	99.7	9.6	9.8	1.6	1.9	0.98
5	2019	Stature	4891	103.6	101.6	9.0	9.3	2.0	1.9	0.98
6	2020	Stature	1556	104.3	101.9	8.8	9.1	2.4	2.1	0.97
7	2015	Body_depth	3065	102.5	102.0	10.7	10.6	0.5	2.3	0.98
8	2016	Body_depth	3385	101.7	101.2	10.2	10.2	0.5	2.3	0.97
9	2017	Body_depth	4130	100.7	100.0	10.0	10.0	0.7	2.3	0.97
10	2018	Body_depth	4712	99.9	99.3	9.7	9.7	0.6	2.3	0.97
11	2019	Body_depth	4897	99.8	99.4	9.4	9.5	0.5	2.2	0.97
12	2020	Body_depth	1556	99.1	98.7	9.8	9.8	0.4	2.3	0.97
13	2015	Chest_width	3065	100.9	100.6	11.1	12.0	0.2	3.0	0.97
14	2016	Chest_width	3385	100.2	100.1	11.7	12.7	0.2	3.0	0.97
15	2017	Chest_width	4130	100.6	100.2	10.6	11.6	0.4	3.1	0.97
16	2018	Chest_width	4712	100.7	100.4	10.4	11.4	0.3	3.0	0.97
17	2019	Chest_width	4897	100.0	99.7	10.2	11.2	0.2	3.0	0.96
18	2020	Chest_width	1556	98.9	98.7	11.1	12.0	0.3	3.0	0.97
19	2015	Dairy_form	3065	100.2	99.0	9.7	8.8	1.2	2.3	0.97
20	2016	Dairy_form	3385	100.4	98.9	9.6	8.7	1.4	2.3	0.97
21	2017	Dairy_form	4130	100.7	99.1	9.1	8.3	1.6	2.3	0.97
22	2018	Dairy_form	4712	100.8	99.1	9.2	8.4	1.7	2.3	0.97
23	2019	Dairy_form	4897	102.9	100.7	9.1	8.4	2.1	2.3	0.97
24	2020	Dairy_form	1556	103.3	101.0	9.6	8.9	2.3	2.3	0.97
25	2015	top_line	3065	101.0	100.2	9.5	9.4	0.7	2.2	0.97
26	2016	top_line	3385	102.2	101.4	10.1	10.1	0.9	2.2	0.98
27	2017	top_line	4130	100.6	99.8	8.9	9.0	0.8	2.2	0.97
28	2018	top_line	4712	100.7	100.0	9.0	9.1	0.7	2.2	0.97
29	2019	top_line	4897	102.7	102.1	9.1	9.2	0.6	2.2	0.97
30	2020	top_line	1556	103.6	102.9	8.7	8.8	0.7	2.3	0.97
31	2015	Rump_width	3050	98.3	98.1	10.4	11.2	0.2	2.2	0.98
32	2016	Rump_width	3383	98.5	98.3	9.3	10.0	0.2	2.1	0.98
33	2017	Rump_width	4130	99.7	99.4	9.2	10.1	0.3	2.2	0.98
34	2018	Rump_width	4712	101.9	101.5	10.0	10.8	0.4	2.2	0.98
35	2019	Rump_width	4897	100.5	99.9	9.2	10.1	0.6	2.3	0.98
36	2020	Rump_width	1556	100.1	99.3	9.1	10.1	0.8	2.3	0.98



## JER summery statistics for SS and current breeding value for genotyped females with phenotype, by birth year

Obs	BYR	name	no	mean_ss	mean_two	std_ss	std_two	mean_dif	std_dif	corr_SS_Two
37	2015	Rump_angle	3065	100.5	100.2	9.9	10.2	0.3	1.9	0.98
38	2016	Rump_angle	3385	100.6	100.4	9.5	9.8	0.2	1.9	0.98
39	2017	Rump_angle	4130	100.3	100.1	9.4	9.7	0.2	1.9	0.98
40	2018	Rump_angle	4712	100.9	100.6	9.5	9.8	0.3	1.9	0.98
41	2019	Rump_angle	4897	101.3	101.1	8.8	9.1	0.2	2.0	0.98
42	2020	Rump_angle	1556	100.6	100.3	8.7	9.2	0.3	1.9	0.98
43	2015	Rear_legs_sv	3065	100.2	100.4	8.1	8.4	-0.2	2.4	0.96
44	2016	Rear_legs_sv	3385	102.5	102.8	9.1	9.3	-0.3	2.3	0.97
45	2017	Rear_legs_sv	4130	99.8	100.1	8.4	8.6	-0.3	2.4	0.96
46	2018	Rear_legs_sv	4712	100.8	101.1	7.8	8.0	-0.3	2.4	0.96
47	2019	Rear_legs_sv	4897	101.2	101.5	8.1	8.5	-0.3	2.4	0.96
48	2020	Rear_legs_sv	1556	100.8	101.3	8.2	8.5	-0.4	2.4	0.96
49	2015	Rear_legs_bv	3050	101.9	101.9	8.1	8.7	-0.1	2.6	0.96
50	2016	Rear_legs_bv	3383	99.8	99.4	9.2	9.8	0.3	2.6	0.96
51	2017	Rear_legs_bv	4130	99.9	99.3	8.0	8.6	0.6	2.5	0.96
52	2018	Rear_legs_bv	4712	100.8	100.4	9.3	9.9	0.4	2.5	0.97
53	2019	Rear_legs_bv	4897	100.0	99.3	8.7	9.6	0.6	2.6	0.96
54	2020	Rear_legs_bv	1556	101.7	101.3	8.3	9.0	0.3	2.7	0.96
55	2015	Hock_quality	3050	99.7	100.2	11.6	12.9	-0.5	3.2	0.97
56	2016	Hock_quality	3383	102.0	102.8	13.7	15.3	-0.7	3.3	0.98
57	2017	Hock_quality	4130	100.4	100.9	11.2	12.3	-0.6	3.1	0.97
58	2018	Hock_quality	4712	101.0	101.5	11.6	13.0	-0.5	3.2	0.97
59	2019	Hock_quality	4897	101.6	101.6	11.9	13.4	0.0	3.2	0.97
60	2020	Hock_quality	1556	103.5	103.6	12.2	13.8	-0.1	3.4	0.97
61	2015	Bone_quality	3050	100.3	101.2	12.1	13.4	-0.9	3.1	0.98
62	2016	Bone_quality	3383	101.4	102.5	12.3	13.7	-1.0	3.0	0.98
63	2017	Bone_quality	4130	100.2	101.3	10.4	11.6	-1.1	3.0	0.97
64	2018	Bone_quality	4712	100.6	101.7	10.2	11.3	-1.1	2.9	0.97
65	2019	Bone_quality	4897	100.9	101.8	10.3	11.6	-0.9	2.9	0.97
66	2020	Bone_quality	1556	102.7	103.9	11.1	12.5	-1.1	3.1	0.97
67	2015	Foot_angle	3065	101.2	100.9	8.9	8.9	0.2	2.5	0.96
68	2016	Foot_angle	3385	97.8	97.6	9.3	9.4	0.3	2.6	0.96
69	2017	Foot_angle	4130	101.4	100.9	8.4	8.3	0.6	2.5	0.95
70	2018	Foot_angle	4712	99.8	99.0	8.7	8.7	0.8	2.6	0.96
71	2019	Foot_angle	4897	101.4	100.4	8.9	8.9	0.9	2.6	0.96
72	2020	Foot_angle	1556	101.2	100.3	8.6	8.7	1.0	2.6	0.96

## JER summery statistics for SS and current breeding value for genotyped females with phenotype, by birth year

Obs	BYR	name	no	mean_ss	mean_two	std_ss	std_two	mean_dif	std_dif	corr_SS_Two
73	2015	Fore_udder_att	3064	97.3	97.9	9.3	9.5	-0.6	2.2	0.97
74	2016	Fore_udder_att	3385	98.3	98.8	9.6	9.6	-0.5	2.1	0.98
75	2017	Fore_udder_att	4130	102.1	102.3	9.6	9.7	-0.2	2.1	0.98
76	2018	Fore_udder_att	4712	101.0	100.7	9.4	9.6	0.2	2.2	0.97
77	2019	Fore_udder_att	4896	102.1	101.5	10.1	10.2	0.7	2.2	0.98
78	2020	Fore_udder_att	1556	102.9	102.1	9.8	10.0	0.8	2.3	0.97
79	2015	Rear_udder_hei	3064	98.3	98.8	8.2	7.6	-0.5	2.0	0.97
80	2016	Rear_udder_hei	3385	99.8	100.0	7.7	7.2	-0.2	1.9	0.97
81	2017	Rear_udder_hei	4130	100.6	100.5	7.6	7.0	0.1	2.0	0.97
82	2018	Rear_udder_hei	4712	101.2	100.7	7.8	7.3	0.5	1.9	0.97
83	2019	Rear_udder_hei	4896	102.7	101.7	7.6	7.1	1.0	2.0	0.97
84	2020	Rear_udder_hei	1556	103.2	102.1	7.8	7.3	1.2	2.0	0.97
85	2015	Rear_udder_wid	3049	99.9	99.8	8.0	7.7	0.1	1.9	0.97
86	2016	Rear_udder_wid	3383	99.4	99.2	8.2	7.9	0.2	1.9	0.97
87	2017	Rear_udder_wid	4130	100.2	99.7	7.9	7.5	0.5	1.9	0.97
88	2018	Rear_udder_wid	4712	101.0	100.2	7.8	7.4	0.8	1.9	0.97
89	2019	Rear_udder_wid	4896	101.7	100.7	7.6	7.4	1.0	1.9	0.97
90	2020	Rear_udder_wid	1556	102.5	101.4	7.7	7.3	1.1	2.0	0.97
91	2015	Udder_cleft_su	3064	99.5	100.1	9.8	10.2	-0.6	2.5	0.97
92	2016	Udder_cleft_su	3385	100.5	100.8	9.6	10.1	-0.3	2.5	0.97
93	2017	Udder_cleft_su	4130	102.0	102.1	9.6	10.0	-0.1	2.5	0.97
94	2018	Udder_cleft_su	4712	99.5	99.6	9.8	10.1	-0.1	2.5	0.97
95	2019	Udder_cleft_su	4896	100.0	100.1	9.1	9.6	0.0	2.6	0.96
96	2020	Udder_cleft_su	1556	101.5	101.6	9.6	10.1	-0.1	2.5	0.97
97	2015	Udder_depth	3064	96.5	97.4	9.6	9.2	-0.9	1.9	0.98
98	2016	Udder_depth	3385	96.9	97.5	9.6	9.2	-0.6	2.0	0.98
99	2017	Udder_depth	4130	102.0	102.1	10.2	9.8	-0.1	2.0	0.98
100	2018	Udder_depth	4712	101.2	100.9	10.5	10.1	0.2	2.0	0.98
101	2019	Udder_depth	4896	103.8	102.8	10.7	10.3	1.0	2.0	0.98
102	2020	Udder_depth	1556	104.2	103.0	10.0	9.6	1.2	2.1	0.98
103	2015	Teat_length	3064	100.3	100.0	11.6	11.4	0.2	2.2	0.98
104	2016	Teat_length	3385	98.3	98.2	12.5	12.2	0.1	2.2	0.98
105	2017	Teat_length	4130	100.1	99.8	11.7	11.5	0.3	2.2	0.98
106	2018	Teat_length	4712	100.6	100.4	11.8	11.6	0.3	2.2	0.98
107	2019	Teat_length	4897	100.1	99.8	11.8	11.6	0.4	2.2	0.98
108	2020	Teat_length	1556	100.4	100.1	12.5	12.3	0.3	2.3	0.98

## JER summery statistics for SS and current breeding value for genotyped females with phenotype, by birth year

Obs	BYR	name	no	mean_ss	mean_two	std_ss	std_two	mean_dif	std_dif	corr_SS_Two
109	2015	Teat_thickness	3049	102.4	101.8	9.2	9.2	0.5	1.8	0.98
110	2016	Teat_thickness	3383	100.5	100.1	9.9	10.0	0.3	1.9	0.98
111	2017	Teat_thickness	4130	101.2	100.9	9.2	9.2	0.3	1.8	0.98
112	2018	Teat_thickness	4712	99.8	99.6	9.2	9.2	0.2	1.8	0.98
113	2019	Teat_thickness	4897	100.5	100.4	8.9	9.0	0.2	1.8	0.98
114	2020	Teat_thickness	1556	100.6	100.5	9.1	9.2	0.1	1.9	0.98
115	2015	Teat_place_f	3064	99.7	99.7	9.8	10.3	-0.1	2.2	0.98
116	2016	Teat_place_f	3385	99.8	99.9	10.3	10.7	-0.1	2.2	0.98
117	2017	Teat_place_f	4130	101.7	101.9	10.2	10.7	-0.2	2.2	0.98
118	2018	Teat_place_f	4712	100.0	100.0	9.9	10.4	0.0	2.3	0.98
119	2019	Teat_place_f	4896	100.8	100.4	10.1	10.7	0.3	2.3	0.98
120	2020	Teat_place_f	1556	102.6	102.3	10.4	11.1	0.3	2.3	0.98
121	2015	Teat_place_B	3049	99.8	100.2	10.4	12.2	-0.4	3.2	0.97
122	2016	Teat_place_B	3383	100.3	100.6	11.4	12.9	-0.3	3.2	0.97
123	2017	Teat_place_B	4130	102.2	102.4	10.6	12.3	-0.3	3.3	0.97
124	2018	Teat_place_B	4712	99.0	99.4	11.0	12.6	-0.4	3.3	0.97
125	2019	Teat_place_B	4896	100.4	100.6	11.1	12.7	-0.1	3.3	0.97
126	2020	Teat_place_B	1556	102.1	102.2	11.4	13.2	-0.2	3.3	0.97
127	2015	Udder_balance	3049	101.2	101.7	9.0	9.9	-0.5	2.1	0.98
128	2016	Udder_balance	3383	101.7	102.1	8.3	9.1	-0.4	2.2	0.97
129	2017	Udder_balance	4130	101.7	101.9	9.0	9.9	-0.2	2.1	0.98
130	2018	Udder_balance	4712	98.9	98.9	9.2	10.2	0.0	2.2	0.98
131	2019	Udder_balance	4896	100.5	100.6	9.0	9.9	0.0	2.2	0.98
132	2020	Udder_balance	1556	99.6	99.9	8.9	9.8	-0.3	2.3	0.98
133	2015	Body	3062	98.6	97.4	10.3	10.5	1.2	2.1	0.98
134	2016	Body	3373	99.1	97.6	9.6	9.8	1.5	2.1	0.98
135	2017	Body	4120	100.3	98.7	9.2	9.5	1.6	2.1	0.98
136	2018	Body	4702	101.0	99.3	9.7	10.0	1.7	2.1	0.98
137	2019	Body	4891	103.1	101.0	9.2	9.5	2.0	2.1	0.98
138	2020	Body	1556	103.6	101.3	9.1	9.6	2.3	2.2	0.97
139	2015	leg	3050	101.1	101.4	9.8	10.6	-0.3	2.6	0.97
140	2016	leg	3383	99.0	99.2	9.6	10.3	-0.2	2.7	0.97
141	2017	leg	4130	100.9	100.8	8.9	9.5	0.1	2.6	0.96
142	2018	leg	4712	100.5	100.3	8.6	9.2	0.2	2.6	0.96
143	2019	leg	4897	101.0	100.4	9.0	9.7	0.6	2.6	0.96
144	2020	leg	1556	102.9	102.5	9.1	10.1	0.4	2.7	0.97

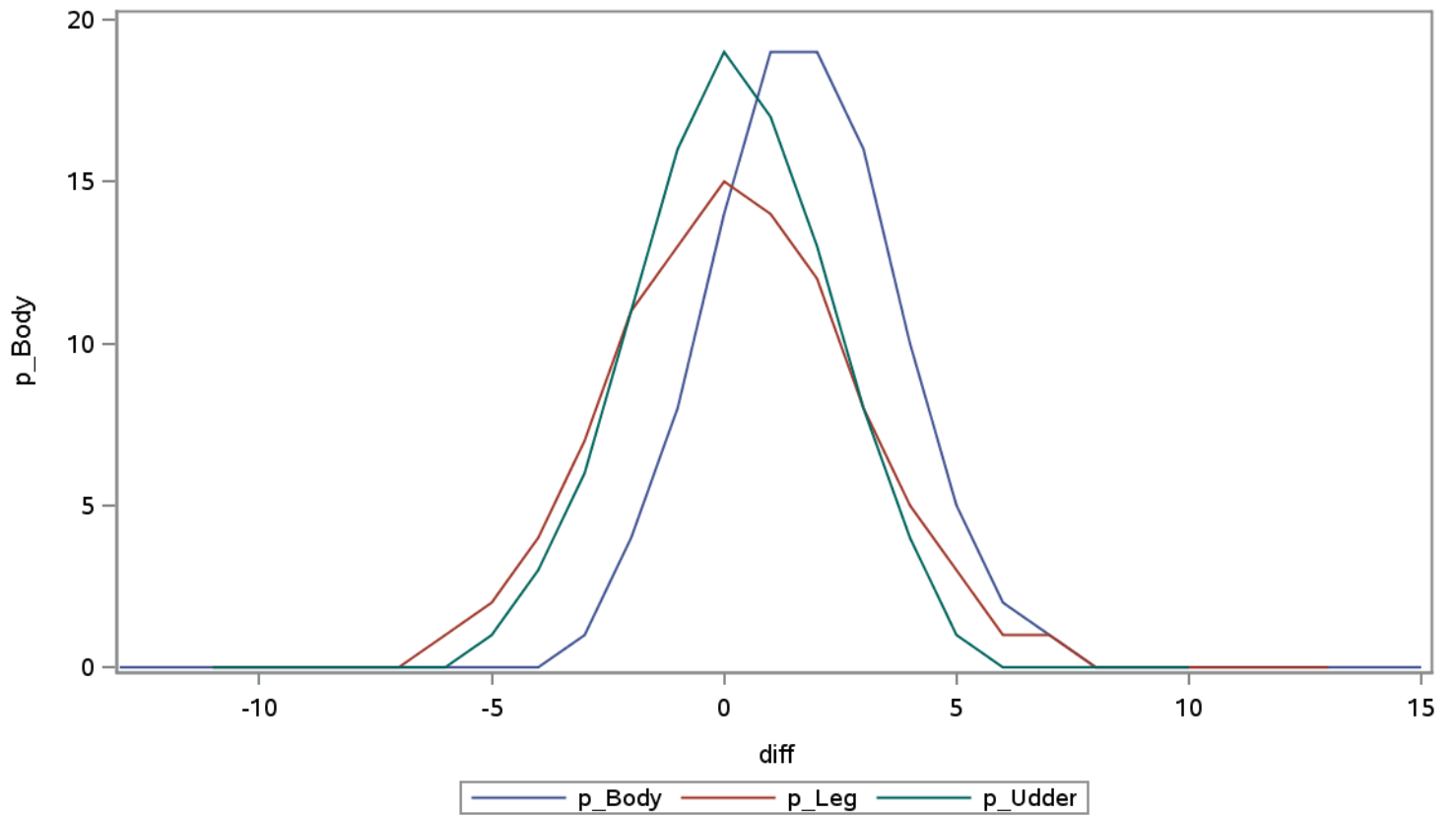
**JER summery statistics for SS and current breeding value for genotyped females with phenotype, by birth year**

Obs	BYR	name	no	mean_ss	mean_two	std_ss	std_two	mean_dif	std_dif	corr_SS_Two
145	2015	udder	3064	96.3	97.0	9.0	8.9	-0.8	2.0	0.97
146	2016	udder	3385	96.9	97.4	8.8	8.7	-0.5	2.0	0.97
147	2017	udder	4130	101.8	101.8	9.1	9.0	-0.1	2.0	0.98
148	2018	udder	4712	101.5	101.2	9.5	9.4	0.3	2.0	0.98
149	2019	udder	4896	103.1	102.1	9.8	9.6	0.9	2.1	0.98
150	2020	udder	1556	103.9	102.7	9.3	9.2	1.2	2.1	0.97

**distribution of differences in number of females and in percentage**

Obs	diff	d_Body	d_Leg	d_Udder	p_Body	p_Leg	p_Udder
1	-13	1	.	.	0	.	.
2	-11	1	2	4	0	0	0
3	-10	.	7	1	.	0	0
4	-9	.	11	5	.	0	0
5	-8	1	35	6	0	0	0
6	-7	5	90	19	0	0	0
7	-6	7	221	52	0	1	0
8	-5	28	447	203	0	2	1
9	-4	91	929	614	0	4	3
10	-3	303	1585	1343	1	7	6
11	-2	813	2439	2415	4	11	11
12	-1	1818	2894	3501	8	13	16
13	0	2952	3358	4058	14	15	19
14	1	4049	3147	3775	19	14	17
15	2	4171	2568	2788	19	12	13
16	3	3406	1840	1694	16	8	8
17	4	2140	1111	837	10	5	4
18	5	1101	591	309	5	3	1
19	6	511	271	84	2	1	0
20	7	192	110	28	1	1	0
21	8	69	44	5	0	0	0
22	9	27	12	1	0	0	0
23	10	10	10	1	0	0	0
24	11	2	4	.	0	0	.
25	12	1	1	.	0	0	.
26	13	2	1	.	0	0	.
27	14	1	.	.	0	.	.
28	15	2	.	.	0	.	.

distribution of differences in number of females and in percentage



## RDC summary statistics for SS and current breeding value for genotyped females with phenotype, by birth year

Obs	BYR	name	no	mean_ss	mean_two	std_ss	std_two	mean_dif	std_dif	corr_SS_Two
1	2015	Stature	6800	98.7	98.5	10.7	7.6	0.3	3.6	0.98
2	2016	Stature	9236	99.9	99.3	10.9	7.7	0.6	3.7	0.98
3	2017	Stature	10255	100.1	99.4	10.7	7.6	0.7	3.7	0.98
4	2018	Stature	11210	100.5	99.5	10.4	7.5	1.0	3.5	0.98
5	2019	Stature	10608	101.1	99.8	10.3	7.4	1.4	3.6	0.97
6	2020	Stature	1984	102.2	100.4	10.0	7.1	1.8	3.5	0.97
7	2015	Body_depth	6801	101.3	100.5	9.7	8.9	0.8	2.2	0.98
8	2016	Body_depth	9238	100.9	100.1	9.8	8.9	0.8	2.2	0.98
9	2017	Body_depth	10254	100.2	99.5	9.3	8.5	0.7	2.2	0.97
10	2018	Body_depth	11209	100.4	99.8	10.0	9.1	0.6	2.2	0.98
11	2019	Body_depth	10608	101.5	100.7	9.5	8.8	0.8	2.2	0.97
12	2020	Body_depth	1984	103.5	102.3	9.2	8.7	1.1	2.1	0.97
13	2015	Chest_width	6801	101.0	100.9	9.6	9.2	0.2	2.5	0.97
14	2016	Chest_width	9238	101.4	101.3	9.2	8.8	0.1	2.5	0.96
15	2017	Chest_width	10254	100.1	100.0	9.2	8.8	0.1	2.5	0.96
16	2018	Chest_width	11209	100.7	100.6	9.4	9.2	0.0	2.5	0.97
17	2019	Chest_width	10608	100.5	100.7	8.9	8.8	-0.2	2.5	0.96
18	2020	Chest_width	1984	101.1	101.1	8.4	8.3	0.0	2.5	0.96
19	2015	Dairy_form	6801	99.5	99.5	5.5	5.7	0.1	2.0	0.94
20	2016	Dairy_form	9237	99.3	99.1	5.1	5.3	0.2	1.9	0.93
21	2017	Dairy_form	10254	100.6	100.4	5.1	5.3	0.2	1.9	0.93
22	2018	Dairy_form	11208	100.3	99.9	4.9	5.1	0.4	1.9	0.93
23	2019	Dairy_form	10608	102.0	101.2	4.9	5.2	0.8	1.9	0.93
24	2020	Dairy_form	1984	102.4	101.7	4.7	4.9	0.7	1.9	0.92
25	2015	top_line	6801	101.4	101.2	8.9	8.8	0.2	2.2	0.97
26	2016	top_line	9237	100.7	100.5	9.3	9.1	0.2	2.1	0.97
27	2017	top_line	10254	100.1	99.9	9.1	8.9	0.2	2.1	0.97
28	2018	top_line	11208	100.8	100.3	8.6	8.4	0.5	2.1	0.97
29	2019	top_line	10608	99.8	99.5	8.6	8.6	0.3	2.1	0.97
30	2020	top_line	1984	101.9	101.6	8.0	8.2	0.3	2.1	0.97
31	2015	Rump_width	6801	100.1	99.7	10.8	9.3	0.4	2.5	0.98
32	2016	Rump_width	9237	101.8	101.2	10.7	9.2	0.6	2.5	0.98
33	2017	Rump_width	10254	101.0	100.7	9.9	8.6	0.3	2.4	0.98
34	2018	Rump_width	11208	100.2	100.0	9.9	8.5	0.2	2.4	0.98
35	2019	Rump_width	10608	101.3	100.9	9.7	8.4	0.4	2.4	0.98
36	2020	Rump_width	1984	101.7	101.1	9.8	8.5	0.6	2.3	0.98

**RDC summery statistics for SS and current breeding value for genotyped females with phenotype, by birth year**

Obs	BYR	name	no	mean_ss	mean_two	std_ss	std_two	mean_dif	std_dif	corr_SS_Two
37	2015	Rump_angle	6801	100.8	100.6	8.2	8.1	0.2	1.7	0.98
38	2016	Rump_angle	9237	100.4	100.4	8.1	8.0	0.0	1.7	0.98
39	2017	Rump_angle	10254	101.0	101.1	7.6	7.5	0.0	1.7	0.97
40	2018	Rump_angle	11208	100.4	100.4	7.5	7.5	-0.1	1.7	0.97
41	2019	Rump_angle	10608	100.5	100.4	7.4	7.5	0.1	1.7	0.97
42	2020	Rump_angle	1984	100.4	100.3	7.7	7.8	0.0	1.7	0.97
43	2015	Rear_legs_sv	6801	100.5	100.6	7.3	7.7	-0.1	1.7	0.97
44	2016	Rear_legs_sv	9237	101.0	101.1	7.2	7.6	-0.1	1.7	0.97
45	2017	Rear_legs_sv	10255	100.6	100.8	7.1	7.4	-0.2	1.7	0.97
46	2018	Rear_legs_sv	11209	100.4	100.6	7.1	7.5	-0.2	1.7	0.97
47	2019	Rear_legs_sv	10608	100.8	101.3	6.4	6.8	-0.4	1.7	0.97
48	2020	Rear_legs_sv	1984	100.9	101.3	6.8	7.2	-0.4	1.7	0.97
49	2015	Rear_legs_bv	6801	99.3	99.5	7.5	7.7	-0.2	2.1	0.96
50	2016	Rear_legs_bv	9237	99.8	99.9	7.1	7.2	-0.1	2.1	0.96
51	2017	Rear_legs_bv	10255	99.7	99.6	7.7	7.8	0.1	2.1	0.96
52	2018	Rear_legs_bv	11209	100.9	100.7	7.1	7.3	0.2	2.1	0.96
53	2019	Rear_legs_bv	10608	102.2	101.7	7.6	7.8	0.5	2.2	0.96
54	2020	Rear_legs_bv	1984	102.4	101.9	6.7	6.9	0.5	2.2	0.95
55	2015	Hock_quality	6801	98.6	99.0	8.6	7.3	-0.5	2.2	0.97
56	2016	Hock_quality	9237	99.0	99.3	8.7	7.4	-0.3	2.3	0.97
57	2017	Hock_quality	10255	100.5	100.4	8.8	7.5	0.1	2.3	0.97
58	2018	Hock_quality	11209	101.1	100.7	8.9	7.5	0.4	2.3	0.98
59	2019	Hock_quality	10608	101.5	100.7	8.7	7.4	0.8	2.2	0.97
60	2020	Hock_quality	1984	103.2	102.1	8.3	7.1	1.0	2.2	0.97
61	2015	Bone_quality	6801	98.6	98.8	9.8	8.4	-0.2	2.2	0.98
62	2016	Bone_quality	9237	98.7	98.7	9.9	8.4	-0.1	2.3	0.98
63	2017	Bone_quality	10255	100.3	100.0	10.0	8.5	0.2	2.3	0.98
64	2018	Bone_quality	11209	100.8	100.4	10.1	8.6	0.3	2.3	0.98
65	2019	Bone_quality	10608	101.6	100.8	9.9	8.5	0.8	2.3	0.98
66	2020	Bone_quality	1984	102.4	101.6	9.4	8.1	0.9	2.2	0.98
67	2015	Foot_angle	6801	100.0	99.8	6.3	6.1	0.2	2.0	0.95
68	2016	Foot_angle	9237	100.7	100.5	5.9	5.6	0.2	2.0	0.94
69	2017	Foot_angle	10255	100.4	100.2	6.3	6.1	0.1	2.0	0.95
70	2018	Foot_angle	11209	100.5	100.2	6.3	6.1	0.3	2.0	0.95
71	2019	Foot_angle	10608	100.8	100.5	6.1	5.8	0.4	2.0	0.95
72	2020	Foot_angle	1984	100.7	100.5	6.0	5.9	0.2	2.0	0.94



## RDC summery statistics for SS and current breeding value for genotyped females with phenotype, by birth year

Obs	BYR	name	no	mean_ss	mean_two	std_ss	std_two	mean_dif	std_dif	corr_SS_Two
73	2015	Fore_udder_att	6801	97.8	98.1	8.4	7.7	-0.3	2.4	0.96
74	2016	Fore_udder_att	9237	99.2	99.2	8.4	7.6	0.0	2.4	0.96
75	2017	Fore_udder_att	10254	100.3	99.9	8.5	7.8	0.4	2.4	0.96
76	2018	Fore_udder_att	11208	101.1	100.3	8.0	7.3	0.8	2.3	0.96
77	2019	Fore_udder_att	10607	102.6	101.1	7.8	7.3	1.4	2.3	0.95
78	2020	Fore_udder_att	1984	103.8	102.1	8.3	7.6	1.8	2.5	0.96
79	2015	Rear_udder_hei	6801	97.3	97.5	8.1	7.3	-0.2	2.3	0.96
80	2016	Rear_udder_hei	9237	98.7	98.6	8.1	7.3	0.1	2.3	0.96
81	2017	Rear_udder_hei	10254	100.1	99.5	7.7	7.0	0.5	2.2	0.96
82	2018	Rear_udder_hei	11208	101.1	100.1	8.3	7.4	1.0	2.3	0.96
83	2019	Rear_udder_hei	10607	102.1	100.5	7.5	6.9	1.6	2.3	0.95
84	2020	Rear_udder_hei	1984	101.7	100.1	8.2	7.4	1.6	2.3	0.96
85	2015	Rear_udder_wid	6801	99.0	98.8	8.2	7.9	0.3	1.9	0.97
86	2016	Rear_udder_wid	9237	99.5	99.0	8.2	7.9	0.5	1.9	0.97
87	2017	Rear_udder_wid	10254	100.1	99.3	7.7	7.5	0.8	2.0	0.97
88	2018	Rear_udder_wid	11208	100.7	99.7	7.6	7.3	1.0	1.9	0.97
89	2019	Rear_udder_wid	10607	102.4	100.9	7.6	7.4	1.5	2.0	0.97
90	2020	Rear_udder_wid	1984	101.8	100.2	7.4	7.2	1.6	2.0	0.96
91	2015	Udder_cleft_su	6801	100.5	99.9	8.9	8.6	0.6	2.4	0.96
92	2016	Udder_cleft_su	9237	100.2	99.6	9.3	8.9	0.6	2.4	0.97
93	2017	Udder_cleft_su	10254	99.9	99.3	9.3	8.9	0.6	2.4	0.97
94	2018	Udder_cleft_su	11208	100.7	99.9	9.0	8.7	0.8	2.4	0.96
95	2019	Udder_cleft_su	10607	101.1	99.9	9.2	9.0	1.2	2.4	0.97
96	2020	Udder_cleft_su	1984	102.0	100.9	9.0	9.0	1.2	2.4	0.96
97	2015	Udder_depth	6801	95.9	96.3	8.8	8.4	-0.4	1.8	0.98
98	2016	Udder_depth	9237	98.4	98.5	8.5	8.1	-0.1	1.9	0.98
99	2017	Udder_depth	10254	100.0	99.7	9.1	8.5	0.3	1.9	0.98
100	2018	Udder_depth	11208	101.2	100.6	8.5	8.0	0.6	1.9	0.98
101	2019	Udder_depth	10607	102.2	101.0	8.8	8.4	1.2	2.0	0.98
102	2020	Udder_depth	1984	103.0	101.5	9.1	8.5	1.5	1.9	0.98
103	2015	Teat_length	6801	98.7	99.2	9.8	9.2	-0.5	1.8	0.98
104	2016	Teat_length	9237	100.1	100.5	9.8	9.2	-0.4	1.8	0.98
105	2017	Teat_length	10254	99.8	100.2	9.9	9.2	-0.4	1.8	0.98
106	2018	Teat_length	11208	101.0	101.2	9.6	9.0	-0.2	1.8	0.98
107	2019	Teat_length	10607	100.2	100.5	9.3	8.7	-0.4	1.9	0.98
108	2020	Teat_length	1984	100.6	101.1	8.8	8.4	-0.4	1.9	0.98

## RDC summery statistics for SS and current breeding value for genotyped females with phenotype, by birth year

Obs	BYR	name	no	mean_ss	mean_two	std_ss	std_two	mean_dif	std_dif	corr_SS_Two
109	2015	Teat_thickness	6801	100.0	100.1	8.9	9.0	-0.1	1.7	0.98
110	2016	Teat_thickness	9237	100.6	100.7	8.5	8.6	-0.1	1.7	0.98
111	2017	Teat_thickness	10254	100.5	100.6	8.4	8.5	-0.1	1.7	0.98
112	2018	Teat_thickness	11208	100.3	100.4	8.2	8.2	-0.1	1.7	0.98
113	2019	Teat_thickness	10607	100.5	100.8	8.3	8.5	-0.2	1.7	0.98
114	2020	Teat_thickness	1984	101.1	101.5	8.3	8.5	-0.4	1.8	0.98
115	2015	Teat_place_f	6801	98.8	98.4	9.5	9.2	0.4	2.1	0.97
116	2016	Teat_place_f	9237	99.6	99.0	9.2	8.9	0.6	2.1	0.97
117	2017	Teat_place_f	10254	100.6	99.8	9.5	9.1	0.8	2.1	0.97
118	2018	Teat_place_f	11208	100.5	99.6	9.3	9.0	0.9	2.1	0.97
119	2019	Teat_place_f	10607	101.5	100.3	9.8	9.5	1.2	2.2	0.98
120	2020	Teat_place_f	1984	101.2	100.0	9.0	8.7	1.2	2.1	0.97
121	2015	Teat_place_B	6801	100.8	100.4	9.5	10.2	0.5	2.9	0.96
122	2016	Teat_place_B	9237	100.0	99.4	9.8	10.5	0.6	3.0	0.96
123	2017	Teat_place_B	10254	101.1	100.4	9.6	10.3	0.7	3.0	0.96
124	2018	Teat_place_B	11208	100.1	99.4	9.4	10.2	0.7	3.0	0.96
125	2019	Teat_place_B	10607	101.6	100.6	9.5	10.3	1.0	3.1	0.95
126	2020	Teat_place_B	1984	101.2	100.0	9.1	10.2	1.2	3.2	0.95
127	2015	Udder_balance	6801	97.7	97.8	8.4	8.3	-0.1	2.2	0.97
128	2016	Udder_balance	9237	99.7	99.5	8.7	8.5	0.1	2.2	0.97
129	2017	Udder_balance	10254	100.2	99.8	8.7	8.7	0.4	2.2	0.97
130	2018	Udder_balance	11208	100.7	100.2	8.6	8.4	0.6	2.2	0.97
131	2019	Udder_balance	10607	101.4	100.7	9.2	9.1	0.8	2.2	0.97
132	2020	Udder_balance	1984	100.5	99.6	10.0	9.9	0.9	2.2	0.98
133	2015	Body	6800	100.6	100.1	10.1	8.9	0.6	2.3	0.98
134	2016	Body	9236	101.4	100.7	10.3	9.0	0.7	2.4	0.98
135	2017	Body	10255	100.6	100.0	9.7	8.6	0.6	2.3	0.98
136	2018	Body	11210	100.7	100.1	10.4	9.2	0.6	2.3	0.98
137	2019	Body	10608	101.7	101.0	9.7	8.8	0.7	2.2	0.98
138	2020	Body	1984	103.2	102.1	9.4	8.5	1.1	2.2	0.98
139	2015	leg	6801	97.9	98.2	9.2	8.2	-0.3	2.3	0.97
140	2016	leg	9237	98.4	98.6	9.1	8.1	-0.1	2.4	0.97
141	2017	leg	10255	99.9	99.6	9.2	8.2	0.3	2.3	0.97
142	2018	leg	11209	101.0	100.4	9.0	8.0	0.6	2.4	0.97
143	2019	leg	10608	102.2	101.0	9.2	8.2	1.2	2.3	0.97
144	2020	leg	1984	103.5	102.1	8.5	7.6	1.4	2.3	0.96

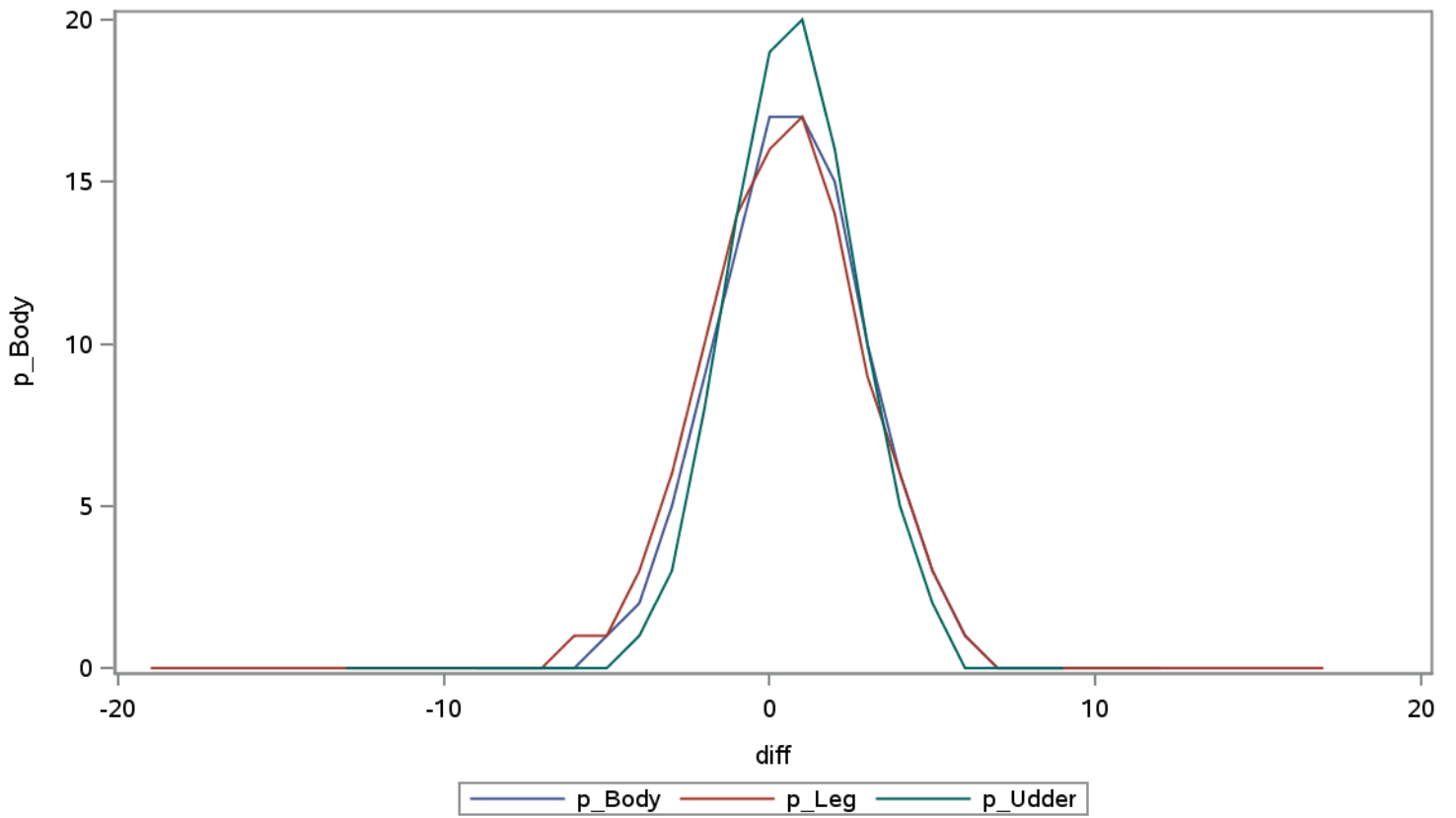
**RDC summary statistics for SS and current breeding value for genotyped females with phenotype, by birth year**

Obs	BYR	name	no	mean_ss	mean_two	std_ss	std_two	mean_dif	std_dif	corr_SS_Two
145	2015	udder	6801	95.9	96.2	7.9	7.4	-0.3	1.8	0.97
146	2016	udder	9237	98.4	98.4	7.9	7.4	0.0	1.8	0.97
147	2017	udder	10254	99.7	99.2	8.0	7.5	0.5	1.9	0.97
148	2018	udder	11208	101.2	100.2	7.6	7.1	0.9	1.8	0.97
149	2019	udder	10607	102.3	100.8	7.2	6.8	1.5	1.9	0.97
150	2020	udder	1984	103.4	101.7	7.4	7.1	1.7	1.9	0.97

**distribution of differences in number of females and in percentage**

Obs	diff	d_Body	d_Leg	d_Udder	p_Body	p_Leg	p_Udder
1	-19	.	1	.	.	0	.
2	-13	.	.	1	.	.	0
3	-12	.	.	1	.	.	0
4	-11	.	1	.	.	0	.
5	-10	.	5	4	.	0	0
6	-9	1	3	3	0	0	0
7	-8	6	19	7	0	0	0
8	-7	29	93	10	0	0	0
9	-6	121	265	47	0	1	0
10	-5	424	664	184	1	1	0
11	-4	1003	1475	594	2	3	1
12	-3	2453	2881	1729	5	6	3
13	-2	4508	4930	4032	9	10	8
14	-1	6712	6799	7042	13	14	14
15	0	8473	8134	9655	17	16	19
16	1	8740	8269	10198	17	17	20
17	2	7408	6871	8189	15	14	16
18	3	4987	4725	4966	10	9	10
19	4	2938	2822	2341	6	6	5
20	5	1433	1298	817	3	3	2
21	6	568	579	220	1	1	0
22	7	222	181	45	0	0	0
23	8	50	46	5	0	0	0
24	9	13	24	1	0	0	0
25	10	3	5	.	0	0	.
26	11	.	2	.	.	0	.
27	12	1	1	.	0	0	.
28	17	.	1	.	.	0	.

distribution of differences in number of females and in percentage



## HOL summary statistics for SS and current breeding value for nongenotyped females with phenotype, by birth year

Obs	BYR	name	no	mean_ss	mean_ebv	std_ss	std_ebv	mean_dif	std_dif	corr_SS_ebv
1	2015	Stature	71703	97.1	97.2	10.2	10.2	-0.2	1.0	1.00
2	2016	Stature	64226	97.5	97.6	10.1	10.1	-0.2	1.1	0.99
3	2017	Stature	54465	99.0	99.2	10.1	10.1	-0.1	1.1	0.99
4	2018	Stature	47030	100.1	100.2	10.0	10.0	-0.1	1.0	0.99
5	2019	Stature	38534	101.9	101.8	10.0	10.0	0.0	1.0	0.99
6	2020	Stature	5812	103.6	103.3	9.9	9.8	0.2	1.1	0.99
7	2015	Body_depth	71717	102.9	102.9	7.7	7.7	-0.1	1.5	0.98
8	2016	Body_depth	64246	102.2	102.2	7.5	7.5	-0.1	1.5	0.98
9	2017	Body_depth	54494	100.7	100.7	8.1	8.1	0.0	1.5	0.98
10	2018	Body_depth	47061	100.4	100.5	8.4	8.4	0.0	1.4	0.99
11	2019	Body_depth	38549	101.5	101.6	8.3	8.3	-0.1	1.3	0.99
12	2020	Body_depth	5813	101.8	101.8	8.6	8.5	0.0	1.5	0.99
13	2015	Chest_width	71717	101.6	102.0	7.0	6.9	-0.4	1.7	0.97
14	2016	Chest_width	64245	101.6	101.8	6.9	6.8	-0.2	1.7	0.97
15	2017	Chest_width	54494	100.8	100.8	6.9	6.9	-0.1	1.7	0.97
16	2018	Chest_width	47059	100.7	100.6	7.2	7.3	0.0	1.6	0.98
17	2019	Chest_width	38549	100.5	100.5	7.4	7.4	0.0	1.6	0.98
18	2020	Chest_width	5813	101.1	101.0	7.6	7.5	0.2	1.7	0.97
19	2015	Dairy_form	71717	98.4	98.4	7.4	7.4	0.0	1.3	0.98
20	2016	Dairy_form	64244	98.4	98.5	7.8	7.8	0.0	1.3	0.99
21	2017	Dairy_form	54494	99.7	99.8	7.5	7.5	-0.1	1.3	0.99
22	2018	Dairy_form	47058	99.9	100.0	7.9	7.9	-0.1	1.2	0.99
23	2019	Dairy_form	38549	102.1	102.0	7.2	7.2	0.0	1.2	0.99
24	2020	Dairy_form	5813	102.6	102.5	7.8	7.7	0.2	1.4	0.98
25	2015	top_line	71717	100.3	100.2	6.5	6.5	0.1	1.5	0.97
26	2016	top_line	64243	100.2	100.1	6.6	6.5	0.1	1.5	0.97
27	2017	top_line	54493	99.5	99.5	6.7	6.6	0.0	1.5	0.97
28	2018	top_line	47058	100.7	100.8	6.3	6.3	0.0	1.4	0.97
29	2019	top_line	38549	100.6	100.7	6.2	6.1	-0.1	1.4	0.98
30	2020	top_line	5813	100.2	100.3	6.1	6.1	-0.1	1.5	0.97
31	2015	Rump_width	71716	98.1	98.0	8.6	8.7	0.1	1.6	0.98
32	2016	Rump_width	64243	98.4	98.5	8.6	8.6	0.0	1.6	0.98
33	2017	Rump_width	54491	99.9	99.9	8.4	8.4	0.0	1.6	0.98
34	2018	Rump_width	47058	100.5	100.5	8.3	8.4	0.0	1.5	0.98
35	2019	Rump_width	38549	100.7	100.7	8.6	8.6	0.1	1.5	0.99
36	2020	Rump_width	5813	101.6	101.3	8.6	8.4	0.3	1.6	0.98

## HOL summary statistics for SS and current breeding value for nongenotyped females with phenotype, by birth year

Obs	BYR	name	no	mean_ss	mean_ebv	std_ss	std_ebv	mean_dif	std_dif	corr_SS_ebv
37	2015	Rump_angle	71716	102.0	102.2	7.8	7.7	-0.1	1.5	0.98
38	2016	Rump_angle	64243	101.8	101.9	7.8	7.8	-0.1	1.5	0.98
39	2017	Rump_angle	54492	100.7	100.7	7.8	7.8	0.0	1.5	0.98
40	2018	Rump_angle	47058	100.6	100.6	7.8	7.8	0.0	1.4	0.98
41	2019	Rump_angle	38548	100.6	100.6	7.6	7.6	0.1	1.4	0.98
42	2020	Rump_angle	5813	101.2	101.0	6.9	6.9	0.1	1.5	0.98
43	2015	Rear_legs_sv	71717	101.0	100.5	7.8	7.8	0.5	1.8	0.97
44	2016	Rear_legs_sv	64242	100.6	100.3	8.1	8.1	0.3	1.9	0.97
45	2017	Rear_legs_sv	54493	100.4	100.3	7.6	7.6	0.1	1.8	0.97
46	2018	Rear_legs_sv	47056	101.1	101.0	7.5	7.5	0.0	1.7	0.97
47	2019	Rear_legs_sv	38548	99.0	99.0	7.5	7.6	0.0	1.7	0.98
48	2020	Rear_legs_sv	5813	99.9	99.8	7.5	7.4	0.0	1.9	0.97
49	2015	Rear_legs_bv	71716	98.5	99.4	7.2	7.2	-0.9	1.8	0.97
50	2016	Rear_legs_bv	64243	98.8	99.4	7.1	7.0	-0.6	1.9	0.97
51	2017	Rear_legs_bv	54493	99.8	100.0	7.0	7.0	-0.2	1.8	0.97
52	2018	Rear_legs_bv	47055	100.4	100.4	7.2	7.2	0.0	1.7	0.97
53	2019	Rear_legs_bv	38547	100.6	100.3	7.0	6.9	0.2	1.7	0.97
54	2020	Rear_legs_bv	5813	100.7	100.3	7.0	7.0	0.4	1.9	0.96
55	2015	Hock_quality	71715	98.8	99.1	7.4	7.4	-0.3	1.6	0.98
56	2016	Hock_quality	64242	98.3	98.5	7.2	7.2	-0.3	1.7	0.97
57	2017	Hock_quality	54491	99.4	99.6	7.1	7.0	-0.2	1.6	0.97
58	2018	Hock_quality	47055	100.5	100.6	6.8	6.8	0.0	1.5	0.97
59	2019	Hock_quality	38547	100.4	100.3	6.4	6.3	0.1	1.5	0.97
60	2020	Hock_quality	5813	101.0	101.0	6.4	6.3	0.1	1.6	0.97
61	2015	Bone_quality	71715	97.7	97.9	8.2	8.2	-0.2	1.6	0.98
62	2016	Bone_quality	64241	97.6	97.8	7.7	7.7	-0.2	1.7	0.98
63	2017	Bone_quality	54491	99.3	99.4	7.8	7.7	-0.1	1.7	0.98
64	2018	Bone_quality	47055	100.3	100.3	7.8	7.8	-0.1	1.6	0.98
65	2019	Bone_quality	38547	100.9	100.9	7.4	7.4	0.0	1.5	0.98
66	2020	Bone_quality	5813	100.1	100.2	7.4	7.3	-0.1	1.6	0.98
67	2015	Foot_angle	71715	98.1	98.5	6.6	6.6	-0.4	1.7	0.97
68	2016	Foot_angle	64242	99.4	99.7	6.9	6.9	-0.3	1.7	0.97
69	2017	Foot_angle	54490	100.1	100.3	6.6	6.6	-0.2	1.7	0.97
70	2018	Foot_angle	47054	100.3	100.3	6.2	6.2	0.0	1.6	0.97
71	2019	Foot_angle	38546	101.5	101.4	6.1	6.1	0.1	1.6	0.97
72	2020	Foot_angle	5813	101.9	101.5	6.2	6.3	0.4	1.8	0.96

## HOL summary statistics for SS and current breeding value for nongenotyped females with phenotype, by birth year

Obs	BYR	name	no	mean_ss	mean_ebv	std_ss	std_ebv	mean_dif	std_dif	corr_SS_ebv
73	2015	Fore_udder_att	71715	94.2	94.8	6.9	6.8	-0.6	1.6	0.97
74	2016	Fore_udder_att	64239	96.4	96.8	7.1	7.1	-0.4	1.6	0.97
75	2017	Fore_udder_att	54487	98.5	98.8	7.1	7.1	-0.3	1.5	0.98
76	2018	Fore_udder_att	47051	100.1	100.1	6.8	6.8	-0.1	1.5	0.98
77	2019	Fore_udder_att	38545	101.1	101.1	6.7	6.7	0.0	1.5	0.97
78	2020	Fore_udder_att	5813	101.8	101.6	6.7	6.7	0.2	1.7	0.97
79	2015	Rear_udder_hei	71714	94.9	95.3	7.6	7.6	-0.4	1.6	0.98
80	2016	Rear_udder_hei	64238	95.9	96.2	8.0	8.0	-0.4	1.7	0.98
81	2017	Rear_udder_hei	54487	98.5	98.8	7.8	7.8	-0.3	1.6	0.98
82	2018	Rear_udder_hei	47048	99.9	100.0	8.0	8.1	-0.1	1.6	0.98
83	2019	Rear_udder_hei	38544	101.8	101.7	8.1	8.2	0.0	1.6	0.98
84	2020	Rear_udder_hei	5813	103.0	102.7	8.1	8.0	0.3	1.8	0.97
85	2015	Rear_udder_wid	71714	97.2	97.7	6.9	6.9	-0.4	1.5	0.98
86	2016	Rear_udder_wid	64238	97.7	98.0	7.1	7.2	-0.4	1.5	0.98
87	2017	Rear_udder_wid	54487	99.3	99.6	7.1	7.1	-0.2	1.5	0.98
88	2018	Rear_udder_wid	47048	99.9	100.0	7.6	7.6	-0.1	1.4	0.98
89	2019	Rear_udder_wid	38544	101.8	101.7	7.5	7.6	0.0	1.4	0.98
90	2020	Rear_udder_wid	5813	102.3	102.1	7.7	7.7	0.2	1.6	0.98
91	2015	Udder_cleft_su	71714	100.5	100.8	7.8	7.8	-0.3	1.7	0.98
92	2016	Udder_cleft_su	64238	99.9	100.1	7.6	7.5	-0.2	1.7	0.97
93	2017	Udder_cleft_su	54487	99.9	100.0	7.5	7.5	-0.1	1.7	0.98
94	2018	Udder_cleft_su	47049	100.6	100.7	7.3	7.3	-0.1	1.6	0.98
95	2019	Udder_cleft_su	38544	101.1	101.1	7.1	7.1	0.0	1.6	0.98
96	2020	Udder_cleft_su	5813	101.3	101.2	7.1	6.9	0.1	1.7	0.97
97	2015	Udder_depth	71714	91.9	92.7	8.5	8.3	-0.8	1.8	0.98
98	2016	Udder_depth	64239	94.1	94.7	8.4	8.3	-0.7	1.8	0.98
99	2017	Udder_depth	54487	97.8	98.0	8.8	8.6	-0.3	1.9	0.98
100	2018	Udder_depth	47049	100.2	100.3	8.5	8.5	-0.1	1.8	0.98
101	2019	Udder_depth	38544	100.7	100.8	8.3	8.4	-0.1	1.8	0.98
102	2020	Udder_depth	5813	102.1	102.1	8.4	8.3	0.0	2.0	0.97
103	2015	Teat_length	71714	99.5	99.6	7.3	7.2	0.0	1.3	0.98
104	2016	Teat_length	64236	100.1	100.1	7.6	7.6	0.0	1.3	0.98
105	2017	Teat_length	54487	99.4	99.4	7.3	7.2	0.0	1.3	0.98
106	2018	Teat_length	47052	100.4	100.4	6.9	6.9	0.0	1.2	0.98
107	2019	Teat_length	38544	100.3	100.4	6.9	6.9	0.0	1.2	0.99
108	2020	Teat_length	5813	99.7	99.6	6.8	6.8	0.1	1.3	0.98



**HOL summary statistics for SS and current breeding value for nongenotyped females with phenotype,  
by birth year**

Obs	BYR	name	no	mean_ss	mean_ebv	std_ss	std_ebv	mean_dif	std_dif	corr_SS_ebv
109	2015	Teat_thickness	71714	101.4	101.3	8.2	8.2	0.1	1.5	0.98
110	2016	Teat_thickness	64236	101.4	101.4	8.5	8.5	0.0	1.6	0.98
111	2017	Teat_thickness	54487	99.7	99.8	7.9	7.9	-0.1	1.6	0.98
112	2018	Teat_thickness	47052	100.7	100.7	8.3	8.3	0.0	1.5	0.98
113	2019	Teat_thickness	38544	100.5	100.6	8.0	8.0	-0.1	1.5	0.98
114	2020	Teat_thickness	5813	99.9	100.0	7.8	7.9	-0.1	1.6	0.98
115	2015	Teat_place_f	71714	96.8	96.8	8.2	8.1	0.0	1.4	0.99
116	2016	Teat_place_f	64238	98.3	98.4	7.7	7.6	-0.1	1.5	0.98
117	2017	Teat_place_f	54487	99.5	99.6	7.7	7.6	-0.1	1.4	0.98
118	2018	Teat_place_f	47049	100.3	100.4	7.3	7.3	-0.1	1.4	0.98
119	2019	Teat_place_f	38544	101.1	101.1	7.1	7.1	0.0	1.3	0.98
120	2020	Teat_place_f	5813	101.5	101.5	7.2	7.2	0.0	1.4	0.98
121	2015	Teat_place_B	71714	98.9	98.7	8.2	8.2	0.2	1.5	0.98
122	2016	Teat_place_B	64238	99.4	99.3	7.8	7.8	0.1	1.5	0.98
123	2017	Teat_place_B	54487	99.9	99.9	7.7	7.7	0.1	1.5	0.98
124	2018	Teat_place_B	47049	100.5	100.6	7.4	7.4	-0.1	1.4	0.98
125	2019	Teat_place_B	38544	101.0	101.2	7.3	7.2	-0.2	1.4	0.98
126	2020	Teat_place_B	5813	101.9	102.1	7.2	7.2	-0.2	1.5	0.98
127	2015	Udder_balance	71714	97.0	97.5	8.0	7.9	-0.6	1.9	0.97
128	2016	Udder_balance	64237	98.3	98.7	7.8	7.7	-0.4	1.9	0.97
129	2017	Udder_balance	54487	98.8	99.0	8.0	7.9	-0.2	1.9	0.97
130	2018	Udder_balance	47051	100.5	100.6	7.7	7.7	-0.1	1.8	0.97
131	2019	Udder_balance	38544	100.9	100.9	7.9	7.9	0.0	1.7	0.98
132	2020	Udder_balance	5813	101.5	101.3	8.3	8.3	0.2	1.9	0.97
133	2015	Body	71703	99.3	99.2	9.2	9.3	0.1	1.4	0.99
134	2016	Body	64226	99.4	99.2	9.1	9.1	0.1	1.4	0.99
135	2017	Body	54465	99.9	99.8	9.3	9.3	0.2	1.4	0.99
136	2018	Body	47030	100.5	100.2	9.6	9.7	0.2	1.4	0.99
137	2019	Body	38534	102.1	101.9	9.6	9.6	0.3	1.3	0.99
138	2020	Body	5812	103.5	103.0	9.7	9.6	0.5	1.4	0.99
139	2015	leg	71715	96.9	97.8	6.3	6.3	-0.9	1.5	0.97
140	2016	leg	64242	97.2	97.9	6.2	6.2	-0.7	1.6	0.97
141	2017	leg	54491	99.1	99.5	6.3	6.3	-0.4	1.6	0.97
142	2018	leg	47055	100.2	100.3	6.0	6.1	-0.1	1.5	0.97
143	2019	leg	38547	101.0	100.9	6.0	6.0	0.1	1.4	0.97
144	2020	leg	5813	101.1	100.9	6.0	6.0	0.2	1.6	0.96

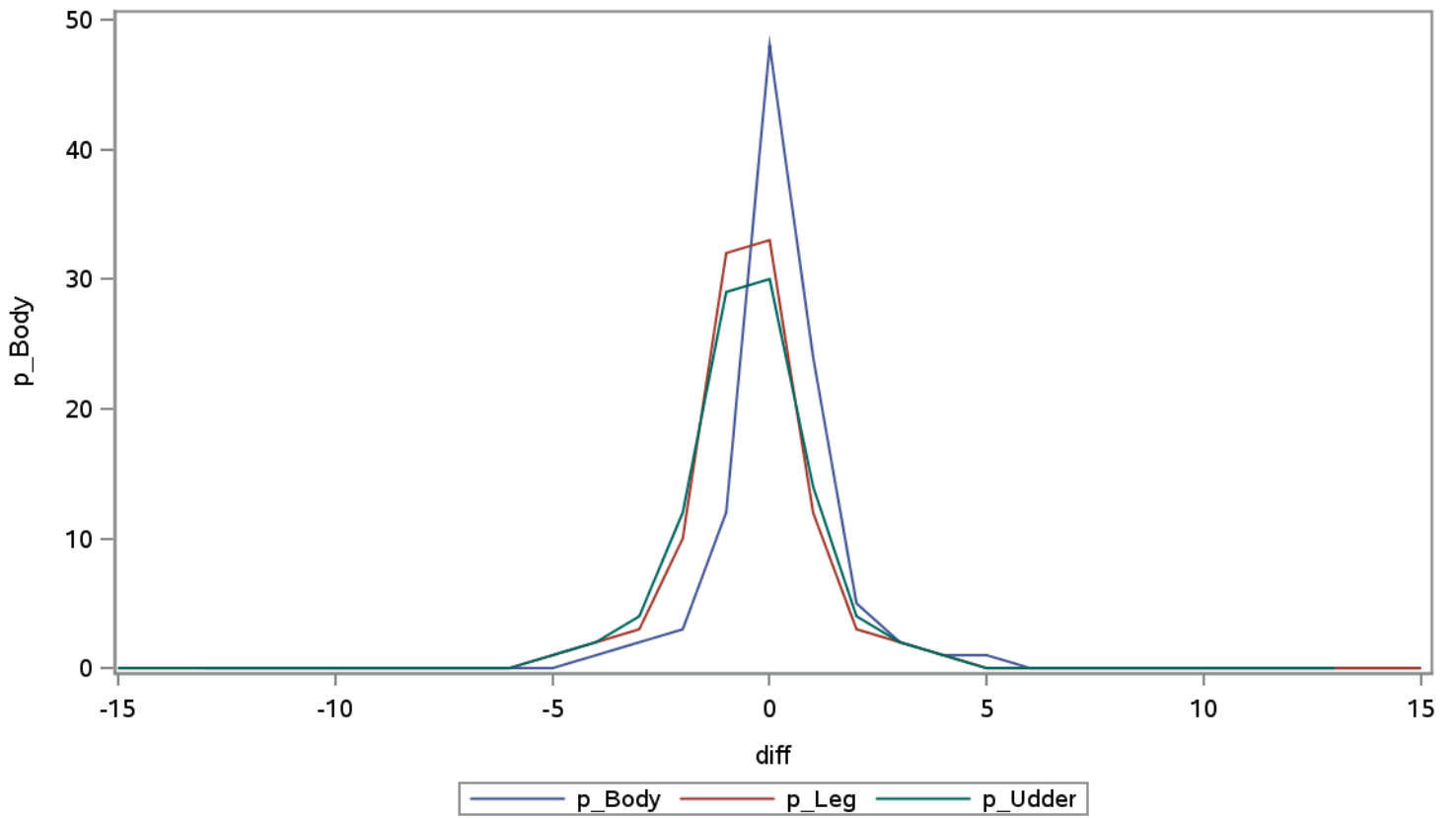
**HOL summary statistics for SS and current breeding value for nongenotyped females with phenotype,  
by birth year**

Obs	BYR	name	no	mean_ss	mean_ebv	std_ss	std_ebv	mean_dif	std_dif	corr_SS_ebv
145	2015	udder	71714	93.2	94.0	7.5	7.4	-0.8	1.6	0.98
146	2016	udder	64239	94.8	95.4	7.5	7.4	-0.7	1.6	0.98
147	2017	udder	54487	98.1	98.4	7.7	7.5	-0.4	1.6	0.98
148	2018	udder	47049	100.1	100.2	7.3	7.3	-0.1	1.6	0.98
149	2019	udder	38544	101.2	101.2	7.3	7.3	0.0	1.6	0.98
150	2020	udder	5813	102.2	102.0	7.2	7.1	0.2	1.8	0.97

**distribution of differences in number of females and in percentage**

Obs	diff	d_Body	d_Leg	d_Udder	p_Body	p_Leg	p_Udder
1	-15	.	1	1	.	0	0
2	-14	.	2	2	.	0	0
3	-13	1	3	3	0	0	0
4	-12	5	11	6	0	0	0
5	-11	11	21	24	0	0	0
6	-10	20	62	47	0	0	0
7	-9	57	109	125	0	0	0
8	-8	119	303	277	0	0	0
9	-7	256	586	606	0	0	0
10	-6	587	1133	1241	0	0	0
11	-5	1251	2286	2505	0	1	1
12	-4	2359	4332	4739	1	2	2
13	-3	4556	9285	10501	2	3	4
14	-2	9107	29130	34117	3	10	12
15	-1	33700	88989	80871	12	32	29
16	0	136199	92939	84690	48	33	30
17	1	67551	33724	39736	24	12	14
18	2	13896	9740	12414	5	3	4
19	3	6157	4460	5049	2	2	2
20	4	2989	2405	2545	1	1	1
21	5	1562	1217	1346	1	0	0
22	6	778	626	571	0	0	0
23	7	358	286	245	0	0	0
24	8	145	125	98	0	0	0
25	9	69	50	51	0	0	0
26	10	26	25	20	0	0	0
27	11	6	5	14	0	0	0
28	12	3	3	1	0	0	0
29	13	1	4	1	0	0	0
30	15	1	1	.	0	0	.

distribution of differences in number of females and in percentage



**JER summary statistics for SS and current breeding value for nongenotyped females with phenotype,  
by birth year**

Obs	BYR	name	no	mean_ss	mean_ebv	std_ss	std_ebv	mean_dif	std_dif	corr_SS_ebv
1	2015	Stature	10217	97.3	97.2	7.8	7.8	0.1	1.5	0.98
2	2016	Stature	8945	96.9	96.8	7.4	7.5	0.2	1.5	0.98
3	2017	Stature	7780	99.5	99.1	7.5	7.5	0.5	1.4	0.98
4	2018	Stature	7307	100.2	99.5	7.5	7.5	0.7	1.4	0.98
5	2019	Stature	6508	102.7	101.6	7.2	7.4	1.1	1.3	0.98
6	2020	Stature	1727	103.0	101.3	6.8	7.0	1.6	1.1	0.99
7	2015	Body_depth	10251	102.6	103.1	8.8	8.8	-0.5	2.0	0.98
8	2016	Body_depth	9004	101.7	102.1	8.4	8.4	-0.5	1.9	0.97
9	2017	Body_depth	7803	100.7	101.1	8.1	8.3	-0.3	1.9	0.97
10	2018	Body_depth	7326	100.1	100.3	7.5	7.7	-0.3	1.8	0.97
11	2019	Body_depth	6515	100.0	100.4	7.4	7.7	-0.4	1.7	0.98
12	2020	Body_depth	1728	99.4	99.9	7.4	7.7	-0.5	1.6	0.98
13	2015	Chest_width	10251	100.6	100.7	8.8	8.8	-0.1	2.3	0.97
14	2016	Chest_width	9004	99.9	100.1	9.4	9.5	-0.1	2.3	0.97
15	2017	Chest_width	7803	100.3	100.2	8.5	8.7	0.1	2.1	0.97
16	2018	Chest_width	7326	100.5	100.4	8.1	8.3	0.1	2.1	0.97
17	2019	Chest_width	6515	99.9	100.1	7.9	8.1	-0.2	1.9	0.97
18	2020	Chest_width	1728	99.2	99.3	8.4	8.7	-0.1	1.8	0.98
19	2015	Dairy_form	10251	99.6	100.1	7.8	7.8	-0.5	1.8	0.97
20	2016	Dairy_form	9004	99.6	100.0	8.0	8.0	-0.4	1.9	0.97
21	2017	Dairy_form	7803	100.2	100.5	7.6	7.5	-0.3	1.7	0.97
22	2018	Dairy_form	7326	100.3	100.3	7.4	7.4	0.0	1.7	0.97
23	2019	Dairy_form	6515	102.5	102.0	7.5	7.5	0.4	1.5	0.98
24	2020	Dairy_form	1728	102.5	101.9	8.0	8.1	0.5	1.3	0.99
25	2015	top_line	10251	100.5	100.2	7.7	7.4	0.4	1.9	0.97
26	2016	top_line	9004	101.6	101.1	8.1	7.8	0.5	1.9	0.97
27	2017	top_line	7803	100.0	99.6	7.1	6.9	0.4	1.7	0.97
28	2018	top_line	7326	100.3	99.9	7.4	7.3	0.4	1.7	0.97
29	2019	top_line	6515	102.4	102.0	7.4	7.4	0.4	1.5	0.98
30	2020	top_line	1728	102.9	102.8	7.2	7.2	0.1	1.4	0.98
31	2015	Rump_width	9954	97.3	97.3	8.6	8.7	0.0	1.7	0.98
32	2016	Rump_width	9004	97.7	97.8	7.7	7.9	-0.1	1.7	0.98
33	2017	Rump_width	7803	98.8	98.9	7.5	7.7	-0.1	1.6	0.98
34	2018	Rump_width	7326	101.2	101.0	8.1	8.2	0.3	1.5	0.98
35	2019	Rump_width	6515	99.9	99.6	7.5	7.7	0.4	1.4	0.98
36	2020	Rump_width	1728	99.3	98.7	7.1	7.4	0.6	1.3	0.99

**JER summary statistics for SS and current breeding value for nongenotyped females with phenotype,  
by birth year**

Obs	BYR	name	no	mean_ss	mean_ebv	std_ss	std_ebv	mean_dif	std_dif	corr_SS_ebv
37	2015	Rump_angle	10251	100.9	100.7	8.1	8.1	0.1	1.6	0.98
38	2016	Rump_angle	9004	100.5	100.6	7.7	7.7	-0.1	1.6	0.98
39	2017	Rump_angle	7803	100.3	100.2	7.5	7.6	0.0	1.5	0.98
40	2018	Rump_angle	7326	100.6	100.6	7.7	7.8	0.0	1.5	0.98
41	2019	Rump_angle	6515	101.4	101.3	6.9	7.0	0.1	1.4	0.98
42	2020	Rump_angle	1728	100.6	100.6	6.2	6.4	0.0	1.2	0.98
43	2015	Rear_legs_sv	10251	100.5	100.3	6.3	6.3	0.2	1.8	0.96
44	2016	Rear_legs_sv	9004	102.4	102.0	7.1	7.1	0.4	1.9	0.97
45	2017	Rear_legs_sv	7803	100.1	100.0	6.7	6.8	0.2	1.8	0.96
46	2018	Rear_legs_sv	7326	100.9	100.8	5.7	5.8	0.1	1.6	0.96
47	2019	Rear_legs_sv	6515	101.2	101.0	6.5	6.7	0.2	1.6	0.97
48	2020	Rear_legs_sv	1728	100.8	100.8	6.6	6.7	0.0	1.4	0.98
49	2015	Rear_legs_bv	9954	101.7	101.9	5.8	5.6	-0.2	2.0	0.94
50	2016	Rear_legs_bv	9004	100.1	100.2	7.3	7.2	-0.1	1.9	0.96
51	2017	Rear_legs_bv	7803	99.7	99.8	6.1	5.8	-0.1	1.8	0.95
52	2018	Rear_legs_bv	7326	100.9	101.0	7.5	7.3	-0.1	1.7	0.97
53	2019	Rear_legs_bv	6515	100.0	100.0	6.8	6.7	0.0	1.6	0.97
54	2020	Rear_legs_bv	1728	101.2	101.4	6.4	5.9	-0.1	1.6	0.97
55	2015	Hock_quality	9954	99.7	99.9	8.7	8.5	-0.1	2.5	0.96
56	2016	Hock_quality	9004	101.6	101.8	11.2	11.1	-0.2	2.4	0.98
57	2017	Hock_quality	7803	100.2	100.4	8.6	8.4	-0.3	2.3	0.96
58	2018	Hock_quality	7326	100.9	101.1	9.2	9.1	-0.1	2.1	0.97
59	2019	Hock_quality	6515	101.0	100.6	9.5	9.5	0.4	2.0	0.98
60	2020	Hock_quality	1728	103.2	102.8	10.2	10.3	0.4	1.9	0.98
61	2015	Bone_quality	9954	100.4	100.4	9.5	9.6	0.0	2.3	0.97
62	2016	Bone_quality	9004	101.2	101.3	10.0	10.1	0.0	2.3	0.97
63	2017	Bone_quality	7803	100.2	100.4	7.9	8.0	-0.2	2.1	0.96
64	2018	Bone_quality	7326	100.8	100.8	7.7	7.9	0.0	2.0	0.97
65	2019	Bone_quality	6515	100.7	100.6	7.9	8.1	0.1	1.9	0.97
66	2020	Bone_quality	1728	102.1	102.3	9.0	9.2	-0.2	1.9	0.98
67	2015	Foot_angle	10251	100.9	101.5	7.2	7.0	-0.6	1.9	0.96
68	2016	Foot_angle	9004	97.9	98.7	8.0	7.8	-0.8	1.9	0.97
69	2017	Foot_angle	7803	101.1	101.5	7.0	6.8	-0.4	1.8	0.97
70	2018	Foot_angle	7326	99.6	99.7	7.1	6.9	-0.1	1.7	0.97
71	2019	Foot_angle	6515	101.0	100.9	7.5	7.4	0.1	1.7	0.98
72	2020	Foot_angle	1728	101.7	101.5	6.6	6.5	0.2	1.6	0.97

**JER summary statistics for SS and current breeding value for nongenotyped females with phenotype,  
by birth year**

Obs	BYR	name	no	mean_ss	mean_ebv	std_ss	std_ebv	mean_dif	std_dif	corr_SS_ebv
73	2015	Fore_udder_att	10251	95.8	96.7	7.2	7.2	-1.0	1.9	0.97
74	2016	Fore_udder_att	9004	96.9	97.8	7.6	7.6	-0.9	1.9	0.97
75	2017	Fore_udder_att	7803	100.4	101.0	7.7	7.7	-0.6	1.8	0.97
76	2018	Fore_udder_att	7326	99.6	99.7	7.1	7.2	-0.2	1.8	0.97
77	2019	Fore_udder_att	6515	100.9	100.6	7.8	7.9	0.3	1.7	0.98
78	2020	Fore_udder_att	1728	101.2	100.4	7.8	8.0	0.8	1.7	0.98
79	2015	Rear_udder_hei	10251	97.4	98.2	6.6	6.6	-0.9	1.6	0.97
80	2016	Rear_udder_hei	9004	98.8	99.3	6.2	6.2	-0.5	1.6	0.97
81	2017	Rear_udder_hei	7803	99.6	99.8	6.0	5.9	-0.2	1.5	0.97
82	2018	Rear_udder_hei	7326	100.4	100.2	6.0	6.0	0.2	1.5	0.97
83	2019	Rear_udder_hei	6515	101.7	101.2	6.0	6.0	0.6	1.4	0.97
84	2020	Rear_udder_hei	1728	101.2	100.3	5.9	5.9	0.8	1.2	0.98
85	2015	Rear_udder_wid	9954	98.8	99.4	6.6	6.7	-0.5	1.6	0.97
86	2016	Rear_udder_wid	9004	99.0	99.4	6.7	6.9	-0.4	1.5	0.97
87	2017	Rear_udder_wid	7803	99.5	99.7	6.3	6.4	-0.1	1.5	0.97
88	2018	Rear_udder_wid	7326	100.4	100.3	6.3	6.4	0.1	1.5	0.97
89	2019	Rear_udder_wid	6515	101.2	100.9	6.1	6.3	0.3	1.4	0.97
90	2020	Rear_udder_wid	1728	101.0	100.7	6.2	6.2	0.3	1.3	0.98
91	2015	Udder_cleft_su	10251	99.6	100.3	7.4	7.3	-0.8	2.0	0.96
92	2016	Udder_cleft_su	9004	100.1	100.5	7.6	7.7	-0.4	2.0	0.97
93	2017	Udder_cleft_su	7803	101.2	101.4	7.3	7.2	-0.2	1.9	0.97
94	2018	Udder_cleft_su	7326	99.2	99.4	7.6	7.6	-0.3	1.8	0.97
95	2019	Udder_cleft_su	6515	99.9	100.0	7.2	7.3	-0.1	1.7	0.97
96	2020	Udder_cleft_su	1728	99.4	99.5	7.2	7.3	0.0	1.5	0.98
97	2015	Udder_depth	10251	95.1	95.9	7.9	7.7	-0.8	1.6	0.98
98	2016	Udder_depth	9004	95.2	95.8	7.7	7.5	-0.6	1.6	0.98
99	2017	Udder_depth	7803	100.1	100.4	8.2	8.0	-0.3	1.6	0.98
100	2018	Udder_depth	7326	99.5	99.4	8.4	8.3	0.1	1.5	0.98
101	2019	Udder_depth	6515	102.1	101.3	8.7	8.6	0.8	1.4	0.99
102	2020	Udder_depth	1728	102.5	101.2	8.0	8.0	1.3	1.3	0.99
103	2015	Teat_length	10251	100.4	100.5	9.6	9.6	-0.1	1.7	0.98
104	2016	Teat_length	9004	98.6	98.9	10.6	10.6	-0.2	1.7	0.99
105	2017	Teat_length	7803	100.5	100.6	10.0	10.0	-0.1	1.6	0.99
106	2018	Teat_length	7326	100.5	100.6	10.0	10.0	-0.1	1.6	0.99
107	2019	Teat_length	6515	100.1	100.2	10.2	10.2	-0.1	1.5	0.99
108	2020	Teat_length	1728	99.4	99.5	9.6	9.6	-0.1	1.5	0.99

**JER summary statistics for SS and current breeding value for nongenotyped females with phenotype,  
by birth year**

Obs	BYR	name	no	mean_ss	mean_ebv	std_ss	std_ebv	mean_dif	std_dif	corr_SS_ebv
109	2015	Teat_thickness	9954	102.2	102.1	6.7	6.7	0.1	1.7	0.97
110	2016	Teat_thickness	9004	100.4	100.5	7.7	7.8	-0.1	1.7	0.98
111	2017	Teat_thickness	7803	101.4	101.6	7.2	7.3	-0.2	1.6	0.97
112	2018	Teat_thickness	7326	99.6	99.8	6.9	7.0	-0.2	1.5	0.98
113	2019	Teat_thickness	6515	100.6	100.9	7.0	7.1	-0.3	1.5	0.98
114	2020	Teat_thickness	1728	99.9	100.3	7.3	7.4	-0.5	1.3	0.98
115	2015	Teat_place_f	10251	98.9	99.1	7.3	7.2	-0.2	1.8	0.97
116	2016	Teat_place_f	9004	99.2	99.4	8.1	8.1	-0.3	1.7	0.98
117	2017	Teat_place_f	7803	100.9	101.2	8.0	8.1	-0.3	1.7	0.98
118	2018	Teat_place_f	7326	99.4	99.4	7.9	8.0	-0.1	1.6	0.98
119	2019	Teat_place_f	6515	100.2	100.0	8.3	8.4	0.3	1.4	0.99
120	2020	Teat_place_f	1728	101.2	100.6	8.0	8.1	0.6	1.3	0.99
121	2015	Teat_place_B	9954	99.5	99.5	7.8	7.6	-0.1	2.0	0.97
122	2016	Teat_place_B	9004	100.0	100.0	8.8	8.6	0.0	1.9	0.98
123	2017	Teat_place_B	7803	101.4	101.5	8.0	7.9	-0.1	1.8	0.97
124	2018	Teat_place_B	7326	98.5	98.6	8.9	8.8	0.0	1.7	0.98
125	2019	Teat_place_B	6515	100.3	100.1	9.0	9.0	0.2	1.5	0.99
126	2020	Teat_place_B	1728	100.2	99.7	8.9	9.0	0.5	1.4	0.99
127	2015	Udder_balance	9954	101.3	102.0	6.7	6.8	-0.7	2.0	0.96
128	2016	Udder_balance	9004	101.3	101.8	6.1	6.3	-0.6	2.0	0.95
129	2017	Udder_balance	7803	101.8	102.2	6.8	7.0	-0.5	1.8	0.97
130	2018	Udder_balance	7326	98.7	99.0	7.1	7.3	-0.3	1.7	0.97
131	2019	Udder_balance	6515	100.1	100.5	6.9	7.1	-0.4	1.6	0.97
132	2020	Udder_balance	1728	99.2	99.5	6.6	6.8	-0.3	1.5	0.98
133	2015	Body	10217	98.2	97.9	8.4	8.4	0.3	1.9	0.97
134	2016	Body	8945	98.5	98.2	7.7	7.7	0.3	1.9	0.97
135	2017	Body	7780	99.7	99.1	7.2	7.4	0.6	1.9	0.97
136	2018	Body	7307	100.7	99.8	7.5	7.7	0.9	1.8	0.97
137	2019	Body	6508	102.9	101.6	7.2	7.6	1.3	1.7	0.98
138	2020	Body	1727	103.1	101.6	6.9	7.2	1.5	1.6	0.98
139	2015	leg	9954	100.8	101.2	7.9	7.8	-0.4	2.0	0.97
140	2016	leg	9004	99.0	99.5	7.8	7.7	-0.5	1.9	0.97
141	2017	leg	7803	100.4	100.8	6.9	6.8	-0.3	1.8	0.96
142	2018	leg	7326	100.3	100.4	6.9	6.8	0.0	1.7	0.97
143	2019	leg	6515	100.5	100.3	7.1	7.0	0.3	1.6	0.97
144	2020	leg	1728	102.7	102.4	7.5	7.2	0.3	1.6	0.98



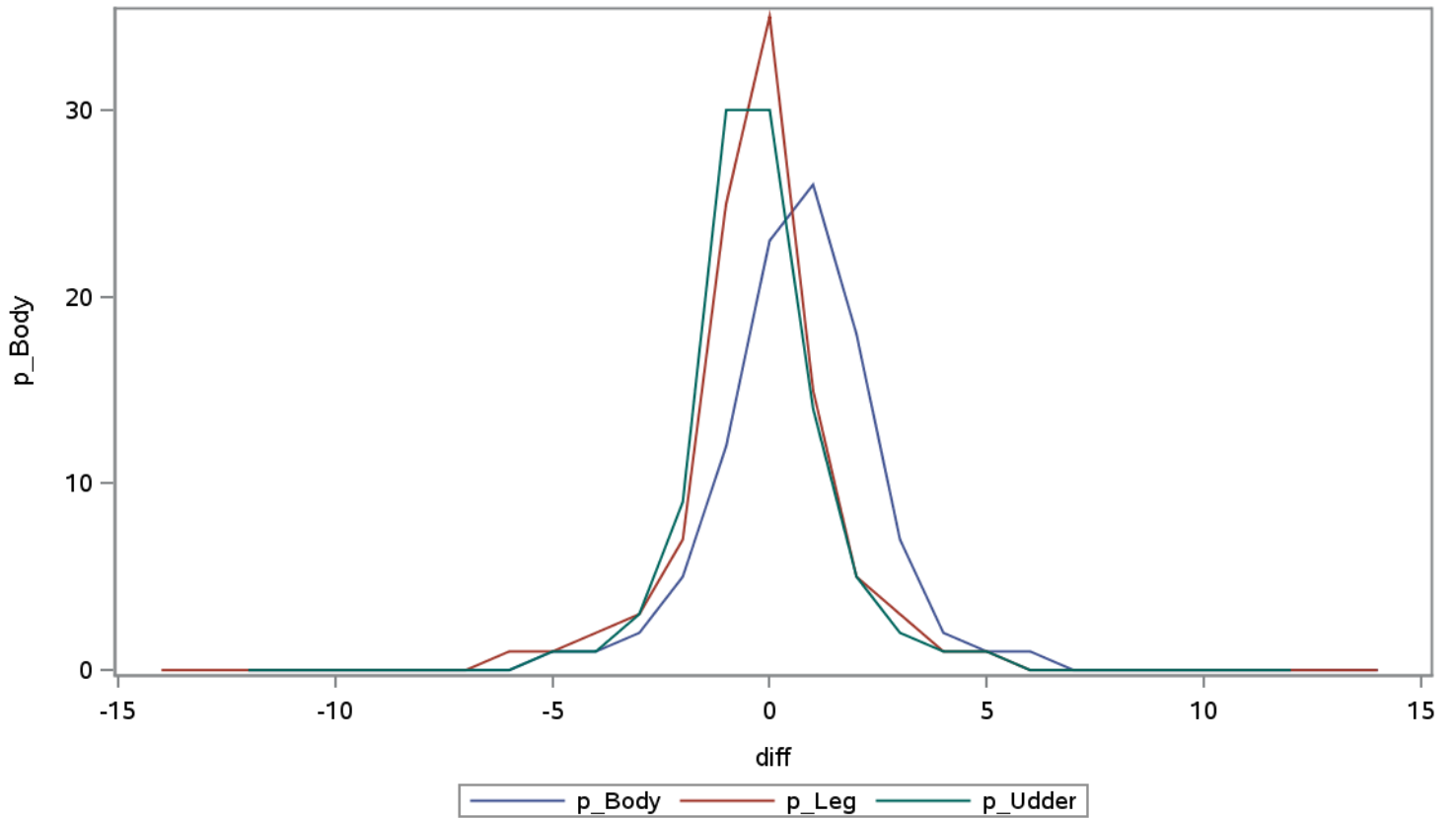
**JER summary statistics for SS and current breeding value for nongenotyped females with phenotype,  
by birth year**

Obs	BYR	name	no	mean_ss	mean_ebv	std_ss	std_ebv	mean_dif	std_dif	corr_SS_ebv
145	2015	udder	10251	94.7	95.7	7.2	7.1	-1.0	1.6	0.97
146	2016	udder	9004	95.3	96.1	6.9	6.8	-0.7	1.6	0.97
147	2017	udder	7803	99.8	100.1	7.1	6.9	-0.4	1.6	0.98
148	2018	udder	7326	100.0	99.9	7.4	7.4	0.0	1.6	0.98
149	2019	udder	6515	101.5	100.9	7.7	7.6	0.6	1.5	0.98
150	2020	udder	1728	102.1	101.0	7.4	7.3	1.1	1.4	0.98

**distribution of differences in number of females and in percentage**

Obs	diff	d_Body	d_Leg	d_Udder	p_Body	p_Leg	p_Udder
1	-14	.	1	.	.	0	.
2	-13	.	1	.	.	0	.
3	-12	3	1	2	0	0	0
4	-11	6	11	10	0	0	0
5	-10	9	16	12	0	0	0
6	-9	22	34	15	0	0	0
7	-8	29	79	41	0	0	0
8	-7	69	156	89	0	0	0
9	-6	124	229	170	0	1	0
10	-5	248	414	340	1	1	1
11	-4	452	749	614	1	2	1
12	-3	975	1384	1351	2	3	3
13	-2	2148	3126	4018	5	7	9
14	-1	5096	10415	12889	12	25	30
15	0	9575	14884	12817	23	35	30
16	1	11145	6167	6179	26	15	14
17	2	7602	2225	2136	18	5	5
18	3	3065	1093	956	7	3	2
19	4	975	628	491	2	1	1
20	5	461	384	264	1	1	1
21	6	233	168	125	1	0	0
22	7	128	89	52	0	0	0
23	8	75	38	34	0	0	0
24	9	20	19	11	0	0	0
25	10	12	12	6	0	0	0
26	11	4	5	4	0	0	0
27	12	6	1	1	0	0	0
28	13	1	.	.	0	.	.
29	14	1	1	.	0	0	.

distribution of differences in number of females and in percentage



## RDC summary statistics for SS and current breeding value for nongenotyped females with phenotype, by birth year

Obs	BYR	name	no	mean_ss	mean_ebv	std_ss	std_ebv	mean_dif	std_dif	corr_SS_ebv
1	2015	Stature	24242	97.9	98.7	8.7	8.5	-0.8	2.9	0.94
2	2016	Stature	20133	99.6	100.0	8.9	8.5	-0.4	3.0	0.94
3	2017	Stature	16612	99.7	100.0	8.5	8.4	-0.2	3.0	0.94
4	2018	Stature	13816	100.3	100.3	8.4	8.4	0.0	3.0	0.94
5	2019	Stature	10287	100.7	100.5	8.1	8.2	0.2	3.0	0.93
6	2020	Stature	1304	101.7	101.3	8.2	8.5	0.4	3.1	0.93
7	2015	Body_depth	24248	101.7	101.6	8.0	8.0	0.1	2.0	0.97
8	2016	Body_depth	20137	101.2	101.1	8.1	8.0	0.1	2.0	0.97
9	2017	Body_depth	16619	100.6	100.5	7.5	7.5	0.1	1.9	0.97
10	2018	Body_depth	13817	100.1	100.2	8.5	8.4	0.0	1.9	0.97
11	2019	Body_depth	10291	101.4	101.3	7.9	8.1	0.0	1.8	0.97
12	2020	Body_depth	1304	103.1	103.0	7.5	7.9	0.2	2.0	0.97
13	2015	Chest_width	24248	101.0	101.0	7.9	7.7	0.0	2.0	0.97
14	2016	Chest_width	20137	101.3	101.3	7.8	7.6	0.0	2.0	0.97
15	2017	Chest_width	16618	100.2	100.2	7.6	7.4	0.1	1.9	0.97
16	2018	Chest_width	13816	100.1	100.1	8.0	8.0	0.0	1.8	0.97
17	2019	Chest_width	10290	100.6	100.8	7.2	7.3	-0.2	1.8	0.97
18	2020	Chest_width	1304	100.8	101.1	6.8	6.9	-0.4	1.9	0.96
19	2015	Dairy_form	24248	99.0	99.4	5.0	5.1	-0.3	1.5	0.96
20	2016	Dairy_form	20137	99.0	99.3	4.6	4.6	-0.2	1.4	0.95
21	2017	Dairy_form	16618	100.1	100.4	4.5	4.5	-0.2	1.4	0.95
22	2018	Dairy_form	13816	100.1	100.1	4.2	4.2	0.1	1.3	0.95
23	2019	Dairy_form	10290	101.3	101.2	4.3	4.3	0.1	1.3	0.96
24	2020	Dairy_form	1304	101.9	101.5	4.1	4.1	0.3	1.7	0.92
25	2015	top_line	24248	101.2	101.6	7.8	7.8	-0.4	1.8	0.97
26	2016	top_line	20136	101.0	101.3	8.0	8.0	-0.2	1.8	0.98
27	2017	top_line	16618	100.2	100.3	8.0	8.0	-0.2	1.8	0.98
28	2018	top_line	13816	101.1	101.0	7.2	7.2	0.1	1.7	0.97
29	2019	top_line	10290	99.7	99.8	7.6	7.6	-0.1	1.7	0.98
30	2020	top_line	1304	101.5	101.9	7.1	7.1	-0.4	1.7	0.97
31	2015	Rump_width	24248	99.5	99.3	9.2	8.9	0.2	2.2	0.97
32	2016	Rump_width	20137	101.7	101.4	9.0	8.8	0.2	2.2	0.97
33	2017	Rump_width	16618	100.9	100.8	8.1	8.0	0.1	2.1	0.96
34	2018	Rump_width	13816	99.9	100.0	8.1	8.0	-0.1	2.2	0.96
35	2019	Rump_width	10290	101.1	101.0	7.7	7.8	0.1	2.1	0.96
36	2020	Rump_width	1304	101.3	101.1	7.6	7.7	0.1	2.2	0.96

**RDC summary statistics for SS and current breeding value for nongenotyped females with phenotype,  
by birth year**

Obs	BYR	name	no	mean_ss	mean_ebv	std_ss	std_ebv	mean_dif	std_dif	corr_SS_ebv
37	2015	Rump_angle	24248	100.6	100.4	6.9	6.9	0.2	1.4	0.98
38	2016	Rump_angle	20137	100.2	100.0	7.0	7.0	0.1	1.4	0.98
39	2017	Rump_angle	16619	101.1	101.1	6.2	6.1	0.0	1.4	0.98
40	2018	Rump_angle	13816	100.4	100.4	6.0	6.0	0.0	1.4	0.97
41	2019	Rump_angle	10290	100.4	100.3	6.0	6.1	0.1	1.3	0.98
42	2020	Rump_angle	1304	100.1	100.1	6.3	6.4	0.0	1.4	0.98
43	2015	Rear_legs_sv	24249	100.1	99.9	6.4	6.4	0.2	1.4	0.98
44	2016	Rear_legs_sv	20137	100.3	100.2	6.3	6.3	0.2	1.3	0.98
45	2017	Rear_legs_sv	16619	100.6	100.5	6.1	6.1	0.1	1.2	0.98
46	2018	Rear_legs_sv	13816	100.1	100.1	6.1	6.1	0.0	1.2	0.98
47	2019	Rear_legs_sv	10290	100.6	100.7	5.4	5.4	-0.1	1.2	0.98
48	2020	Rear_legs_sv	1304	100.5	100.8	5.7	5.6	-0.3	1.4	0.97
49	2015	Rear_legs_bv	24248	98.9	99.4	6.3	6.2	-0.5	1.6	0.97
50	2016	Rear_legs_bv	20137	99.4	99.7	5.6	5.5	-0.4	1.6	0.96
51	2017	Rear_legs_bv	16617	99.1	99.3	6.3	6.4	-0.2	1.5	0.97
52	2018	Rear_legs_bv	13816	100.2	100.3	5.6	5.6	0.0	1.5	0.97
53	2019	Rear_legs_bv	10290	101.6	101.4	6.1	6.2	0.2	1.5	0.97
54	2020	Rear_legs_bv	1304	102.1	102.0	5.8	5.8	0.2	1.6	0.96
55	2015	Hock_quality	24248	98.2	98.5	7.2	7.2	-0.4	1.6	0.98
56	2016	Hock_quality	20136	98.5	98.8	7.4	7.4	-0.3	1.6	0.98
57	2017	Hock_quality	16617	99.8	100.0	7.6	7.5	-0.2	1.5	0.98
58	2018	Hock_quality	13816	100.6	100.6	7.6	7.6	0.0	1.5	0.98
59	2019	Hock_quality	10290	100.8	100.6	7.4	7.4	0.2	1.4	0.98
60	2020	Hock_quality	1304	102.1	101.7	7.3	7.4	0.4	1.5	0.98
61	2015	Bone_quality	24248	98.4	98.7	8.8	8.8	-0.3	1.4	0.99
62	2016	Bone_quality	20136	98.5	98.6	8.9	8.9	-0.2	1.4	0.99
63	2017	Bone_quality	16617	99.8	99.9	8.8	8.8	-0.1	1.4	0.99
64	2018	Bone_quality	13815	100.6	100.6	9.2	9.2	0.0	1.4	0.99
65	2019	Bone_quality	10290	101.2	101.0	8.8	8.8	0.2	1.3	0.99
66	2020	Bone_quality	1304	101.8	101.5	8.6	8.6	0.3	1.3	0.99
67	2015	Foot_angle	24248	99.8	99.9	5.4	5.3	-0.1	1.4	0.96
68	2016	Foot_angle	20136	100.6	100.8	4.8	4.7	-0.2	1.4	0.96
69	2017	Foot_angle	16618	100.1	100.3	5.1	5.2	-0.1	1.3	0.97
70	2018	Foot_angle	13815	100.3	100.2	5.3	5.3	0.0	1.3	0.97
71	2019	Foot_angle	10290	100.5	100.5	4.9	4.9	0.0	1.3	0.97
72	2020	Foot_angle	1304	100.8	101.0	5.0	5.0	-0.2	1.3	0.97

**RDC summary statistics for SS and current breeding value for nongenotyped females with phenotype,  
by birth year**

Obs	BYR	name	no	mean_ss	mean_ebv	std_ss	std_ebv	mean_dif	std_dif	corr_SS_ebv
73	2015	Fore_udder_att	24245	96.8	97.7	7.2	7.2	-0.9	1.6	0.97
74	2016	Fore_udder_att	20133	98.4	99.0	7.3	7.2	-0.7	1.6	0.97
75	2017	Fore_udder_att	16616	99.6	99.8	7.0	7.1	-0.3	1.6	0.98
76	2018	Fore_udder_att	13812	99.8	99.8	6.7	6.7	0.0	1.6	0.97
77	2019	Fore_udder_att	10288	101.3	100.9	6.4	6.4	0.4	1.6	0.97
78	2020	Fore_udder_att	1304	102.5	101.5	6.8	6.9	1.0	1.9	0.96
79	2015	Rear_udder_hei	24245	96.7	97.7	7.0	7.0	-1.0	1.6	0.97
80	2016	Rear_udder_hei	20133	97.9	98.7	7.0	7.0	-0.8	1.6	0.97
81	2017	Rear_udder_hei	16615	99.5	99.9	6.6	6.7	-0.4	1.5	0.97
82	2018	Rear_udder_hei	13813	100.6	100.6	7.1	7.0	0.0	1.6	0.98
83	2019	Rear_udder_hei	10288	101.1	100.6	6.4	6.4	0.4	1.5	0.97
84	2020	Rear_udder_hei	1304	101.1	100.5	6.5	6.6	0.6	1.8	0.96
85	2015	Rear_udder_wid	24245	98.4	99.2	7.2	7.2	-0.7	1.6	0.98
86	2016	Rear_udder_wid	20133	99.0	99.5	7.2	7.2	-0.5	1.5	0.98
87	2017	Rear_udder_wid	16615	99.5	99.7	6.5	6.6	-0.2	1.5	0.97
88	2018	Rear_udder_wid	13813	100.2	100.3	6.4	6.4	0.0	1.5	0.97
89	2019	Rear_udder_wid	10288	101.6	101.2	6.6	6.6	0.3	1.5	0.97
90	2020	Rear_udder_wid	1304	101.5	100.9	6.0	6.0	0.7	1.6	0.96
91	2015	Udder_cleft_su	24243	100.5	100.8	6.8	6.8	-0.3	1.9	0.96
92	2016	Udder_cleft_su	20132	100.2	100.4	7.4	7.3	-0.3	1.9	0.97
93	2017	Udder_cleft_su	16615	100.0	100.1	7.6	7.6	-0.2	1.8	0.97
94	2018	Udder_cleft_su	13813	100.7	100.7	7.3	7.3	0.0	1.8	0.97
95	2019	Udder_cleft_su	10288	101.2	100.9	7.4	7.5	0.3	1.8	0.97
96	2020	Udder_cleft_su	1304	101.5	101.3	6.9	7.4	0.2	1.9	0.97
97	2015	Udder_depth	24243	94.8	95.5	7.5	7.5	-0.7	1.4	0.98
98	2016	Udder_depth	20131	97.7	98.3	7.3	7.2	-0.6	1.4	0.98
99	2017	Udder_depth	16614	99.1	99.4	7.7	7.7	-0.3	1.4	0.98
100	2018	Udder_depth	13813	100.2	100.2	7.3	7.3	0.0	1.4	0.98
101	2019	Udder_depth	10288	100.9	100.5	7.2	7.2	0.4	1.4	0.98
102	2020	Udder_depth	1304	101.8	101.0	7.8	7.7	0.9	1.7	0.97
103	2015	Teat_length	24243	98.7	98.8	8.4	8.4	-0.1	1.4	0.99
104	2016	Teat_length	20129	100.1	100.2	8.4	8.4	-0.1	1.3	0.99
105	2017	Teat_length	16616	99.7	99.8	8.5	8.5	-0.1	1.3	0.99
106	2018	Teat_length	13812	101.0	101.0	8.1	8.1	0.0	1.3	0.99
107	2019	Teat_length	10288	100.0	100.1	7.8	7.8	0.0	1.3	0.99
108	2020	Teat_length	1304	101.0	101.2	7.7	7.7	-0.3	1.4	0.98

**RDC summary statistics for SS and current breeding value for nongenotyped females with phenotype,  
by birth year**

Obs	BYR	name	no	mean_ss	mean_ebv	std_ss	std_ebv	mean_dif	std_dif	corr_SS_ebv
109	2015	Teat_thickness	24243	99.8	99.9	7.5	7.5	-0.1	1.5	0.98
110	2016	Teat_thickness	20129	100.5	100.6	7.2	7.2	-0.1	1.5	0.98
111	2017	Teat_thickness	16616	100.4	100.5	7.0	7.0	0.0	1.4	0.98
112	2018	Teat_thickness	13812	100.4	100.4	6.5	6.5	0.0	1.4	0.98
113	2019	Teat_thickness	10288	100.4	100.4	6.6	6.6	0.0	1.4	0.98
114	2020	Teat_thickness	1304	101.0	101.6	7.0	7.1	-0.6	1.5	0.98
115	2015	Teat_place_f	24243	98.4	98.8	8.0	8.0	-0.4	1.9	0.97
116	2016	Teat_place_f	20129	99.2	99.4	7.5	7.5	-0.2	1.9	0.97
117	2017	Teat_place_f	16615	100.2	100.3	7.7	7.7	-0.1	1.8	0.97
118	2018	Teat_place_f	13813	100.2	100.2	7.8	7.8	0.0	1.8	0.97
119	2019	Teat_place_f	10288	101.0	100.8	8.5	8.5	0.2	1.7	0.98
120	2020	Teat_place_f	1304	100.8	100.3	7.5	7.5	0.5	1.9	0.97
121	2015	Teat_place_B	24243	100.8	101.3	7.9	7.9	-0.4	1.8	0.97
122	2016	Teat_place_B	20129	100.0	100.1	8.0	8.1	-0.2	1.8	0.97
123	2017	Teat_place_B	16615	101.1	101.2	7.8	7.8	-0.1	1.7	0.98
124	2018	Teat_place_B	13813	100.1	100.1	7.7	7.7	0.0	1.8	0.97
125	2019	Teat_place_B	10288	101.4	101.2	7.9	7.8	0.2	1.7	0.98
126	2020	Teat_place_B	1304	101.0	100.5	7.2	7.5	0.5	1.8	0.97
127	2015	Udder_balance	24243	97.7	98.4	6.7	6.7	-0.7	2.0	0.96
128	2016	Udder_balance	20129	99.4	99.9	7.0	7.0	-0.5	1.9	0.96
129	2017	Udder_balance	16615	100.2	100.4	6.9	7.0	-0.2	1.9	0.96
130	2018	Udder_balance	13812	100.4	100.3	6.8	6.8	0.0	1.8	0.96
131	2019	Udder_balance	10288	101.2	101.0	7.3	7.3	0.1	1.8	0.97
132	2020	Udder_balance	1304	100.3	100.0	8.6	8.5	0.3	1.8	0.98
133	2015	Body	24242	100.3	100.5	8.1	7.8	-0.2	2.0	0.97
134	2016	Body	20133	101.3	101.4	8.4	8.0	0.0	2.0	0.97
135	2017	Body	16612	100.6	100.6	7.7	7.4	0.0	1.9	0.97
136	2018	Body	13816	100.1	100.2	8.6	8.4	0.0	1.9	0.98
137	2019	Body	10287	101.5	101.4	7.8	7.7	0.0	1.8	0.97
138	2020	Body	1304	102.6	102.5	7.4	7.5	0.1	1.9	0.97
139	2015	leg	24248	97.5	98.1	7.8	7.8	-0.6	1.7	0.98
140	2016	leg	20136	98.1	98.6	7.7	7.7	-0.5	1.7	0.98
141	2017	leg	16617	99.1	99.4	7.8	7.9	-0.2	1.7	0.98
142	2018	leg	13816	100.5	100.5	7.6	7.6	0.0	1.6	0.98
143	2019	leg	10290	101.5	101.1	7.6	7.7	0.4	1.6	0.98
144	2020	leg	1304	102.8	102.3	7.5	7.6	0.4	1.7	0.98

**RDC summary statistics for SS and current breeding value for nongenotyped females with phenotype,  
by birth year**

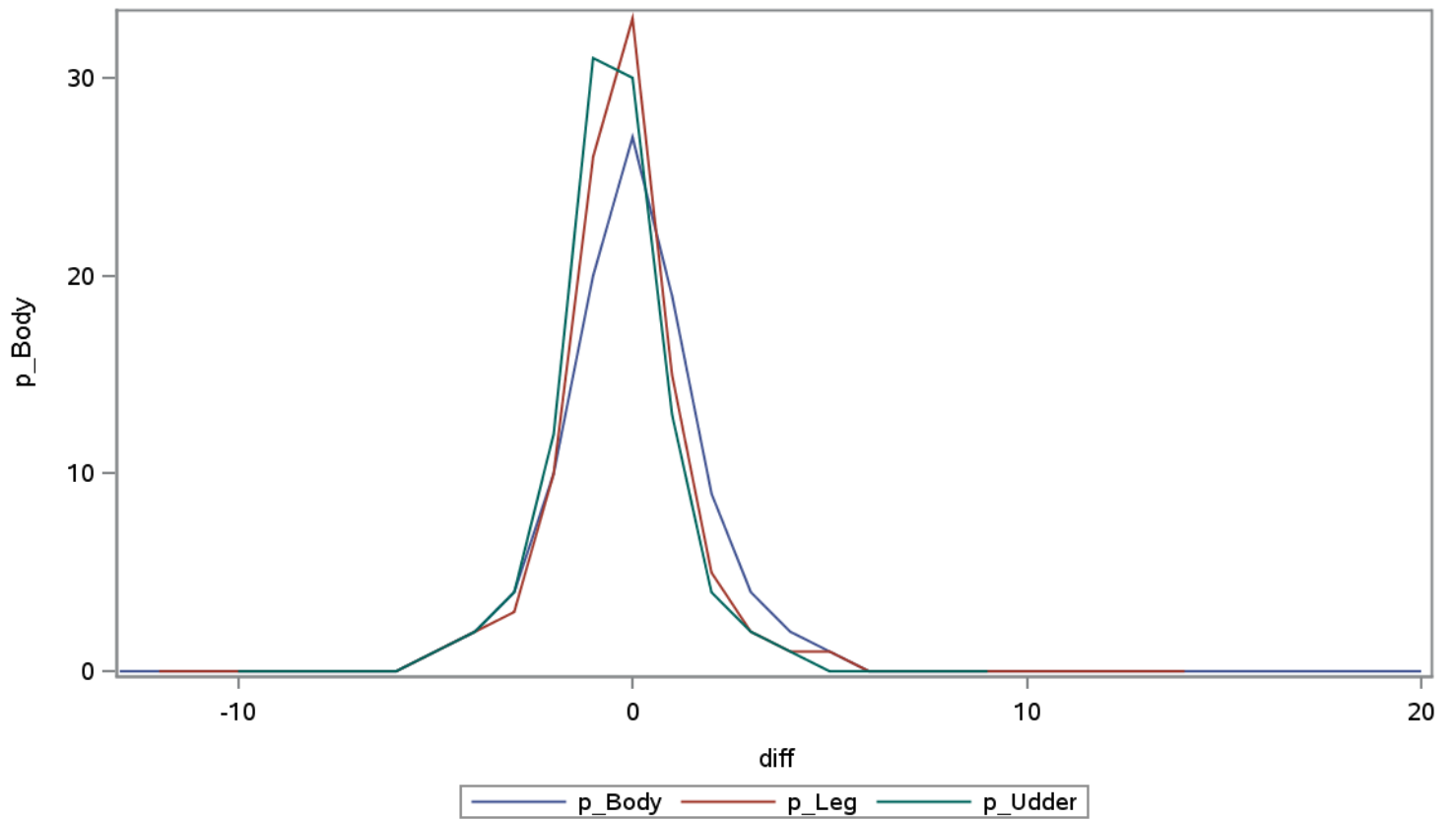
Obs	BYR	name	no	mean_ss	mean_ebv	std_ss	std_ebv	mean_dif	std_dif	corr_SS_ebv
145	2015	udder	24243	94.9	95.9	6.7	6.7	-0.9	1.4	0.98
146	2016	udder	20131	97.7	98.5	6.7	6.7	-0.8	1.4	0.98
147	2017	udder	16614	98.9	99.3	6.6	6.7	-0.3	1.4	0.98
148	2018	udder	13813	100.2	100.3	6.3	6.4	0.0	1.4	0.97
149	2019	udder	10288	101.1	100.7	5.8	5.8	0.5	1.4	0.97
150	2020	udder	1304	102.4	101.7	6.3	6.4	0.7	1.7	0.97



**distribution of differences in number of females and in percentage**

Obs	diff	d_Body	d_Leg	d_Udder	p_Body	p_Leg	p_Udder
1	-13	2	.	.	0	.	.
2	-12	4	1	.	0	0	.
3	-11	5	6	.	0	0	.
4	-10	22	10	2	0	0	0
5	-9	29	22	8	0	0	0
6	-8	90	65	27	0	0	0
7	-7	246	190	79	0	0	0
8	-6	404	317	239	0	0	0
9	-5	826	718	593	1	1	1
10	-4	1574	1310	1345	2	2	2
11	-3	3528	2827	3215	4	3	4
12	-2	8367	8814	10052	10	10	12
13	-1	17700	22444	27004	20	26	31
14	0	23240	28392	25972	27	33	30
15	1	16521	12594	11377	19	15	13
16	2	7834	4476	3844	9	5	4
17	3	3088	2044	1539	4	2	2
18	4	1365	1117	641	2	1	1
19	5	795	607	283	1	1	0
20	6	400	255	109	0	0	0
21	7	198	118	44	0	0	0
22	8	81	48	9	0	0	0
23	9	30	24	11	0	0	0
24	10	29	9	.	0	0	.
25	11	5	2	.	0	0	.
26	12	3	.	.	0	.	.
27	13	3	.	.	0	.	.
28	14	3	1	.	0	0	.
29	15	1	.	.	0	.	.
30	20	1	.	.	0	.	.

distribution of differences in number of females and in percentage



## HOL summary statistics for SS and current breeding value for nordic AI bulls with minimum 15 offspring, by birth year

Obs	BYR	name	no	mean_noff	std_noff	mean_ss	mean_ebv	std_ss	std_ebv	mean_dif	std_dif	corr_SS_ebv
1	2010	Stature	193	404	1231	97.0	97.0	10.2	9.9	0.0	1.3	0.99
2	2011	Stature	154	245	498	96.2	96.4	11.8	11.3	-0.1	1.5	0.99
3	2012	Stature	170	335	561	95.1	95.2	10.0	9.8	-0.1	1.2	0.99
4	2013	Stature	151	326	571	100.0	100.0	10.2	10.1	0.0	1.2	0.99
5	2014	Stature	113	479	575	99.2	99.3	11.4	11.1	0.0	1.3	0.99
6	2015	Stature	82	696	852	101.4	101.3	12.0	11.7	0.1	1.0	1.00
7	2016	Stature	65	618	811	101.4	101.3	9.8	9.5	0.1	1.4	0.99
8	2017	Stature	60	374	462	104.0	103.4	11.0	10.7	0.6	1.1	0.99
9	2018	Stature	16	82	128	108.6	108.4	10.7	10.1	0.3	1.2	1.00
10	2010	Body_depth	193	404	1231	101.7	102.0	9.1	9.1	-0.4	1.8	0.98
11	2011	Body_depth	154	245	498	101.3	101.5	9.5	9.4	-0.2	1.7	0.98
12	2012	Body_depth	170	335	561	99.4	99.3	9.5	9.3	0.1	1.7	0.98
13	2013	Body_depth	151	326	571	98.5	98.5	9.4	9.5	0.1	2.0	0.98
14	2014	Body_depth	113	480	575	97.5	97.4	9.1	9.1	0.1	1.5	0.99
15	2015	Body_depth	82	696	852	94.8	95.0	10.5	10.5	-0.2	1.4	0.99
16	2016	Body_depth	65	618	811	96.8	97.4	8.5	8.6	-0.6	1.5	0.99
17	2017	Body_depth	60	374	462	96.5	96.1	8.4	8.7	0.4	1.7	0.98
18	2018	Body_depth	16	82	128	100.0	99.1	8.4	7.9	0.9	2.2	0.97
19	2010	Chest_width	193	404	1231	101.2	101.7	10.3	10.2	-0.5	2.4	0.97
20	2011	Chest_width	154	245	498	101.8	101.9	10.7	10.2	-0.1	2.4	0.98
21	2012	Chest_width	170	335	561	101.9	101.9	10.3	10.2	0.0	2.1	0.98
22	2013	Chest_width	151	326	571	101.4	101.2	10.2	10.1	0.2	2.4	0.97
23	2014	Chest_width	113	480	575	100.4	99.7	8.9	8.9	0.6	1.7	0.98
24	2015	Chest_width	82	696	852	98.9	98.5	10.8	10.8	0.3	2.1	0.98
25	2016	Chest_width	65	618	811	100.2	100.2	9.8	9.6	-0.1	2.4	0.97
26	2017	Chest_width	60	374	462	98.9	98.3	11.2	11.2	0.7	2.0	0.98
27	2018	Chest_width	16	82	128	99.3	97.4	9.0	8.2	1.9	2.6	0.96
28	2010	Dairy_form	193	404	1231	97.4	97.7	8.5	8.5	-0.3	1.6	0.98
29	2011	Dairy_form	154	245	498	96.7	97.2	9.5	9.3	-0.5	1.5	0.99
30	2012	Dairy_form	170	335	561	96.5	96.6	8.7	8.4	-0.1	1.7	0.98
31	2013	Dairy_form	151	326	571	98.7	99.0	7.9	7.8	-0.3	1.5	0.98
32	2014	Dairy_form	113	480	575	99.3	99.9	8.9	8.7	-0.6	1.3	0.99
33	2015	Dairy_form	82	696	852	99.1	99.8	9.4	9.1	-0.7	1.2	0.99
34	2016	Dairy_form	65	618	811	100.3	100.5	7.9	7.6	-0.2	1.5	0.98
35	2017	Dairy_form	60	374	462	100.9	101.1	7.0	7.2	-0.2	1.4	0.98
36	2018	Dairy_form	16	82	128	104.3	104.8	9.1	9.4	-0.4	1.3	0.99

## HOL summery statistics for SS and current breeding value for nordic AI bulls with minimum 15 offspring, by birth year

Obs	BYR	name	no	mean_noff	std_noff	mean_ss	mean_ebv	std_ss	std_ebv	mean_dif	std_dif	corr_SS_ebv
37	2010	top_line	193	404	1231	102.6	102.5	8.4	8.1	0.1	2.3	0.96
38	2011	top_line	154	245	498	100.4	100.4	8.4	8.1	0.0	2.2	0.97
39	2012	top_line	170	335	561	99.3	99.6	10.5	10.4	-0.3	1.7	0.99
40	2013	top_line	151	326	571	102.8	102.8	9.3	8.9	0.0	2.1	0.97
41	2014	top_line	113	480	575	98.2	98.3	9.2	9.1	-0.1	1.4	0.99
42	2015	top_line	82	696	852	100.7	100.7	9.9	9.7	0.0	1.9	0.98
43	2016	top_line	65	618	811	101.4	101.8	10.0	9.4	-0.4	1.9	0.98
44	2017	top_line	60	374	462	102.2	102.4	8.7	9.1	-0.2	1.5	0.99
45	2018	top_line	16	82	128	101.0	101.2	9.1	9.3	-0.2	2.5	0.96
46	2010	Rump_width	193	404	1231	97.8	97.6	10.3	10.3	0.2	1.9	0.98
47	2011	Rump_width	154	245	498	97.8	97.4	11.4	11.0	0.4	1.7	0.99
48	2012	Rump_width	170	335	561	96.0	96.1	11.0	10.7	-0.1	1.8	0.99
49	2013	Rump_width	151	326	571	98.9	98.9	10.5	10.7	0.0	1.9	0.98
50	2014	Rump_width	113	480	575	98.5	98.7	11.1	11.0	-0.2	1.5	0.99
51	2015	Rump_width	82	696	852	99.4	99.8	11.3	10.9	-0.3	1.7	0.99
52	2016	Rump_width	65	618	811	100.8	100.7	10.7	10.7	0.1	1.7	0.99
53	2017	Rump_width	60	374	462	101.1	100.9	11.2	11.1	0.2	1.5	0.99
54	2018	Rump_width	16	82	128	100.4	99.9	13.3	13.4	0.5	2.0	0.99
55	2010	Rump_angle	193	404	1231	102.0	102.2	10.6	10.1	-0.2	1.9	0.98
56	2011	Rump_angle	154	245	498	101.8	102.1	10.6	10.2	-0.3	1.6	0.99
57	2012	Rump_angle	170	335	561	100.4	100.6	10.2	9.9	-0.2	1.6	0.99
58	2013	Rump_angle	151	326	571	101.9	101.9	11.5	11.1	0.0	1.7	0.99
59	2014	Rump_angle	113	480	575	101.7	101.8	9.6	9.6	0.0	1.3	0.99
60	2015	Rump_angle	82	696	852	100.0	99.7	10.7	10.5	0.3	1.1	0.99
61	2016	Rump_angle	65	618	811	101.1	101.1	12.3	11.6	0.0	1.6	0.99
62	2017	Rump_angle	60	374	462	102.4	102.2	9.7	9.6	0.2	1.2	0.99
63	2018	Rump_angle	16	82	128	105.7	105.3	8.0	8.4	0.4	1.6	0.98
64	2010	Rear_legs_sv	193	404	1231	99.5	99.2	10.8	10.4	0.4	2.3	0.98
65	2011	Rear_legs_sv	154	245	498	99.7	99.5	9.8	9.6	0.2	2.4	0.97
66	2012	Rear_legs_sv	170	335	561	101.3	101.3	9.5	9.3	0.0	2.1	0.98
67	2013	Rear_legs_sv	151	326	571	101.2	101.4	11.2	11.4	-0.2	2.1	0.98
68	2014	Rear_legs_sv	113	480	575	102.3	102.4	9.7	9.8	-0.1	2.0	0.98
69	2015	Rear_legs_sv	82	696	852	100.5	101.3	10.1	9.5	-0.7	1.7	0.99
70	2016	Rear_legs_sv	65	618	811	99.6	99.8	10.2	9.7	-0.2	1.7	0.99
71	2017	Rear_legs_sv	60	374	462	98.0	98.3	11.0	11.1	-0.3	1.7	0.99
72	2018	Rear_legs_sv	16	82	128	99.9	100.3	11.1	9.4	-0.4	2.9	0.97

## HOL summery statistics for SS and current breeding value for nordic AI bulls with minimum 15 offspring, by birth year

Obs	BYR	name	no	mean_noff	std_noff	mean_ss	mean_ebv	std_ss	std_ebv	mean_dif	std_dif	corr_SS_ebv
73	2010	Rear_legs_bv	193	404	1231	97.7	98.8	10.2	10.1	-1.1	2.5	0.97
74	2011	Rear_legs_bv	154	245	498	100.4	100.7	11.4	11.2	-0.2	2.7	0.97
75	2012	Rear_legs_bv	170	335	561	100.1	100.0	11.1	10.7	0.1	2.5	0.98
76	2013	Rear_legs_bv	151	326	571	97.3	97.2	10.0	9.9	0.0	3.0	0.95
77	2014	Rear_legs_bv	113	480	575	101.6	101.3	10.2	9.8	0.3	2.2	0.98
78	2015	Rear_legs_bv	82	696	852	99.8	99.0	11.1	11.0	0.8	2.3	0.98
79	2016	Rear_legs_bv	65	618	811	101.5	100.5	11.4	11.0	1.0	2.5	0.98
80	2017	Rear_legs_bv	60	374	462	101.2	99.9	10.8	10.9	1.3	2.1	0.98
81	2018	Rear_legs_bv	16	82	128	100.3	99.7	9.5	9.9	0.6	2.2	0.98
82	2010	Hock_quality	193	404	1231	97.1	97.3	8.9	9.0	-0.2	2.3	0.97
83	2011	Hock_quality	154	245	498	96.9	97.5	11.3	11.0	-0.6	2.3	0.98
84	2012	Hock_quality	170	335	561	99.3	100.0	10.2	10.2	-0.7	2.3	0.97
85	2013	Hock_quality	151	326	571	98.8	99.1	10.6	10.5	-0.3	2.0	0.98
86	2014	Hock_quality	113	480	575	101.0	101.2	10.7	10.4	-0.2	1.9	0.98
87	2015	Hock_quality	82	696	852	102.7	102.7	11.2	11.0	0.0	1.3	0.99
88	2016	Hock_quality	65	618	811	102.6	101.9	9.2	9.3	0.7	2.2	0.97
89	2017	Hock_quality	60	374	462	102.5	102.2	8.7	8.8	0.3	1.6	0.98
90	2018	Hock_quality	16	82	128	103.9	104.1	9.6	8.8	-0.1	2.2	0.98
91	2010	Bone_quality	193	404	1231	96.9	97.0	10.2	9.9	-0.1	2.0	0.98
92	2011	Bone_quality	154	245	498	96.3	96.9	12.3	11.8	-0.6	2.2	0.98
93	2012	Bone_quality	170	335	561	98.9	99.4	11.3	11.0	-0.5	2.3	0.98
94	2013	Bone_quality	151	326	571	97.0	97.3	11.0	11.0	-0.3	2.0	0.98
95	2014	Bone_quality	113	480	575	99.9	100.1	10.4	10.0	-0.2	1.6	0.99
96	2015	Bone_quality	82	696	852	102.0	102.0	11.4	11.3	0.0	1.5	0.99
97	2016	Bone_quality	65	618	811	103.4	102.9	11.4	11.2	0.5	2.1	0.98
98	2017	Bone_quality	60	374	462	101.9	101.9	10.6	10.7	0.0	1.6	0.99
99	2018	Bone_quality	16	82	128	102.6	103.4	11.5	10.1	-0.9	2.2	0.99
100	2010	Foot_angle	193	404	1231	100.6	100.4	10.1	10.1	0.2	2.6	0.97
101	2011	Foot_angle	154	245	498	100.5	100.6	9.9	9.7	-0.1	2.5	0.97
102	2012	Foot_angle	170	335	561	98.2	97.9	10.4	10.0	0.3	2.4	0.97
103	2013	Foot_angle	151	326	571	101.0	101.2	9.3	9.2	-0.1	2.3	0.97
104	2014	Foot_angle	113	480	575	100.2	100.0	9.8	9.7	0.2	1.9	0.98
105	2015	Foot_angle	82	696	852	100.1	99.7	9.1	9.0	0.4	2.3	0.97
106	2016	Foot_angle	65	618	811	102.2	102.2	7.7	7.7	0.0	2.4	0.95
107	2017	Foot_angle	60	374	462	101.6	100.6	9.5	9.6	1.0	1.8	0.98
108	2018	Foot_angle	16	82	128	103.3	103.8	7.6	8.2	-0.5	2.3	0.96

## HOL summary statistics for SS and current breeding value for nordic AI bulls with minimum 15 offspring, by birth year

Obs	BYR	name	no	mean_noff	std_noff	mean_ss	mean_ebv	std_ss	std_ebv	mean_dif	std_dif	corr_SS_ebv
109	2010	Fore_udder_att	193	404	1231	93.5	94.1	8.7	8.5	-0.6	2.4	0.96
110	2011	Fore_udder_att	154	245	498	94.7	95.0	8.6	8.2	-0.3	2.0	0.97
111	2012	Fore_udder_att	170	335	561	96.2	96.4	8.7	8.3	-0.2	2.0	0.97
112	2013	Fore_udder_att	151	326	571	98.0	97.8	8.9	8.6	0.2	2.0	0.98
113	2014	Fore_udder_att	113	479	575	99.0	98.5	9.8	9.4	0.5	2.1	0.98
114	2015	Fore_udder_att	82	696	852	102.1	101.2	11.4	11.4	0.9	1.6	0.99
115	2016	Fore_udder_att	65	618	811	104.2	103.3	9.7	10.0	0.8	2.5	0.97
116	2017	Fore_udder_att	60	374	462	105.6	105.1	9.0	8.6	0.5	1.8	0.98
117	2018	Fore_udder_att	16	82	128	107.0	105.9	8.7	8.8	1.1	1.5	0.98
118	2010	Rear_udder_hei	193	404	1231	94.6	94.8	9.1	9.0	-0.2	2.5	0.96
119	2011	Rear_udder_hei	154	245	498	94.0	94.3	9.0	8.7	-0.3	2.1	0.97
120	2012	Rear_udder_hei	170	335	561	94.4	94.6	9.9	9.5	-0.2	2.0	0.98
121	2013	Rear_udder_hei	151	326	571	97.7	97.9	8.9	8.7	-0.2	2.0	0.97
122	2014	Rear_udder_hei	113	479	575	99.3	99.5	11.0	10.8	-0.2	1.6	0.99
123	2015	Rear_udder_hei	82	696	852	102.4	102.4	9.7	9.6	0.1	1.6	0.99
124	2016	Rear_udder_hei	65	618	811	102.5	102.1	10.9	10.8	0.4	2.1	0.98
125	2017	Rear_udder_hei	60	374	462	104.4	103.9	10.0	10.7	0.5	1.7	0.99
126	2018	Rear_udder_hei	16	82	128	107.5	107.2	11.1	10.9	0.3	2.2	0.98
127	2010	Rear_udder_wid	193	404	1231	97.4	97.8	8.6	8.6	-0.5	2.0	0.97
128	2011	Rear_udder_wid	154	245	498	95.1	95.0	8.1	8.0	0.1	1.9	0.97
129	2012	Rear_udder_wid	170	335	561	96.8	96.8	8.6	8.6	0.0	1.8	0.98
130	2013	Rear_udder_wid	151	326	571	98.8	98.5	8.4	8.2	0.3	2.1	0.97
131	2014	Rear_udder_wid	113	479	575	98.5	98.3	8.6	8.7	0.1	1.8	0.98
132	2015	Rear_udder_wid	82	696	852	100.8	100.5	10.3	10.4	0.2	1.8	0.99
133	2016	Rear_udder_wid	65	618	811	101.3	100.6	9.7	9.7	0.7	1.9	0.98
134	2017	Rear_udder_wid	60	374	462	101.8	100.6	9.6	10.1	1.2	2.2	0.98
135	2018	Rear_udder_wid	16	82	128	102.8	101.9	11.1	11.0	0.9	2.4	0.98
136	2010	Udder_cleft_su	193	404	1231	100.2	100.3	10.5	10.4	-0.2	2.4	0.97
137	2011	Udder_cleft_su	154	245	498	98.9	99.3	11.7	11.5	-0.4	2.1	0.98
138	2012	Udder_cleft_su	170	335	561	100.9	101.1	11.2	11.2	-0.2	2.1	0.98
139	2013	Udder_cleft_su	151	326	571	99.2	99.3	10.9	10.7	-0.1	2.4	0.98
140	2014	Udder_cleft_su	113	479	575	97.8	98.1	10.4	10.2	-0.3	1.9	0.98
141	2015	Udder_cleft_su	82	696	852	99.2	99.1	10.1	10.1	0.1	2.0	0.98
142	2016	Udder_cleft_su	65	618	811	99.1	98.8	10.3	10.0	0.3	2.0	0.98
143	2017	Udder_cleft_su	60	374	462	98.0	98.0	9.0	9.0	0.0	1.7	0.98
144	2018	Udder_cleft_su	16	82	128	99.9	99.2	7.3	7.3	0.8	1.9	0.96

**HOL summary statistics for SS and current breeding value for nordic AI bulls with minimum 15 offspring, by birth year**

Obs	BYR	name	no	mean_noff	std_noff	mean_ss	mean_ebv	std_ss	std_ebv	mean_dif	std_dif	corr_SS_ebv
145	2010	Udder_depth	193	404	1231	92.1	92.6	10.3	9.3	-0.5	2.2	0.98
146	2011	Udder_depth	154	245	498	92.5	92.9	9.4	8.4	-0.5	2.0	0.98
147	2012	Udder_depth	170	335	561	94.9	95.3	9.6	8.4	-0.4	2.1	0.98
148	2013	Udder_depth	151	326	571	99.7	99.7	9.3	8.4	0.0	2.0	0.98
149	2014	Udder_depth	113	479	575	100.6	100.6	11.4	10.3	0.1	2.2	0.98
150	2015	Udder_depth	82	696	852	107.8	107.1	12.1	10.8	0.7	2.3	0.99
151	2016	Udder_depth	65	618	811	106.8	105.9	10.6	10.0	0.9	2.0	0.98
152	2017	Udder_depth	60	374	462	108.7	108.2	11.2	10.9	0.5	2.1	0.98
153	2018	Udder_depth	16	82	128	109.3	109.4	11.0	10.0	-0.1	1.9	0.99
154	2010	Teat_length	193	404	1231	100.8	101.0	9.6	9.3	-0.1	1.6	0.99
155	2011	Teat_length	154	245	498	99.9	100.0	10.2	9.8	-0.1	1.5	0.99
156	2012	Teat_length	170	335	561	99.5	99.7	10.3	10.0	-0.2	1.3	0.99
157	2013	Teat_length	151	326	571	99.6	99.8	10.1	9.8	-0.2	1.4	0.99
158	2014	Teat_length	113	479	575	101.0	101.1	10.3	10.2	-0.1	1.4	0.99
159	2015	Teat_length	82	696	852	97.9	98.1	8.6	8.3	-0.2	1.4	0.99
160	2016	Teat_length	65	618	811	100.8	100.8	9.4	9.5	0.0	1.6	0.99
161	2017	Teat_length	60	374	462	99.0	99.1	8.5	8.6	-0.1	1.2	0.99
162	2018	Teat_length	16	82	128	101.0	101.9	10.2	9.7	-0.9	1.9	0.98
163	2010	Teat_thickness	193	404	1231	101.8	101.6	11.0	10.8	0.2	2.0	0.98
164	2011	Teat_thickness	154	245	498	101.7	101.8	9.9	9.7	-0.2	2.0	0.98
165	2012	Teat_thickness	170	335	561	100.2	100.2	10.7	10.2	0.0	1.9	0.98
166	2013	Teat_thickness	151	326	571	100.2	100.3	10.2	9.9	-0.1	2.1	0.98
167	2014	Teat_thickness	113	479	575	100.1	100.3	11.3	11.1	-0.2	1.6	0.99
168	2015	Teat_thickness	82	696	852	96.4	96.8	11.7	11.5	-0.4	1.8	0.99
169	2016	Teat_thickness	65	618	811	100.0	100.3	10.2	10.2	-0.3	2.1	0.98
170	2017	Teat_thickness	60	374	462	97.7	98.0	10.6	10.8	-0.3	1.8	0.99
171	2018	Teat_thickness	16	82	128	98.4	98.2	11.0	11.0	0.3	2.1	0.98
172	2010	Teat_place_f	193	404	1231	97.3	97.6	9.5	8.9	-0.2	1.8	0.98
173	2011	Teat_place_f	154	245	498	95.2	95.3	9.9	9.5	-0.1	1.6	0.99
174	2012	Teat_place_f	170	335	561	97.3	97.2	10.3	10.0	0.1	1.5	0.99
175	2013	Teat_place_f	151	326	571	100.4	100.5	9.4	9.1	-0.2	1.6	0.99
176	2014	Teat_place_f	113	479	575	99.4	99.7	9.8	9.5	-0.4	1.4	0.99
177	2015	Teat_place_f	82	696	852	102.7	102.8	10.2	10.0	-0.1	1.2	0.99
178	2016	Teat_place_f	65	618	811	102.7	102.8	9.3	9.3	-0.1	1.6	0.98
179	2017	Teat_place_f	60	374	462	102.3	102.2	8.6	8.7	0.1	1.4	0.99
180	2018	Teat_place_f	16	82	128	105.3	104.8	11.9	11.9	0.6	2.2	0.98

## HOL summary statistics for SS and current breeding value for nordic AI bulls with minimum 15 offspring, by birth year

Obs	BYR	name	no	mean_noff	std_noff	mean_ss	mean_ebv	std_ss	std_ebv	mean_dif	std_dif	corr_SS_ebv
181	2010	Teat_place_B	193	404	1231	98.6	98.5	9.9	9.6	0.1	1.9	0.98
182	2011	Teat_place_B	154	245	498	96.5	96.6	11.6	11.3	-0.1	1.6	0.99
183	2012	Teat_place_B	170	335	561	99.3	99.2	10.8	10.6	0.1	1.6	0.99
184	2013	Teat_place_B	151	326	571	100.9	101.0	9.6	9.4	-0.1	1.8	0.98
185	2014	Teat_place_B	113	479	575	99.4	99.7	10.1	10.0	-0.3	1.3	0.99
186	2015	Teat_place_B	82	696	852	101.6	102.0	9.7	9.8	-0.4	1.3	0.99
187	2016	Teat_place_B	65	618	811	100.8	101.7	10.1	10.7	-0.9	1.8	0.99
188	2017	Teat_place_B	60	374	462	100.2	100.3	8.1	8.8	-0.2	1.7	0.98
189	2018	Teat_place_B	16	82	128	104.1	104.4	11.1	12.6	-0.3	2.4	0.99
190	2010	Udder_balance	193	404	1231	96.9	97.6	11.1	10.6	-0.7	2.6	0.97
191	2011	Udder_balance	154	245	498	96.0	96.4	12.6	12.3	-0.4	2.1	0.99
192	2012	Udder_balance	170	335	561	97.5	97.9	11.5	11.1	-0.4	2.1	0.98
193	2013	Udder_balance	151	326	571	97.5	97.8	12.6	12.2	-0.3	2.6	0.98
194	2014	Udder_balance	113	479	575	98.9	98.7	11.8	11.9	0.2	1.7	0.99
195	2015	Udder_balance	82	696	852	101.8	101.3	11.8	11.8	0.5	1.4	0.99
196	2016	Udder_balance	65	618	811	102.0	102.0	10.9	10.8	0.0	1.8	0.99
197	2017	Udder_balance	60	374	462	100.5	100.1	13.1	13.2	0.4	2.1	0.99
198	2018	Udder_balance	16	82	128	102.4	103.3	10.8	11.7	-0.9	1.9	0.99
199	2010	Body	193	404	1231	98.4	98.4	10.3	10.3	0.0	1.7	0.99
200	2011	Body	154	245	498	98.1	97.9	11.7	11.3	0.1	1.7	0.99
201	2012	Body	170	335	561	96.5	96.2	10.7	10.7	0.3	1.6	0.99
202	2013	Body	151	326	571	99.4	99.1	9.8	9.9	0.3	1.8	0.98
203	2014	Body	113	479	575	98.5	98.2	10.6	10.6	0.3	1.4	0.99
204	2015	Body	82	696	852	98.2	98.1	11.6	11.4	0.1	1.5	0.99
205	2016	Body	65	618	811	99.9	99.8	9.1	9.1	0.1	1.7	0.98
206	2017	Body	60	374	462	100.7	99.9	10.3	10.3	0.8	1.5	0.99
207	2018	Body	16	82	128	104.4	103.4	10.7	9.8	1.0	2.2	0.98
208	2010	leg	193	404	1231	96.2	97.0	8.3	8.2	-0.8	2.2	0.96
209	2011	leg	154	245	498	97.4	98.0	10.4	10.2	-0.6	2.1	0.98
210	2012	leg	170	335	561	98.2	98.5	8.7	8.4	-0.3	2.0	0.97
211	2013	leg	151	326	571	96.6	96.9	8.1	8.2	-0.3	1.9	0.97
212	2014	leg	113	480	575	100.5	100.5	9.8	9.5	0.0	1.9	0.98
213	2015	leg	82	696	852	101.0	100.6	9.3	9.2	0.5	1.7	0.98
214	2016	leg	65	618	811	103.2	102.3	9.5	9.5	0.9	2.0	0.98
215	2017	leg	60	374	462	102.2	101.2	8.8	8.9	1.0	1.6	0.98
216	2018	leg	16	82	128	102.9	103.4	8.3	8.0	-0.4	1.5	0.98



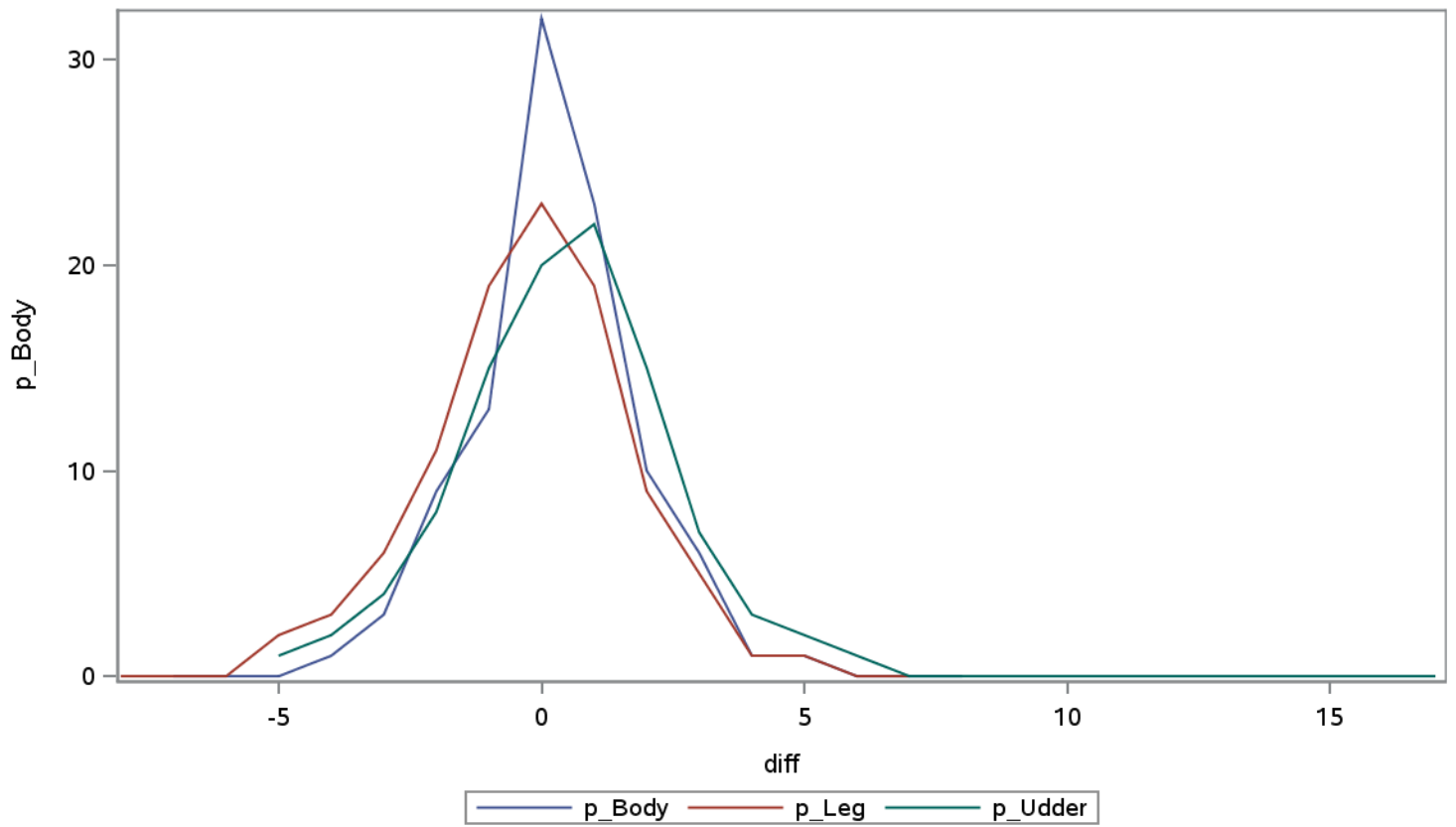
**HOL summery statistics for SS and current breeding value for nordic AI bulls with minimum 15 offspring, by birth year**

Obs	BYR	name	no	mean_noff	std_noff	mean_ss	mean_ebv	std_ss	std_ebv	mean_dif	std_dif	corr_SS_ebv
217	2010	udder	193	404	1231	92.8	92.9	9.3	8.9	-0.1	2.2	0.97
218	2011	udder	154	245	498	93.8	93.6	8.5	8.2	0.2	2.4	0.96
219	2012	udder	170	335	561	95.5	95.3	9.0	8.3	0.1	2.0	0.98
220	2013	udder	151	326	571	98.4	97.7	8.8	8.4	0.7	1.9	0.98
221	2014	udder	113	479	575	99.3	98.7	9.8	9.3	0.6	1.8	0.98
222	2015	udder	82	696	852	104.4	103.2	10.7	10.1	1.2	2.0	0.98
223	2016	udder	65	618	811	104.9	103.1	9.7	9.6	1.8	2.2	0.97
224	2017	udder	60	374	462	107.2	106.2	9.5	9.6	1.0	1.9	0.98
225	2018	udder	16	82	128	108.1	106.6	10.8	11.3	1.4	1.8	0.99

**distribution of differences in number of bulls and in percentage**

Obs	diff	d_Body	d_Leg	d_Udder	p_Body	p_Leg	p_Udder
1	-8	.	2	.	.	0	.
2	-7	2	3	.	0	0	.
3	-6	1	4	.	0	0	.
4	-5	1	17	12	0	2	1
5	-4	14	26	17	1	3	2
6	-3	31	63	43	3	6	4
7	-2	89	110	78	9	11	8
8	-1	129	194	147	13	19	15
9	0	321	231	202	32	23	20
10	1	233	187	216	23	19	22
11	2	101	88	149	10	9	15
12	3	60	47	73	6	5	7
13	4	14	15	35	1	1	3
14	5	6	9	17	1	1	2
15	6	1	5	8	0	0	1
16	7	.	3	4	.	0	0
17	8	1	.	1	0	.	0
18	9	.	.	1	.	.	0
19	17	.	.	1	.	.	0

distribution of differences in number of bulls and in percentage



## HOL summery stastistics for SS and current breeding value for nordic AI bulls with no offspring, by birth year

Obs	BYR	name	no	mean_noff	std_noff	mean_ss	mean_ebv	std_ss	std_ebv	mean_dif	std_dif	corr_SS_ebv
1	2019	Stature	67	.	.	106.8	104.8	9.3	8.5	2.0	1.8	0.98
2	2020	Stature	65	.	.	106.2	104.9	9.7	8.9	1.2	2.2	0.98
3	2021	Stature	45	.	.	106.5	105.0	8.9	8.2	1.5	2.2	0.97
4	2019	Body_depth	67	.	.	97.7	98.0	8.2	8.4	-0.3	2.3	0.96
5	2020	Body_depth	65	.	.	99.3	98.4	8.1	8.1	0.9	2.6	0.95
6	2021	Body_depth	45	.	.	100.2	99.2	7.5	6.6	1.0	2.6	0.94
7	2019	Chest_width	67	.	.	96.4	96.4	8.4	8.5	0.0	2.6	0.95
8	2020	Chest_width	65	.	.	99.8	98.5	8.6	9.0	1.3	2.8	0.95
9	2021	Chest_width	45	.	.	98.4	97.5	8.8	8.0	0.9	3.0	0.94
10	2019	Dairy_form	67	.	.	105.4	104.7	7.5	6.9	0.7	2.2	0.96
11	2020	Dairy_form	65	.	.	104.7	103.9	6.2	5.6	0.8	2.2	0.94
12	2021	Dairy_form	45	.	.	104.9	104.5	4.7	4.2	0.4	2.6	0.83
13	2019	top_line	67	.	.	101.2	101.3	8.4	8.0	-0.1	2.2	0.97
14	2020	top_line	65	.	.	99.1	99.6	7.0	7.4	-0.5	2.1	0.96
15	2021	top_line	45	.	.	101.5	102.4	7.8	7.4	-0.9	2.3	0.95
16	2019	Rump_width	67	.	.	102.2	102.0	8.9	8.4	0.2	2.6	0.96
17	2020	Rump_width	65	.	.	101.6	100.8	9.6	9.3	0.7	2.6	0.96
18	2021	Rump_width	45	.	.	101.4	101.0	8.6	8.5	0.3	2.5	0.96
19	2019	Rump_angle	67	.	.	100.7	100.2	9.2	8.4	0.6	2.0	0.98
20	2020	Rump_angle	65	.	.	98.6	98.9	9.5	9.6	-0.3	2.2	0.97
21	2021	Rump_angle	45	.	.	100.6	100.4	8.5	7.8	0.2	2.5	0.96
22	2019	Rear_legs_sv	67	.	.	101.0	101.7	9.2	8.0	-0.7	2.9	0.95
23	2020	Rear_legs_sv	65	.	.	96.8	97.1	8.4	7.6	-0.3	2.6	0.95
24	2021	Rear_legs_sv	45	.	.	96.3	96.4	9.4	9.4	-0.1	2.7	0.96
25	2019	Rear_legs_bv	67	.	.	100.8	99.8	9.1	8.3	1.0	3.2	0.94
26	2020	Rear_legs_bv	65	.	.	102.6	101.3	8.5	8.3	1.2	3.4	0.92
27	2021	Rear_legs_bv	45	.	.	103.0	101.5	7.5	7.2	1.5	3.4	0.89
28	2019	Hock_quality	67	.	.	105.9	105.2	8.1	6.9	0.7	2.4	0.96
29	2020	Hock_quality	65	.	.	103.2	102.7	6.9	6.4	0.5	2.3	0.94
30	2021	Hock_quality	45	.	.	103.3	103.2	8.2	7.8	0.1	3.2	0.92
31	2019	Bone_quality	67	.	.	104.9	104.7	8.7	8.5	0.2	2.0	0.97
32	2020	Bone_quality	65	.	.	103.9	104.2	9.4	9.1	-0.2	2.4	0.97
33	2021	Bone_quality	45	.	.	104.3	104.4	10.7	10.5	0.0	2.7	0.97
34	2019	Foot_angle	67	.	.	101.5	100.4	7.5	6.2	1.0	2.7	0.94
35	2020	Foot_angle	65	.	.	103.0	102.5	7.1	7.3	0.4	2.9	0.92
36	2021	Foot_angle	45	.	.	106.0	104.9	8.0	6.4	1.1	3.8	0.88

## HOL summery stastistics for SS and current breeding value for nordic AI bulls with no offspring, by birth year

Obs	BYR	name	no	mean_noff	std_noff	mean_ss	mean_ebv	std_ss	std_ebv	mean_dif	std_dif	corr_SS_ebv
37	2019	Fore_udder_att	67	.	.	106.1	103.4	8.6	6.7	2.8	3.2	0.94
38	2020	Fore_udder_att	65	.	.	108.6	105.3	7.1	5.3	3.3	3.0	0.93
39	2021	Fore_udder_att	45	.	.	108.9	105.4	8.2	6.6	3.6	3.2	0.93
40	2019	Rear_udder_hei	67	.	.	108.0	106.5	10.0	8.9	1.5	2.7	0.97
41	2020	Rear_udder_hei	65	.	.	108.2	106.7	7.2	6.6	1.4	2.4	0.94
42	2021	Rear_udder_hei	45	.	.	110.5	109.1	7.8	6.8	1.4	3.2	0.91
43	2019	Rear_udder_wid	67	.	.	103.1	101.6	8.7	7.6	1.5	2.5	0.96
44	2020	Rear_udder_wid	65	.	.	105.4	103.8	6.7	6.0	1.6	2.4	0.93
45	2021	Rear_udder_wid	45	.	.	105.5	104.2	8.1	6.5	1.4	2.7	0.95
46	2019	Udder_cleft_su	67	.	.	99.6	99.9	7.9	7.9	-0.4	2.7	0.94
47	2020	Udder_cleft_su	65	.	.	101.2	100.1	7.8	7.1	1.1	3.0	0.92
48	2021	Udder_cleft_su	45	.	.	101.8	101.2	8.0	8.3	0.7	3.0	0.94
49	2019	Udder_depth	67	.	.	111.3	109.5	9.2	8.6	1.8	2.6	0.96
50	2020	Udder_depth	65	.	.	110.6	109.4	8.3	7.7	1.2	2.6	0.95
51	2021	Udder_depth	45	.	.	111.6	109.4	8.5	8.1	2.1	2.6	0.95
52	2019	Teat_length	67	.	.	99.6	99.7	8.6	8.5	-0.2	2.0	0.97
53	2020	Teat_length	65	.	.	100.9	100.5	7.8	7.8	0.4	1.9	0.97
54	2021	Teat_length	45	.	.	98.5	99.3	7.6	7.9	-0.8	2.9	0.93
55	2019	Teat_thickness	67	.	.	96.5	97.3	9.7	8.2	-0.8	2.7	0.97
56	2020	Teat_thickness	65	.	.	98.1	97.9	10.0	8.3	0.2	2.6	0.98
57	2021	Teat_thickness	45	.	.	96.5	97.7	8.9	7.8	-1.2	2.1	0.98
58	2019	Teat_place_f	67	.	.	102.2	101.9	9.6	9.1	0.3	2.3	0.97
59	2020	Teat_place_f	65	.	.	103.1	102.7	9.2	8.1	0.4	2.6	0.96
60	2021	Teat_place_f	45	.	.	102.9	101.5	8.7	8.3	1.3	2.6	0.96
61	2019	Teat_place_B	67	.	.	101.4	101.4	9.4	9.6	0.0	2.4	0.97
62	2020	Teat_place_B	65	.	.	103.0	102.6	9.0	8.5	0.4	2.4	0.96
63	2021	Teat_place_B	45	.	.	101.8	101.0	8.6	9.7	0.8	2.8	0.96
64	2019	Udder_balance	67	.	.	100.3	99.7	10.5	9.4	0.6	2.8	0.97
65	2020	Udder_balance	65	.	.	102.9	102.3	9.2	8.5	0.6	2.5	0.96
66	2021	Udder_balance	45	.	.	102.6	100.8	8.6	7.3	1.8	3.3	0.92
67	2019	Body	67	.	.	102.9	101.8	9.2	8.6	1.1	2.3	0.97
68	2020	Body	65	.	.	103.8	102.2	9.8	9.7	1.6	2.2	0.98
69	2021	Body	45	.	.	103.9	102.4	7.9	7.4	1.4	2.5	0.95
70	2019	leg	67	.	.	104.4	103.2	6.7	6.5	1.2	2.6	0.92
71	2020	leg	65	.	.	104.7	103.9	7.1	7.3	0.8	2.8	0.93
72	2021	leg	45	.	.	105.9	104.8	7.3	7.8	1.1	3.2	0.91

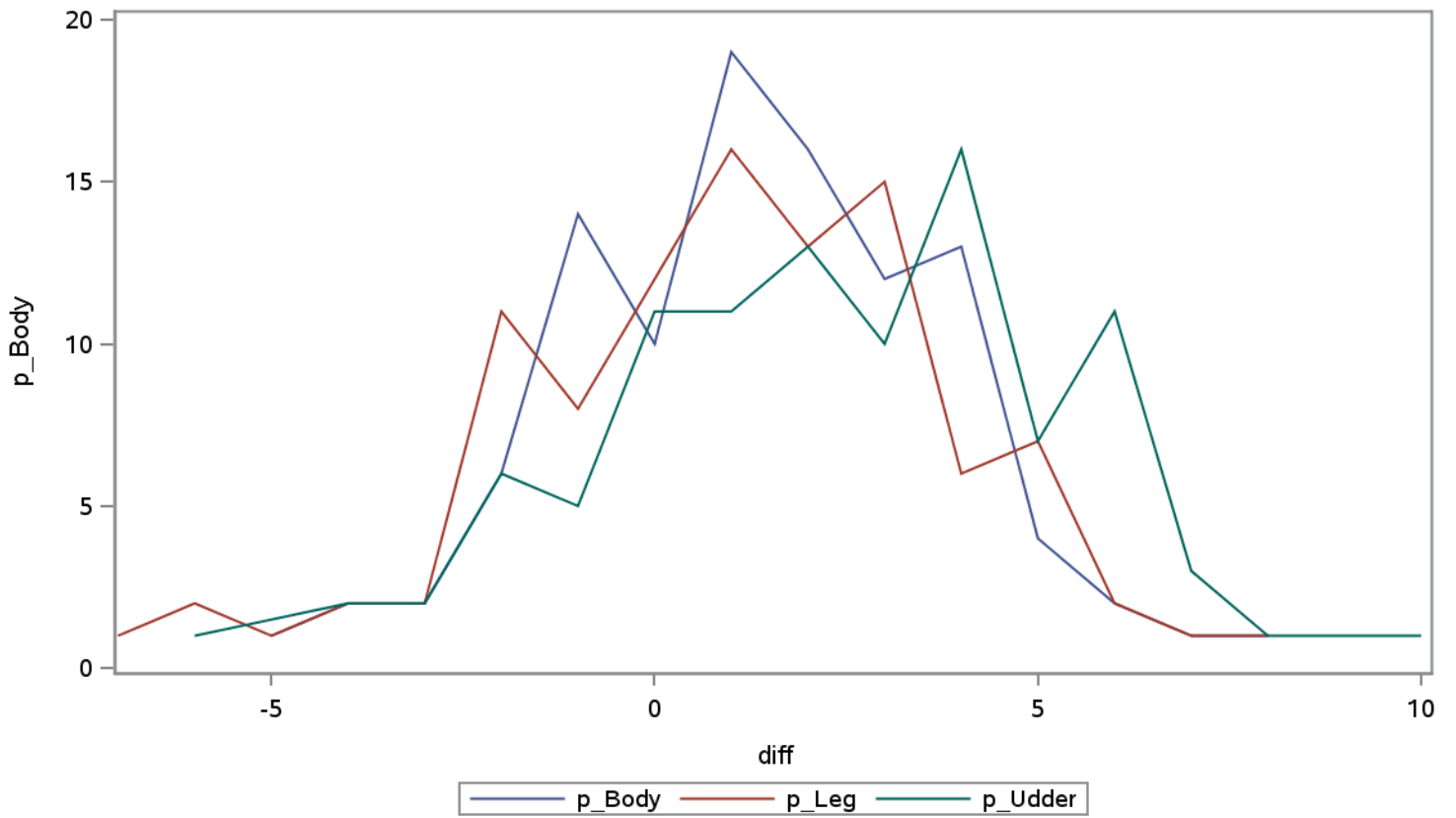
**HOL summery statistics for SS and current breeding value for nordic AI bulls with no offspring, by birth year**

Obs	BYR	name	no	mean_noff	std_noff	mean_ss	mean_ebv	std_ss	std_ebv	mean_dif	std_dif	corr_SS_ebv
73	2019	udder	67	.	.	110.0	107.7	8.5	7.4	2.3	2.9	0.94
74	2020	udder	65	.	.	110.2	107.6	7.7	7.1	2.5	2.8	0.93
75	2021	udder	45	.	.	112.4	109.6	7.4	6.4	2.8	3.1	0.91

**distribution of differences in number of bulls and in percentage**

Obs	diff	d_Body	d_Leg	d_Udder	p_Body	p_Leg	p_Udder
1	-7	.	2	.	.	1	.
2	-6	.	4	1	.	2	1
3	-5	1	1	.	1	1	.
4	-4	3	3	3	2	2	2
5	-3	4	4	3	2	2	2
6	-2	10	19	10	6	11	6
7	-1	24	14	9	14	8	5
8	0	17	22	19	10	12	11
9	1	34	29	20	19	16	11
10	2	28	23	23	16	13	13
11	3	21	26	18	12	15	10
12	4	23	10	29	13	6	16
13	5	7	13	12	4	7	7
14	6	3	4	19	2	2	11
15	7	1	2	6	1	1	3
16	8	1	1	2	1	1	1
17	9	.	.	1	.	.	1
18	10	.	.	2	.	.	1

## distribution of differences in number of bulls and in percentage





**JER summary statistics for SS and current breeding value for nordic AI bulls with minimum 15 offspring, by birth year**

Obs	BYR	name	no	mean_noff	std_noff	mean_ss	mean_ebv	std_ss	std_ebv	mean_dif	std_dif	corr_SS_ebv
1	2010	Stature	55	118	118	97.5	96.9	11.1	10.9	0.6	1.6	0.99
2	2011	Stature	47	100	105	96.9	96.4	9.7	9.5	0.5	1.4	0.99
3	2012	Stature	47	185	302	98.7	97.9	9.2	8.8	0.8	1.5	0.99
4	2013	Stature	50	144	264	98.7	98.0	9.9	9.8	0.7	1.2	0.99
5	2014	Stature	36	241	301	97.2	96.5	10.1	9.8	0.7	1.5	0.99
6	2015	Stature	30	525	512	103.7	102.6	8.3	8.1	1.2	1.3	0.99
7	2016	Stature	25	339	324	101.5	100.4	7.6	7.5	1.1	1.5	0.98
8	2017	Stature	29	310	244	106.8	104.2	9.6	9.7	2.6	1.0	0.99
9	2010	Body_depth	55	119	118	102.2	102.8	11.6	12.1	-0.6	2.2	0.98
10	2011	Body_depth	47	101	105	102.1	102.6	11.9	11.5	-0.5	2.0	0.99
11	2012	Body_depth	47	185	303	100.6	100.3	12.0	11.5	0.3	2.4	0.98
12	2013	Body_depth	50	144	265	102.8	102.1	13.3	13.4	0.7	1.9	0.99
13	2014	Body_depth	36	242	303	98.1	97.5	11.5	11.4	0.6	1.8	0.99
14	2015	Body_depth	30	527	513	98.3	97.6	11.1	11.6	0.6	1.4	0.99
15	2016	Body_depth	25	339	325	99.0	99.0	9.3	9.6	0.0	1.8	0.98
16	2017	Body_depth	29	310	244	99.4	100.3	9.7	9.9	-0.8	1.8	0.98
17	2010	Chest_width	55	119	118	101.1	101.0	13.2	13.7	0.0	2.0	0.99
18	2011	Chest_width	47	101	105	101.4	101.6	12.5	12.0	-0.1	2.4	0.98
19	2012	Chest_width	47	185	303	101.2	100.7	13.8	14.4	0.5	3.0	0.98
20	2013	Chest_width	50	144	265	101.1	100.9	12.7	13.6	0.2	2.6	0.98
21	2014	Chest_width	36	242	303	98.8	98.5	13.5	14.3	0.3	2.2	0.99
22	2015	Chest_width	30	527	513	98.5	97.5	11.4	11.8	1.0	1.4	0.99
23	2016	Chest_width	25	339	325	101.2	101.0	12.1	12.4	0.2	2.5	0.98
24	2017	Chest_width	29	310	244	99.5	99.9	11.3	12.1	-0.4	2.5	0.98
25	2010	Dairy_form	55	119	118	98.3	97.8	7.7	7.3	0.4	1.8	0.97
26	2011	Dairy_form	47	101	104	97.5	97.6	8.0	7.9	-0.1	1.8	0.98
27	2012	Dairy_form	47	184	300	99.3	99.1	11.0	10.8	0.3	2.7	0.97
28	2013	Dairy_form	50	143	259	101.4	100.4	9.9	10.6	1.0	2.3	0.98
29	2014	Dairy_form	36	242	302	99.4	98.6	14.0	13.9	0.8	1.9	0.99
30	2015	Dairy_form	30	527	513	103.1	102.6	11.0	11.0	0.5	1.5	0.99
31	2016	Dairy_form	25	339	325	101.6	100.2	9.3	9.1	1.4	1.7	0.98
32	2017	Dairy_form	29	310	244	105.3	103.4	10.6	10.7	1.9	1.0	1.00
33	2010	top_line	55	119	118	96.8	95.9	11.9	11.3	0.9	2.1	0.98
34	2011	top_line	47	101	105	99.8	99.3	10.3	9.7	0.4	2.8	0.96
35	2012	top_line	47	185	303	99.3	99.1	10.0	10.0	0.2	2.2	0.97
36	2013	top_line	50	144	265	98.8	98.4	12.8	12.8	0.4	1.7	0.99

**JER summary statistics for SS and current breeding value for nordic AI bulls with minimum 15 offspring, by birth year**

Obs	BYR	name	no	mean_noff	std_noff	mean_ss	mean_ebv	std_ss	std_ebv	mean_dif	std_dif	corr_SS_ebv
37	2014	top_line	36	242	303	100.6	99.5	10.3	10.4	1.1	2.0	0.98
38	2015	top_line	30	527	513	102.0	101.4	10.5	9.9	0.6	1.4	0.99
39	2016	top_line	25	339	325	100.8	100.4	10.2	10.3	0.4	1.8	0.98
40	2017	top_line	29	310	244	106.0	105.8	10.3	10.2	0.2	1.3	0.99
41	2010	Rump_width	55	117	116	99.2	99.2	8.9	8.8	0.0	1.8	0.98
42	2011	Rump_width	47	96	93	98.5	98.6	10.2	10.2	-0.1	1.9	0.98
43	2012	Rump_width	47	180	296	96.6	96.3	11.1	10.9	0.3	1.6	0.99
44	2013	Rump_width	50	143	262	99.9	99.1	12.1	12.8	0.7	1.6	0.99
45	2014	Rump_width	36	242	302	99.0	99.1	10.6	11.1	-0.1	1.3	0.99
46	2015	Rump_width	30	527	513	104.1	103.9	9.5	9.4	0.3	1.2	0.99
47	2016	Rump_width	25	339	325	101.1	100.6	10.6	10.0	0.5	2.0	0.98
48	2017	Rump_width	29	310	244	101.4	100.1	10.4	10.6	1.3	1.8	0.99
49	2010	Rump_angle	55	119	118	99.6	99.5	8.5	8.5	0.1	1.6	0.98
50	2011	Rump_angle	47	101	105	100.2	99.8	9.2	9.3	0.4	1.5	0.99
51	2012	Rump_angle	47	185	303	101.5	101.0	11.9	11.6	0.5	1.8	0.99
52	2013	Rump_angle	50	144	265	100.2	100.2	9.7	9.6	0.0	1.7	0.98
53	2014	Rump_angle	36	242	303	100.3	100.0	10.5	11.1	0.3	1.6	0.99
54	2015	Rump_angle	30	527	513	100.1	100.0	11.5	11.6	0.1	1.1	1.00
55	2016	Rump_angle	25	339	325	97.9	98.0	9.2	9.4	0.0	1.3	0.99
56	2017	Rump_angle	29	310	244	101.3	101.3	9.0	8.9	0.0	1.5	0.99
57	2010	Rear_legs_sv	55	119	118	98.8	98.6	9.5	9.8	0.2	2.3	0.97
58	2011	Rear_legs_sv	47	101	105	98.2	98.7	9.6	9.7	-0.5	2.1	0.98
59	2012	Rear_legs_sv	47	185	303	98.6	98.7	8.7	8.3	-0.1	2.8	0.95
60	2013	Rear_legs_sv	50	144	265	100.9	100.9	9.2	9.5	0.0	1.6	0.99
61	2014	Rear_legs_sv	36	242	303	100.6	99.7	12.4	12.4	0.9	2.2	0.98
62	2015	Rear_legs_sv	30	527	513	98.3	98.8	8.5	9.5	-0.5	1.9	0.98
63	2016	Rear_legs_sv	25	339	325	101.2	101.7	6.3	6.6	-0.6	2.1	0.95
64	2017	Rear_legs_sv	29	310	244	99.4	99.5	10.7	11.0	-0.1	1.3	0.99
65	2010	Rear_legs_bv	55	117	116	101.8	100.9	10.8	11.3	0.8	3.1	0.96
66	2011	Rear_legs_bv	47	96	93	97.6	97.2	10.2	10.1	0.4	2.4	0.97
67	2012	Rear_legs_bv	47	180	296	100.3	100.8	11.4	10.4	-0.5	2.9	0.97
68	2013	Rear_legs_bv	50	143	262	101.6	101.3	9.6	9.8	0.3	2.9	0.95
69	2014	Rear_legs_bv	36	242	302	98.0	98.5	10.2	10.5	-0.5	2.3	0.97
70	2015	Rear_legs_bv	30	527	513	99.8	100.3	10.7	10.3	-0.6	2.4	0.97
71	2016	Rear_legs_bv	25	339	325	99.4	98.4	13.9	14.2	1.0	2.1	0.99
72	2017	Rear_legs_bv	29	310	244	99.9	99.3	9.4	9.0	0.5	2.8	0.95

**JER summary statistics for SS and current breeding value for nordic AI bulls with minimum 15 offspring, by birth year**

Obs	BYR	name	no	mean_noff	std_noff	mean_ss	mean_ebv	std_ss	std_ebv	mean_dif	std_dif	corr_SS_ebv
73	2010	Hock_quality	55	117	116	100.9	100.8	10.9	10.7	0.1	3.0	0.96
74	2011	Hock_quality	47	96	93	95.9	96.3	14.0	12.9	-0.4	3.7	0.97
75	2012	Hock_quality	47	180	296	99.1	99.7	14.2	14.3	-0.6	3.4	0.97
76	2013	Hock_quality	50	143	262	101.3	102.3	14.0	13.8	-1.1	3.2	0.97
77	2014	Hock_quality	36	242	302	101.5	102.9	16.3	16.6	-1.4	2.6	0.99
78	2015	Hock_quality	30	527	513	101.2	102.0	12.3	12.3	-0.8	1.7	0.99
79	2016	Hock_quality	25	339	325	102.2	102.4	18.0	18.1	-0.3	2.7	0.99
80	2017	Hock_quality	29	310	244	103.0	101.4	15.7	17.0	1.6	2.9	0.99
81	2010	Bone_quality	55	117	116	100.3	100.0	13.0	13.4	0.4	2.5	0.98
82	2011	Bone_quality	47	96	93	99.2	99.5	13.0	12.6	-0.3	2.7	0.98
83	2012	Bone_quality	47	180	296	99.9	100.2	10.8	11.2	-0.3	2.6	0.97
84	2013	Bone_quality	50	143	262	100.6	101.6	12.5	13.3	-0.9	2.2	0.99
85	2014	Bone_quality	36	242	302	100.4	101.2	13.6	14.2	-0.8	2.0	0.99
86	2015	Bone_quality	30	527	513	100.7	101.4	10.5	10.9	-0.7	1.5	0.99
87	2016	Bone_quality	25	339	325	104.2	103.8	12.3	12.7	0.4	2.0	0.99
88	2017	Bone_quality	29	310	244	100.7	100.9	13.6	13.9	-0.1	2.0	0.99
89	2010	Foot_angle	55	119	118	100.1	100.6	10.0	10.0	-0.5	2.3	0.97
90	2011	Foot_angle	47	101	105	100.8	101.7	10.0	9.3	-0.9	2.6	0.97
91	2012	Foot_angle	47	185	303	99.4	100.0	10.6	10.5	-0.6	2.2	0.98
92	2013	Foot_angle	50	144	265	101.2	100.8	11.4	11.3	0.4	2.1	0.98
93	2014	Foot_angle	36	242	303	97.6	98.2	13.2	13.0	-0.6	2.0	0.99
94	2015	Foot_angle	30	527	513	103.5	103.1	8.6	8.9	0.4	1.5	0.99
95	2016	Foot_angle	25	339	325	98.4	97.7	8.5	8.5	0.7	1.9	0.98
96	2017	Foot_angle	29	310	244	102.6	101.4	11.9	11.9	1.2	1.8	0.99
97	2010	Fore_udder_att	55	119	118	91.8	92.9	9.7	9.6	-1.1	2.3	0.97
98	2011	Fore_udder_att	47	101	105	95.7	96.8	7.9	7.6	-1.1	2.3	0.95
99	2012	Fore_udder_att	47	185	303	95.3	96.1	11.8	11.6	-0.9	2.4	0.98
100	2013	Fore_udder_att	50	144	265	95.0	95.6	9.4	9.7	-0.6	1.6	0.99
101	2014	Fore_udder_att	36	242	303	99.1	99.4	10.5	10.7	-0.3	1.7	0.99
102	2015	Fore_udder_att	30	527	513	102.6	101.8	10.1	10.4	0.8	1.3	0.99
103	2016	Fore_udder_att	25	339	325	102.1	100.0	8.5	9.2	2.2	2.5	0.96
104	2017	Fore_udder_att	29	310	244	104.7	103.0	11.8	11.6	1.7	2.0	0.99
105	2010	Rear_udder_hei	55	119	118	95.6	96.5	8.7	8.7	-0.9	2.2	0.97
106	2011	Rear_udder_hei	47	101	105	97.5	99.1	8.7	8.5	-1.6	2.3	0.97
107	2012	Rear_udder_hei	47	185	303	98.6	99.2	9.3	9.8	-0.6	1.7	0.99
108	2013	Rear_udder_hei	50	144	265	100.1	100.7	9.0	9.4	-0.6	1.7	0.98

**JER summary statistics for SS and current breeding value for nordic AI bulls with minimum 15 offspring, by birth year**

Obs	BYR	name	no	mean_noff	std_noff	mean_ss	mean_ebv	std_ss	std_ebv	mean_dif	std_dif	corr_SS_ebv
109	2014	Rear_udder_hei	36	242	303	99.9	99.5	8.4	8.4	0.4	1.8	0.98
110	2015	Rear_udder_hei	30	527	513	102.5	101.5	7.4	7.2	1.0	1.5	0.98
111	2016	Rear_udder_hei	25	339	325	103.0	101.0	7.7	8.8	1.9	1.8	0.98
112	2017	Rear_udder_hei	29	310	244	105.4	103.5	9.3	9.2	1.9	1.4	0.99
113	2010	Rear_udder_wid	55	117	116	96.3	96.5	7.8	8.0	-0.2	1.8	0.97
114	2011	Rear_udder_wid	47	96	93	99.0	99.5	7.7	7.8	-0.5	2.3	0.95
115	2012	Rear_udder_wid	47	180	296	98.7	98.6	9.4	9.9	0.1	2.0	0.98
116	2013	Rear_udder_wid	50	143	262	100.8	101.3	8.7	9.4	-0.5	1.7	0.99
117	2014	Rear_udder_wid	36	242	302	99.5	99.1	10.3	10.6	0.3	1.6	0.99
118	2015	Rear_udder_wid	30	527	513	102.7	101.8	8.2	8.0	0.9	1.2	0.99
119	2016	Rear_udder_wid	25	339	325	101.0	100.0	8.3	8.6	1.0	2.1	0.97
120	2017	Rear_udder_wid	29	310	244	103.2	102.1	7.8	7.9	1.1	1.7	0.98
121	2010	Udder_cleft_su	55	119	118	99.4	99.9	12.7	12.5	-0.5	2.0	0.99
122	2011	Udder_cleft_su	47	101	105	95.9	96.1	11.3	11.8	-0.3	2.5	0.98
123	2012	Udder_cleft_su	47	185	303	101.0	101.7	8.2	8.5	-0.7	2.3	0.96
124	2013	Udder_cleft_su	50	144	265	102.1	102.2	12.5	12.6	-0.1	2.3	0.98
125	2014	Udder_cleft_su	36	242	303	100.3	99.7	10.2	10.7	0.6	2.3	0.98
126	2015	Udder_cleft_su	30	527	513	101.4	100.7	10.0	9.9	0.7	1.8	0.98
127	2016	Udder_cleft_su	25	339	325	95.4	95.6	10.7	11.1	-0.2	1.9	0.99
128	2017	Udder_cleft_su	29	310	244	101.9	101.8	10.0	9.9	0.1	1.9	0.98
129	2010	Udder_depth	55	119	118	90.9	91.7	11.6	11.1	-0.8	1.7	0.99
130	2011	Udder_depth	47	101	105	95.1	96.0	10.5	10.0	-0.9	2.0	0.98
131	2012	Udder_depth	47	185	303	97.0	97.5	11.8	11.4	-0.5	1.3	0.99
132	2013	Udder_depth	50	144	265	92.6	93.5	9.2	9.1	-0.9	1.5	0.99
133	2014	Udder_depth	36	242	303	97.8	98.2	8.9	8.8	-0.4	1.4	0.99
134	2015	Udder_depth	30	527	513	104.2	103.5	11.1	10.9	0.7	0.8	1.00
135	2016	Udder_depth	25	339	325	101.2	99.4	9.8	9.1	1.8	2.0	0.98
136	2017	Udder_depth	29	310	244	107.3	104.6	11.6	11.2	2.7	1.5	0.99
137	2010	Teat_length	55	119	118	102.9	102.6	12.3	11.8	0.2	2.0	0.99
138	2011	Teat_length	47	101	105	98.7	98.3	13.3	13.4	0.3	1.6	0.99
139	2012	Teat_length	47	185	303	102.3	102.0	9.8	9.3	0.4	1.6	0.99
140	2013	Teat_length	50	144	265	102.1	101.5	12.3	12.5	0.6	1.5	0.99
141	2014	Teat_length	36	242	303	98.3	98.8	15.2	15.3	-0.4	1.3	1.00
142	2015	Teat_length	30	527	513	100.4	100.3	11.5	11.2	0.1	1.3	0.99
143	2016	Teat_length	25	339	325	96.5	96.2	9.3	8.5	0.2	1.7	0.99
144	2017	Teat_length	29	310	244	101.3	101.1	13.5	13.3	0.2	1.2	1.00

**JER summery statistics for SS and current breeding value for nordic AI bulls with minimum 15 offspring, by birth year**

Obs	BYR	name	no	mean_noff	std_noff	mean_ss	mean_ebv	std_ss	std_ebv	mean_dif	std_dif	corr_SS_ebv
145	2010	Teat_thickness	55	117	116	99.8	99.7	10.4	10.4	0.1	1.9	0.98
146	2011	Teat_thickness	47	96	93	102.0	101.5	11.2	11.1	0.5	1.9	0.99
147	2012	Teat_thickness	47	180	296	101.6	100.8	8.9	9.2	0.8	2.2	0.97
148	2013	Teat_thickness	50	143	262	102.7	102.0	9.6	9.7	0.7	1.8	0.98
149	2014	Teat_thickness	36	242	302	99.9	100.0	13.0	13.7	-0.1	1.4	1.00
150	2015	Teat_thickness	30	527	513	99.2	99.3	8.4	8.5	-0.1	1.4	0.99
151	2016	Teat_thickness	25	339	325	96.6	96.9	8.4	8.5	-0.3	1.8	0.98
152	2017	Teat_thickness	29	310	244	101.7	102.3	10.2	10.4	-0.7	1.1	0.99
153	2010	Teat_place_f	55	119	118	94.6	94.4	8.8	9.0	0.2	1.9	0.98
154	2011	Teat_place_f	47	101	105	96.9	96.7	9.6	10.0	0.1	1.7	0.99
155	2012	Teat_place_f	47	185	303	101.1	101.3	10.4	10.6	-0.1	1.6	0.99
156	2013	Teat_place_f	50	144	265	98.4	98.5	8.5	9.1	-0.1	1.8	0.98
157	2014	Teat_place_f	36	242	303	99.7	99.9	11.1	11.4	-0.2	1.5	0.99
158	2015	Teat_place_f	30	527	513	103.4	103.5	10.4	10.2	-0.1	1.3	0.99
159	2016	Teat_place_f	25	339	325	98.9	98.3	11.1	11.3	0.6	1.4	0.99
160	2017	Teat_place_f	29	310	244	103.7	102.8	11.3	11.1	0.9	1.2	0.99
161	2010	Teat_place_B	55	117	116	94.5	94.5	10.6	10.6	0.0	2.2	0.98
162	2011	Teat_place_B	47	96	93	96.0	95.7	11.5	12.3	0.2	2.4	0.98
163	2012	Teat_place_B	47	180	296	102.3	102.6	11.7	12.2	-0.3	2.4	0.98
164	2013	Teat_place_B	50	143	262	98.7	99.0	11.7	13.0	-0.3	2.8	0.98
165	2014	Teat_place_B	36	242	302	100.3	100.4	12.3	12.6	-0.1	1.7	0.99
166	2015	Teat_place_B	30	527	513	101.7	101.5	11.6	11.7	0.2	2.0	0.99
167	2016	Teat_place_B	25	339	325	97.6	97.6	12.8	12.6	0.0	1.9	0.99
168	2017	Teat_place_B	29	310	244	103.2	102.7	12.7	12.7	0.4	1.7	0.99
169	2010	Udder_balance	55	117	116	99.0	99.4	8.1	8.4	-0.4	2.3	0.96
170	2011	Udder_balance	47	96	93	101.3	101.9	10.1	10.7	-0.6	2.5	0.97
171	2012	Udder_balance	47	180	296	103.3	103.7	10.7	11.6	-0.4	2.5	0.98
172	2013	Udder_balance	50	143	262	99.0	99.1	8.4	9.4	0.0	2.1	0.98
173	2014	Udder_balance	36	242	302	100.7	100.4	7.7	8.6	0.3	2.1	0.97
174	2015	Udder_balance	30	527	513	99.3	99.3	10.6	10.9	0.1	1.6	0.99
175	2016	Udder_balance	25	339	325	99.7	99.5	8.9	9.3	0.2	1.5	0.99
176	2017	Udder_balance	29	310	244	99.1	99.4	10.0	10.0	-0.3	1.4	0.99
177	2010	Body	55	118	118	96.6	95.6	9.7	9.5	0.9	1.9	0.98
178	2011	Body	47	100	105	97.0	96.5	10.0	9.6	0.5	2.0	0.98
179	2012	Body	47	185	302	96.5	95.6	11.0	10.9	0.9	1.9	0.98
180	2013	Body	50	144	264	98.3	96.9	12.0	12.1	1.4	1.6	0.99

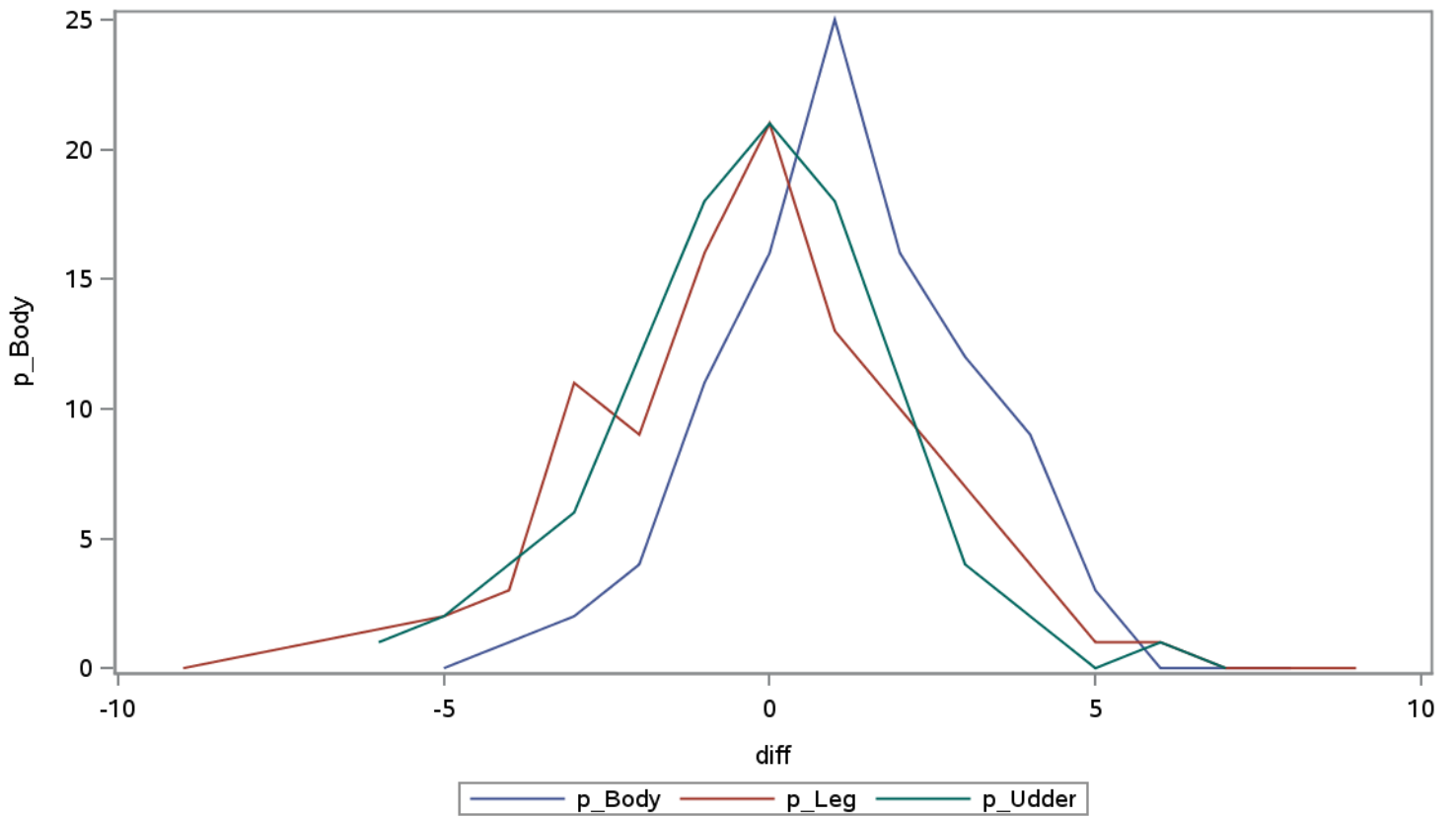
**JER summery statistics for SS and current breeding value for nordic AI bulls with minimum 15 offspring, by birth year**

Obs	BYR	name	no	mean_noff	std_noff	mean_ss	mean_ebv	std_ss	std_ebv	mean_dif	std_dif	corr_SS_ebv
181	2014	Body	36	241	301	96.8	95.7	10.4	10.4	1.1	1.9	0.98
182	2015	Body	30	525	512	102.7	101.0	9.6	9.5	1.7	2.2	0.97
183	2016	Body	25	339	324	101.8	100.5	8.6	8.8	1.3	2.1	0.97
184	2017	Body	29	310	244	106.7	104.3	10.0	10.0	2.4	1.4	0.99
185	2010	leg	55	117	116	101.7	101.6	9.8	10.0	0.1	2.5	0.97
186	2011	leg	47	96	93	98.4	98.6	9.7	9.2	-0.2	2.7	0.96
187	2012	leg	47	180	296	100.2	100.6	9.0	9.1	-0.5	2.4	0.96
188	2013	leg	50	143	262	101.4	101.7	10.8	11.0	-0.3	2.1	0.98
189	2014	leg	36	242	302	98.5	100.1	11.7	11.6	-1.6	1.7	0.99
190	2015	leg	30	527	513	102.9	103.1	10.7	10.6	-0.2	1.6	0.99
191	2016	leg	25	339	325	100.6	99.5	8.9	9.4	1.1	1.9	0.98
192	2017	leg	29	310	244	102.7	101.3	13.5	13.9	1.4	2.1	0.99
193	2010	udder	55	119	118	92.1	93.1	10.1	9.5	-1.0	2.0	0.98
194	2011	udder	47	101	105	94.6	95.7	7.8	7.4	-1.1	2.0	0.97
195	2012	udder	47	185	303	94.7	95.5	12.5	12.1	-0.8	1.6	0.99
196	2013	udder	50	144	265	94.2	95.0	7.9	7.9	-0.8	1.6	0.98
197	2014	udder	36	242	303	98.0	98.4	9.7	9.4	-0.4	1.5	0.99
198	2015	udder	30	527	513	103.9	102.9	9.3	9.3	1.0	0.9	1.00
199	2016	udder	25	339	325	101.2	99.4	8.9	8.7	1.9	2.0	0.98
200	2017	udder	29	310	244	106.6	104.2	11.3	10.9	2.4	1.4	0.99

**distribution of differences in number of bulls and in percentage**

Obs	diff	d_Body	d_Leg	d_Udder	p_Body	p_Leg	p_Udder
1	-9	.	1	.	.	0	.
2	-6	.	.	2	.	.	1
3	-5	1	7	5	0	2	2
4	-4	3	10	13	1	3	4
5	-3	6	35	18	2	11	6
6	-2	12	30	38	4	9	12
7	-1	36	53	59	11	16	18
8	0	52	69	69	16	21	21
9	1	81	43	59	25	13	18
10	2	52	33	35	16	10	11
11	3	38	24	13	12	7	4
12	4	30	12	8	9	4	2
13	5	11	3	1	3	1	0
14	6	1	2	3	0	1	1
15	7	.	1	1	.	0	0
16	8	1	.	.	0	.	.
17	9	.	1	.	.	0	.

distribution of differences in number of bulls and in percentage





**JER summery statistics for SS and current breeding value for nordic AI bulls with no offspring, by birth year**

Obs	BYR	name	no	mean_noff	std_noff	mean_ss	mean_ebv	std_ss	std_ebv	mean_dif	std_dif	corr_SS_ebv
1	2019	Stature	51	.	.	109.2	106.8	8.8	9.2	2.4	2.0	0.98
2	2020	Stature	32	.	.	107.6	104.9	6.9	7.8	2.7	2.6	0.94
3	2021	Stature	29	.	.	106.8	105.5	5.7	6.2	1.2	1.7	0.96
4	2019	Body_depth	51	.	.	98.5	98.2	7.5	7.5	0.3	1.9	0.97
5	2020	Body_depth	32	.	.	98.8	98.1	7.2	6.4	0.7	2.3	0.95
6	2021	Body_depth	29	.	.	97.9	97.9	8.7	9.4	0.0	2.4	0.97
7	2019	Chest_width	51	.	.	99.5	99.3	8.8	9.9	0.3	3.3	0.94
8	2020	Chest_width	32	.	.	100.7	99.5	8.0	8.0	1.2	2.7	0.94
9	2021	Chest_width	29	.	.	98.0	98.1	9.2	11.1	0.0	3.6	0.95
10	2019	Dairy_form	51	.	.	107.0	103.8	8.4	6.9	3.2	2.3	0.97
11	2020	Dairy_form	32	.	.	106.5	103.0	8.3	7.5	3.5	2.2	0.97
12	2021	Dairy_form	29	.	.	106.1	103.3	8.0	6.7	2.8	2.6	0.95
13	2019	top_line	51	.	.	103.9	103.5	8.8	9.1	0.4	2.1	0.97
14	2020	top_line	32	.	.	105.2	104.1	7.0	7.3	1.1	2.4	0.94
15	2021	top_line	29	.	.	103.8	102.7	7.3	8.1	1.1	2.4	0.96
16	2019	Rump_width	51	.	.	104.0	103.8	8.1	9.1	0.1	2.4	0.97
17	2020	Rump_width	32	.	.	105.2	104.6	6.8	9.2	0.6	3.5	0.95
18	2021	Rump_width	29	.	.	101.5	100.8	6.3	8.1	0.7	3.1	0.94
19	2019	Rump_angle	51	.	.	100.8	100.4	7.4	8.1	0.4	1.6	0.98
20	2020	Rump_angle	32	.	.	96.5	95.8	8.0	8.9	0.7	2.5	0.96
21	2021	Rump_angle	29	.	.	100.2	99.6	9.5	10.6	0.6	2.0	0.99
22	2019	Rear_legs_sv	51	.	.	99.4	99.7	9.0	9.5	-0.3	2.5	0.96
23	2020	Rear_legs_sv	32	.	.	101.3	101.5	8.0	9.5	-0.2	3.4	0.94
24	2021	Rear_legs_sv	29	.	.	102.2	101.6	8.7	9.3	0.6	3.0	0.95
25	2019	Rear_legs_bv	51	.	.	101.3	100.0	8.7	10.4	1.3	3.3	0.95
26	2020	Rear_legs_bv	32	.	.	101.4	101.2	10.2	11.7	0.3	3.0	0.97
27	2021	Rear_legs_bv	29	.	.	99.5	100.2	8.7	10.1	-0.8	2.9	0.96
28	2019	Hock_quality	51	.	.	101.0	100.2	11.3	14.2	0.8	4.4	0.97
29	2020	Hock_quality	32	.	.	100.4	100.6	10.8	14.4	-0.2	5.0	0.96
30	2021	Hock_quality	29	.	.	104.9	106.7	8.8	10.8	-1.8	4.0	0.94
31	2019	Bone_quality	51	.	.	99.0	99.5	9.2	10.2	-0.5	2.7	0.97
32	2020	Bone_quality	32	.	.	101.7	103.4	7.9	9.5	-1.7	3.3	0.94
33	2021	Bone_quality	29	.	.	102.5	103.1	8.4	10.7	-0.7	3.5	0.96
34	2019	Foot_angle	51	.	.	103.3	102.5	8.2	8.3	0.8	2.6	0.95
35	2020	Foot_angle	32	.	.	100.5	100.1	8.3	8.2	0.4	2.9	0.94
36	2021	Foot_angle	29	.	.	100.0	99.9	9.7	9.3	0.0	2.5	0.97

## JER summery statistics for SS and current breeding value for nordic AI bulls with no offspring, by birth year

Obs	BYR	name	no	mean_noff	std_noff	mean_ss	mean_ebv	std_ss	std_ebv	mean_dif	std_dif	corr_SS_ebv
37	2019	Fore_udder_att	51	.	.	105.0	103.6	9.7	9.6	1.4	2.2	0.97
38	2020	Fore_udder_att	32	.	.	105.8	105.2	6.9	7.5	0.6	2.2	0.96
39	2021	Fore_udder_att	29	.	.	104.0	103.2	6.7	6.8	0.8	2.9	0.91
40	2019	Rear_udder_hei	51	.	.	107.3	105.1	7.3	6.5	2.2	2.1	0.96
41	2020	Rear_udder_hei	32	.	.	107.0	105.0	7.0	6.6	2.0	1.8	0.97
42	2021	Rear_udder_hei	29	.	.	108.4	106.1	7.1	6.8	2.3	2.4	0.94
43	2019	Rear_udder_wid	51	.	.	104.8	103.1	7.8	7.3	1.6	1.9	0.97
44	2020	Rear_udder_wid	32	.	.	106.9	105.1	7.0	7.2	1.8	2.0	0.96
45	2021	Rear_udder_wid	29	.	.	104.7	103.6	5.8	6.0	1.1	1.8	0.95
46	2019	Udder_cleft_su	51	.	.	101.0	100.7	9.9	10.8	0.3	2.5	0.98
47	2020	Udder_cleft_su	32	.	.	101.6	102.2	5.9	7.4	-0.6	3.3	0.90
48	2021	Udder_cleft_su	29	.	.	102.0	101.8	6.3	7.5	0.2	2.4	0.95
49	2019	Udder_depth	51	.	.	110.3	107.7	10.4	9.9	2.5	2.4	0.97
50	2020	Udder_depth	32	.	.	107.5	106.2	8.4	7.9	1.3	2.3	0.96
51	2021	Udder_depth	29	.	.	107.7	106.1	8.1	8.2	1.6	2.3	0.96
52	2019	Teat_length	51	.	.	98.6	99.1	8.9	9.1	-0.5	2.1	0.97
53	2020	Teat_length	32	.	.	98.1	98.1	10.2	11.3	0.0	2.7	0.97
54	2021	Teat_length	29	.	.	101.1	102.0	11.0	11.1	-0.8	2.1	0.98
55	2019	Teat_thickness	51	.	.	102.0	102.2	6.9	6.8	-0.2	1.7	0.97
56	2020	Teat_thickness	32	.	.	101.1	101.0	7.5	8.3	0.1	2.3	0.96
57	2021	Teat_thickness	29	.	.	102.2	103.0	7.5	6.8	-0.8	1.3	0.99
58	2019	Teat_place_f	51	.	.	103.5	103.4	8.7	9.8	0.1	2.2	0.98
59	2020	Teat_place_f	32	.	.	103.5	103.9	8.0	9.5	-0.4	2.9	0.96
60	2021	Teat_place_f	29	.	.	102.1	101.6	9.0	9.7	0.4	2.6	0.96
61	2019	Teat_place_B	51	.	.	102.2	101.9	10.8	12.5	0.3	3.2	0.97
62	2020	Teat_place_B	32	.	.	100.9	101.6	8.9	11.0	-0.7	3.3	0.96
63	2021	Teat_place_B	29	.	.	100.7	99.4	9.9	11.0	1.2	2.9	0.97
64	2019	Udder_balance	51	.	.	101.0	101.1	9.4	10.7	-0.1	2.2	0.98
65	2020	Udder_balance	32	.	.	99.4	99.0	7.6	8.4	0.4	1.6	0.98
66	2021	Udder_balance	29	.	.	101.2	101.6	8.6	9.1	-0.3	1.8	0.98
67	2019	Body	51	.	.	108.4	106.4	9.3	9.5	2.0	2.1	0.98
68	2020	Body	32	.	.	109.4	106.5	6.8	8.0	2.8	3.0	0.93
69	2021	Body	29	.	.	105.7	103.8	5.7	6.2	1.9	1.6	0.97
70	2019	leg	51	.	.	102.4	101.2	8.4	9.2	1.2	2.8	0.95
71	2020	leg	32	.	.	100.8	100.9	9.9	12.4	-0.1	3.4	0.98
72	2021	leg	29	.	.	101.4	102.9	8.9	9.1	-1.5	2.7	0.96

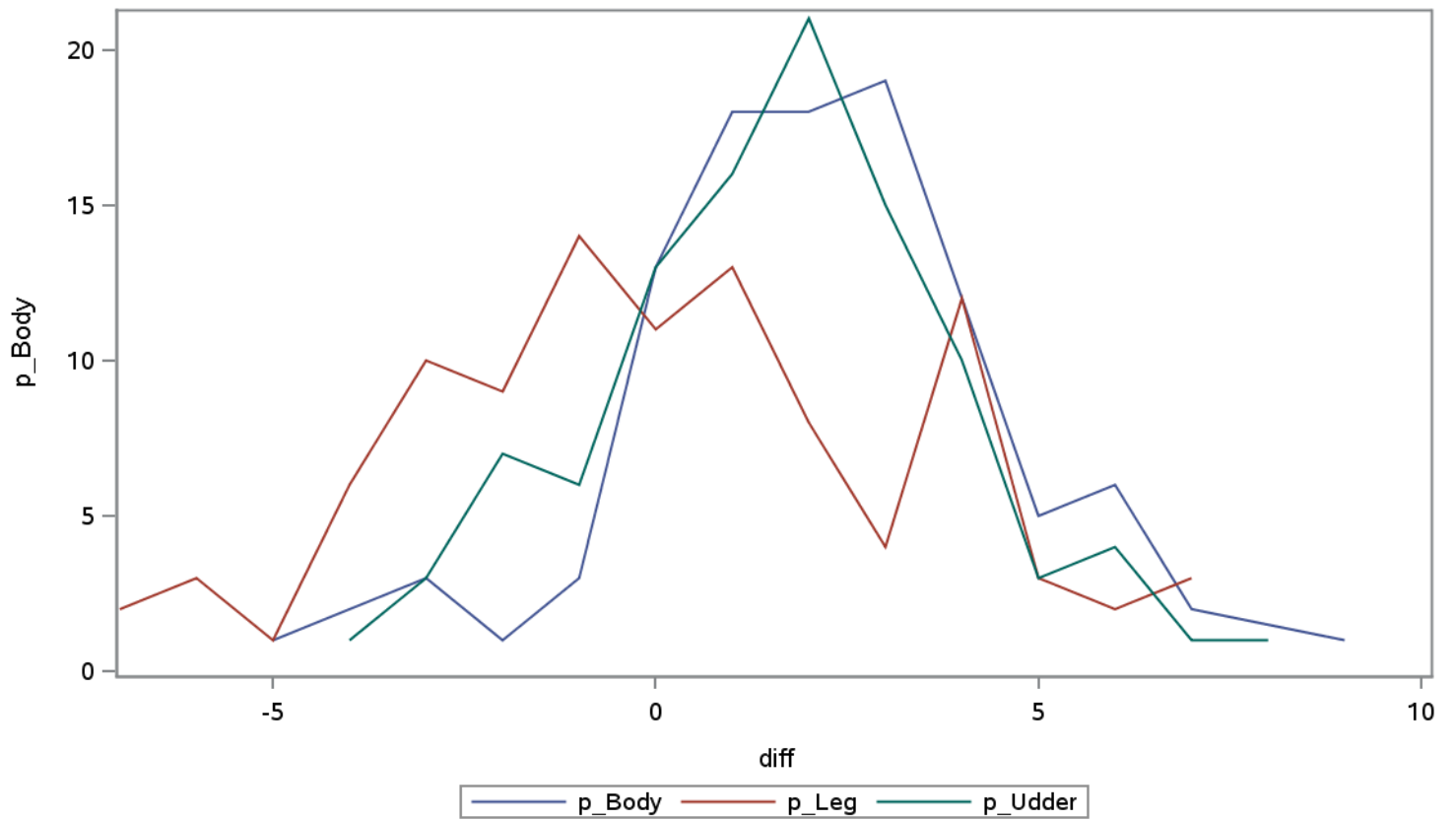
**JER summery statistics for SS and current breeding value for nordic AI bulls with no offspring, by birth year**

Obs	BYR	name	no	mean_noff	std_noff	mean_ss	mean_ebv	std_ss	std_ebv	mean_dif	std_dif	corr_SS_ebv
73	2019	udder	51	.	.	108.0	105.8	9.7	9.3	2.2	2.3	0.97
74	2020	udder	32	.	.	107.7	106.6	8.3	8.5	1.1	2.2	0.97
75	2021	udder	29	.	.	106.6	105.5	7.1	7.2	1.1	2.2	0.95

**distribution of differences in number of bulls and in percentage**

Obs	diff	d_Body	d_Leg	d_Udder	p_Body	p_Leg	p_Udder
1	-7	.	2	.	.	2	.
2	-6	.	3	.	.	3	.
3	-5	1	1	.	1	1	.
4	-4	.	7	1	.	6	1
5	-3	3	11	3	3	10	3
6	-2	1	10	8	1	9	7
7	-1	3	16	7	3	14	6
8	0	14	12	14	13	11	13
9	1	20	15	18	18	13	16
10	2	20	9	24	18	8	21
11	3	21	5	17	19	4	15
12	4	13	13	11	12	12	10
13	5	6	3	3	5	3	3
14	6	7	2	4	6	2	4
15	7	2	3	1	2	3	1
16	8	.	.	1	.	.	1
17	9	1	.	.	1	.	.

distribution of differences in number of bulls and in percentage



**RDC summary statistics for SS and current breeding value for nordic AI bulls with minimum 15 offspring, by birth year**

Obs	BYR	name	no	mean_noff	std_noff	mean_ss	mean_ebv	std_ss	std_ebv	mean_dif	std_dif	corr_SS_ebv
1	2010	Stature	165	120	307	98.0	98.6	11.8	8.9	-0.5	3.2	0.99
2	2011	Stature	167	145	294	94.9	96.2	10.5	7.8	-1.3	3.0	0.99
3	2012	Stature	168	148	248	96.3	97.2	11.3	8.3	-1.0	3.3	0.99
4	2013	Stature	120	203	333	97.8	98.5	10.4	8.0	-0.7	2.8	0.99
5	2014	Stature	84	307	454	98.9	99.0	12.2	9.4	-0.1	3.2	0.99
6	2015	Stature	71	331	420	99.2	99.2	10.1	7.5	0.0	2.9	0.99
7	2016	Stature	69	285	416	100.5	100.1	12.1	9.0	0.4	3.4	0.99
8	2017	Stature	43	144	173	103.2	102.1	11.6	8.5	1.1	3.4	0.99
9	2010	Body_depth	165	120	307	100.7	100.8	9.6	9.1	-0.1	1.9	0.98
10	2011	Body_depth	167	145	294	100.7	100.6	10.1	9.7	0.2	2.0	0.98
11	2012	Body_depth	168	148	248	99.2	98.7	11.1	10.4	0.5	2.0	0.98
12	2013	Body_depth	120	204	333	98.4	97.7	10.3	9.5	0.7	2.1	0.98
13	2014	Body_depth	84	307	454	99.0	98.6	11.1	10.6	0.4	1.9	0.99
14	2015	Body_depth	71	331	420	97.2	96.8	10.4	10.4	0.4	1.8	0.98
15	2016	Body_depth	69	285	416	98.4	98.2	12.5	12.1	0.2	1.8	0.99
16	2017	Body_depth	43	144	173	101.4	101.0	9.8	9.8	0.5	1.5	0.99
17	2010	Chest_width	165	120	307	99.5	99.2	10.4	10.1	0.3	2.3	0.98
18	2011	Chest_width	167	145	294	103.5	103.4	10.9	11.0	0.0	2.2	0.98
19	2012	Chest_width	168	148	248	100.5	100.5	10.9	10.9	0.0	2.4	0.98
20	2013	Chest_width	120	204	333	99.2	99.1	11.1	11.2	0.1	2.5	0.98
21	2014	Chest_width	84	307	454	101.7	101.6	11.3	11.3	0.1	2.2	0.98
22	2015	Chest_width	71	331	420	98.1	98.1	11.4	11.5	0.0	1.9	0.99
23	2016	Chest_width	69	285	416	98.5	98.5	11.9	13.0	0.0	2.2	0.99
24	2017	Chest_width	43	144	173	100.2	100.1	9.1	9.4	0.1	1.6	0.99
25	2010	Dairy_form	165	120	307	99.1	99.6	6.7	7.6	-0.5	1.7	0.98
26	2011	Dairy_form	167	145	294	97.4	97.3	6.4	7.1	0.1	1.7	0.97
27	2012	Dairy_form	168	148	248	99.2	99.2	5.6	6.3	0.0	1.6	0.97
28	2013	Dairy_form	120	204	333	99.0	98.9	5.6	6.3	0.2	1.4	0.98
29	2014	Dairy_form	84	307	454	99.3	99.2	4.9	5.6	0.1	1.5	0.97
30	2015	Dairy_form	71	331	420	101.7	101.7	5.3	5.9	0.0	1.5	0.97
31	2016	Dairy_form	69	285	416	102.1	101.4	5.0	5.8	0.6	1.6	0.96
32	2017	Dairy_form	43	144	173	104.2	104.1	5.6	6.4	0.1	1.7	0.97
33	2010	top_line	165	120	307	100.8	101.0	10.9	10.7	-0.2	2.0	0.98
34	2011	top_line	167	145	294	98.2	98.1	9.7	10.0	0.1	2.3	0.97
35	2012	top_line	168	148	248	100.2	100.5	10.0	9.9	-0.3	2.3	0.97
36	2013	top_line	120	204	333	101.1	101.5	10.7	10.6	-0.3	2.1	0.98

**RDC summery statistics for SS and current breeding value for nordic AI bulls with minimum 15 offspring, by birth year**

Obs	BYR	name	no	mean_noff	std_noff	mean_ss	mean_ebv	std_ss	std_ebv	mean_dif	std_dif	corr_SS_ebv
37	2014	top_line	84	307	454	99.9	99.8	12.2	11.9	0.0	2.0	0.99
38	2015	top_line	71	331	420	101.6	101.2	11.0	11.1	0.4	2.0	0.98
39	2016	top_line	69	285	416	101.6	101.4	10.2	10.3	0.3	1.7	0.99
40	2017	top_line	43	144	173	100.3	100.8	10.1	10.1	-0.5	2.0	0.98
41	2010	Rump_width	165	120	307	99.6	99.5	12.6	11.3	0.1	2.3	0.99
42	2011	Rump_width	167	145	294	99.3	99.2	11.1	9.8	0.0	2.3	0.98
43	2012	Rump_width	168	148	248	97.8	97.8	13.6	11.6	-0.1	2.8	0.99
44	2013	Rump_width	120	204	333	100.2	100.2	11.5	10.4	-0.1	2.0	0.99
45	2014	Rump_width	84	307	454	101.4	101.5	13.1	11.9	-0.1	1.8	0.99
46	2015	Rump_width	71	331	420	98.0	98.3	9.1	8.1	-0.3	1.8	0.98
47	2016	Rump_width	69	285	416	100.0	100.3	11.9	10.8	-0.3	1.8	0.99
48	2017	Rump_width	43	144	173	99.3	99.7	10.9	10.0	-0.4	1.9	0.99
49	2010	Rump_angle	165	120	307	101.2	100.9	8.4	8.6	0.3	1.4	0.99
50	2011	Rump_angle	167	145	294	102.1	101.7	9.1	9.1	0.4	1.6	0.99
51	2012	Rump_angle	168	148	248	102.1	102.0	8.3	8.4	0.1	1.5	0.98
52	2013	Rump_angle	120	204	333	100.2	100.1	9.2	9.4	0.2	1.6	0.99
53	2014	Rump_angle	84	307	454	100.5	100.6	8.1	8.2	-0.1	1.3	0.99
54	2015	Rump_angle	71	331	420	99.5	99.9	9.1	9.0	-0.4	1.3	0.99
55	2016	Rump_angle	69	285	416	99.9	100.0	8.1	8.8	-0.1	1.3	0.99
56	2017	Rump_angle	43	144	173	100.2	100.2	9.0	9.6	0.0	1.3	0.99
57	2010	Rear_legs_sv	165	120	307	101.6	101.7	8.2	8.2	-0.1	1.4	0.99
58	2011	Rear_legs_sv	167	145	294	101.7	101.5	8.7	8.7	0.2	1.5	0.98
59	2012	Rear_legs_sv	168	148	248	103.2	103.1	9.1	9.1	0.2	1.5	0.99
60	2013	Rear_legs_sv	120	204	333	102.4	102.4	8.1	8.1	0.0	1.4	0.99
61	2014	Rear_legs_sv	84	307	454	102.7	102.5	8.0	8.2	0.2	1.4	0.99
62	2015	Rear_legs_sv	71	331	420	99.0	99.2	8.4	8.4	-0.2	1.3	0.99
63	2016	Rear_legs_sv	69	285	416	100.8	101.3	7.3	7.1	-0.4	1.2	0.99
64	2017	Rear_legs_sv	43	144	173	100.1	100.3	8.1	8.1	-0.2	1.2	0.99
65	2010	Rear_legs_bv	165	120	307	96.1	96.6	8.1	8.1	-0.4	2.1	0.97
66	2011	Rear_legs_bv	167	145	294	97.4	97.8	8.8	9.1	-0.4	2.1	0.97
67	2012	Rear_legs_bv	168	148	248	99.4	99.8	9.5	9.6	-0.4	2.1	0.98
68	2013	Rear_legs_bv	120	204	333	98.1	98.3	7.8	7.7	-0.2	1.9	0.97
69	2014	Rear_legs_bv	84	307	454	100.3	100.2	8.8	9.3	0.1	1.7	0.98
70	2015	Rear_legs_bv	71	331	420	99.8	99.3	8.5	8.6	0.4	1.6	0.98
71	2016	Rear_legs_bv	69	285	416	101.9	101.3	8.8	9.2	0.6	1.9	0.98
72	2017	Rear_legs_bv	43	144	173	103.1	102.2	9.8	10.2	0.9	1.6	0.99

**RDC summery statistics for SS and current breeding value for nordic AI bulls with minimum 15 offspring, by birth year**

Obs	BYR	name	no	mean_noff	std_noff	mean_ss	mean_ebv	std_ss	std_ebv	mean_dif	std_dif	corr_SS_ebv
73	2010	Hock_quality	165	120	307	95.8	96.8	9.9	9.8	-0.9	1.8	0.98
74	2011	Hock_quality	167	145	294	97.6	98.3	9.5	9.4	-0.7	1.6	0.99
75	2012	Hock_quality	168	148	248	98.9	99.3	9.2	8.8	-0.3	1.7	0.98
76	2013	Hock_quality	120	203	333	101.0	101.5	8.4	8.5	-0.6	1.5	0.98
77	2014	Hock_quality	84	307	454	100.6	101.0	10.5	10.3	-0.5	1.7	0.99
78	2015	Hock_quality	71	331	420	103.9	103.8	9.1	8.8	0.1	1.3	0.99
79	2016	Hock_quality	69	285	416	103.4	102.9	10.1	10.2	0.5	1.2	0.99
80	2017	Hock_quality	43	144	173	104.2	103.4	9.9	10.3	0.8	1.6	0.99
81	2010	Bone_quality	165	120	307	95.5	96.2	10.3	10.1	-0.7	1.4	0.99
82	2011	Bone_quality	167	145	294	95.9	96.5	9.7	9.4	-0.6	1.4	0.99
83	2012	Bone_quality	168	148	248	98.0	98.2	11.3	11.0	-0.2	1.5	0.99
84	2013	Bone_quality	120	203	333	100.3	100.6	9.3	9.3	-0.3	1.4	0.99
85	2014	Bone_quality	84	307	454	100.0	100.3	12.1	11.9	-0.3	1.3	0.99
86	2015	Bone_quality	71	331	420	104.4	104.5	10.3	10.1	-0.1	1.3	0.99
87	2016	Bone_quality	69	285	416	103.3	103.2	11.7	11.5	0.1	1.3	0.99
88	2017	Bone_quality	43	144	173	104.0	103.3	10.6	10.6	0.7	1.0	1.00
89	2010	Foot_angle	165	120	307	100.2	100.3	7.0	6.9	-0.1	1.8	0.97
90	2011	Foot_angle	167	145	294	100.6	100.8	7.5	7.6	-0.1	1.8	0.97
91	2012	Foot_angle	168	148	248	99.2	99.5	7.0	7.0	-0.3	2.1	0.96
92	2013	Foot_angle	120	203	333	98.8	99.0	7.5	7.5	-0.2	1.9	0.97
93	2014	Foot_angle	84	307	454	98.7	99.1	6.4	6.6	-0.4	1.9	0.96
94	2015	Foot_angle	71	331	420	99.9	99.9	7.7	7.5	0.0	1.4	0.98
95	2016	Foot_angle	69	285	416	100.6	100.2	6.9	7.0	0.5	1.5	0.98
96	2017	Foot_angle	43	144	173	100.3	100.5	7.1	7.2	-0.1	1.2	0.99
97	2010	Fore_udder_att	165	120	307	97.3	98.4	9.6	9.5	-1.1	2.1	0.98
98	2011	Fore_udder_att	167	145	294	96.7	97.3	9.3	9.3	-0.6	1.9	0.98
99	2012	Fore_udder_att	168	148	248	98.4	99.2	8.8	8.9	-0.8	1.9	0.98
100	2013	Fore_udder_att	120	203	333	100.2	100.8	8.5	8.5	-0.5	1.9	0.97
101	2014	Fore_udder_att	84	307	454	100.8	100.5	8.9	9.2	0.3	1.8	0.98
102	2015	Fore_udder_att	71	331	420	102.4	101.7	10.3	10.3	0.7	1.5	0.99
103	2016	Fore_udder_att	69	285	416	103.3	102.3	7.8	7.6	1.0	1.4	0.98
104	2017	Fore_udder_att	43	144	173	104.7	102.7	9.1	9.8	2.0	2.3	0.97
105	2010	Rear_udder_hei	165	120	307	97.2	98.5	8.5	8.6	-1.3	1.8	0.98
106	2011	Rear_udder_hei	167	145	294	95.6	96.5	8.1	8.2	-0.9	1.7	0.98
107	2012	Rear_udder_hei	168	148	248	96.0	96.7	8.8	8.9	-0.8	1.7	0.98
108	2013	Rear_udder_hei	120	203	333	98.4	98.9	9.6	9.6	-0.5	1.9	0.98



### RDC summery statistics for SS and current breeding value for nordic AI bulls with minimum 15 offspring, by birth year

Obs	BYR	name	no	mean_noff	std_noff	mean_ss	mean_ebv	std_ss	std_ebv	mean_dif	std_dif	corr_SS_ebv
109	2014	Rear_udder_hei	84	307	454	99.3	99.5	8.3	8.7	-0.1	1.5	0.99
110	2015	Rear_udder_hei	71	331	420	100.7	100.0	9.3	9.5	0.7	1.5	0.99
111	2016	Rear_udder_hei	69	285	416	101.4	100.1	7.8	7.9	1.3	1.6	0.98
112	2017	Rear_udder_hei	43	144	173	104.8	103.4	8.1	8.3	1.4	1.4	0.99
113	2010	Rear_udder_wid	165	120	307	96.9	97.8	10.1	10.6	-0.9	1.8	0.99
114	2011	Rear_udder_wid	167	145	294	95.6	96.2	8.9	8.9	-0.6	1.5	0.99
115	2012	Rear_udder_wid	168	148	248	97.8	98.2	9.2	9.2	-0.4	1.7	0.98
116	2013	Rear_udder_wid	120	203	333	100.0	100.3	8.8	9.2	-0.3	1.4	0.99
117	2014	Rear_udder_wid	84	307	454	99.0	98.6	8.4	8.3	0.5	1.4	0.99
118	2015	Rear_udder_wid	71	331	420	100.1	99.3	8.3	8.5	0.9	1.7	0.98
119	2016	Rear_udder_wid	69	285	416	101.2	100.4	8.2	8.4	0.8	1.4	0.99
120	2017	Rear_udder_wid	43	144	173	103.5	102.1	7.8	8.1	1.4	1.3	0.99
121	2010	Udder_cleft_su	165	120	307	101.4	101.6	10.4	10.4	-0.2	2.5	0.97
122	2011	Udder_cleft_su	167	145	294	100.5	100.5	9.7	9.7	0.0	2.2	0.98
123	2012	Udder_cleft_su	168	148	248	100.7	100.8	9.6	9.6	-0.1	2.4	0.97
124	2013	Udder_cleft_su	120	203	333	98.5	98.5	8.8	9.1	-0.1	2.2	0.97
125	2014	Udder_cleft_su	84	307	454	98.8	98.7	10.0	9.9	0.1	2.2	0.97
126	2015	Udder_cleft_su	71	331	420	98.2	98.1	10.8	11.3	0.1	2.1	0.98
127	2016	Udder_cleft_su	69	285	416	101.8	100.7	12.8	12.9	1.1	2.1	0.99
128	2017	Udder_cleft_su	43	144	173	101.2	100.0	9.9	10.5	1.2	2.3	0.98
129	2010	Udder_depth	165	120	307	94.7	95.6	9.3	9.4	-1.0	1.4	0.99
130	2011	Udder_depth	167	145	294	94.3	94.9	9.0	8.8	-0.6	1.4	0.99
131	2012	Udder_depth	168	148	248	95.4	96.1	9.1	9.0	-0.7	1.6	0.98
132	2013	Udder_depth	120	203	333	97.6	98.3	8.0	7.7	-0.7	1.5	0.98
133	2014	Udder_depth	84	307	454	100.9	101.0	10.0	10.0	0.0	1.3	0.99
134	2015	Udder_depth	71	331	420	102.2	101.7	10.2	10.1	0.6	1.4	0.99
135	2016	Udder_depth	69	285	416	103.8	102.9	8.6	8.8	0.9	1.4	0.99
136	2017	Udder_depth	43	144	173	106.7	105.1	7.9	8.3	1.6	1.9	0.97
137	2010	Teat_length	165	120	307	100.6	101.0	9.9	9.9	-0.3	1.6	0.99
138	2011	Teat_length	167	145	294	97.9	98.3	9.7	9.6	-0.4	1.4	0.99
139	2012	Teat_length	168	148	248	97.6	98.1	9.6	9.6	-0.6	1.5	0.99
140	2013	Teat_length	120	203	333	101.0	101.5	12.3	12.3	-0.5	1.4	0.99
141	2014	Teat_length	84	307	454	99.8	100.0	10.8	10.8	-0.2	1.0	1.00
142	2015	Teat_length	71	331	420	98.6	98.7	11.5	11.7	-0.1	1.1	1.00
143	2016	Teat_length	69	285	416	101.6	101.5	10.2	9.8	0.2	1.3	0.99
144	2017	Teat_length	43	144	173	101.4	101.5	10.5	10.5	-0.1	1.5	0.99

**RDC summary statistics for SS and current breeding value for nordic AI bulls with minimum 15 offspring, by birth year**

Obs	BYR	name	no	mean_noff	std_noff	mean_ss	mean_ebv	std_ss	std_ebv	mean_dif	std_dif	corr_SS_ebv
145	2010	Teat_thickness	165	120	307	102.3	102.4	8.8	9.0	-0.1	1.6	0.98
146	2011	Teat_thickness	167	145	294	97.6	97.7	8.8	8.9	-0.1	1.7	0.98
147	2012	Teat_thickness	168	148	248	97.7	97.9	10.1	9.9	-0.2	1.7	0.99
148	2013	Teat_thickness	120	203	333	100.2	100.6	9.7	9.7	-0.4	1.4	0.99
149	2014	Teat_thickness	84	307	454	100.3	100.6	9.1	9.2	-0.3	1.4	0.99
150	2015	Teat_thickness	71	331	420	98.9	98.8	9.2	9.4	0.1	1.3	0.99
151	2016	Teat_thickness	69	285	416	100.3	100.3	8.4	8.6	0.1	1.4	0.99
152	2017	Teat_thickness	43	144	173	100.3	100.7	9.3	9.7	-0.4	1.6	0.99
153	2010	Teat_place_f	165	120	307	96.7	97.0	9.7	9.7	-0.3	2.1	0.98
154	2011	Teat_place_f	167	145	294	98.0	97.9	10.1	10.1	0.1	1.9	0.98
155	2012	Teat_place_f	168	148	248	98.7	98.8	10.7	10.6	0.0	2.1	0.98
156	2013	Teat_place_f	120	203	333	99.9	99.9	10.6	10.9	0.0	2.0	0.98
157	2014	Teat_place_f	84	307	454	102.8	102.2	11.1	11.3	0.6	2.2	0.98
158	2015	Teat_place_f	71	331	420	101.1	100.7	11.6	11.8	0.5	1.6	0.99
159	2016	Teat_place_f	69	285	416	103.4	102.7	10.5	10.4	0.8	1.8	0.98
160	2017	Teat_place_f	43	144	173	101.7	100.8	12.2	12.4	0.9	1.3	0.99
161	2010	Teat_place_B	165	120	307	100.6	101.0	9.8	10.3	-0.4	2.8	0.96
162	2011	Teat_place_B	167	145	294	99.7	99.7	11.5	11.4	0.0	2.3	0.98
163	2012	Teat_place_B	168	148	248	100.5	100.5	10.5	10.8	-0.1	2.5	0.97
164	2013	Teat_place_B	120	203	333	99.8	99.8	9.3	10.1	0.0	2.4	0.97
165	2014	Teat_place_B	84	307	454	100.6	100.1	11.3	11.7	0.5	2.0	0.99
166	2015	Teat_place_B	71	331	420	100.5	100.0	11.3	11.9	0.5	2.0	0.99
167	2016	Teat_place_B	69	285	416	101.1	100.8	10.2	10.2	0.4	2.3	0.98
168	2017	Teat_place_B	43	144	173	103.0	102.2	9.6	10.7	0.8	2.4	0.98
169	2010	Udder_balance	165	120	307	98.0	98.7	8.3	8.7	-0.7	2.3	0.96
170	2011	Udder_balance	167	145	294	98.8	99.6	10.4	10.4	-0.7	2.4	0.97
171	2012	Udder_balance	168	148	248	94.8	95.6	9.3	9.4	-0.8	2.1	0.97
172	2013	Udder_balance	120	203	333	97.7	98.0	9.4	9.5	-0.3	2.2	0.97
173	2014	Udder_balance	84	307	454	102.2	102.3	10.6	10.7	-0.2	1.8	0.99
174	2015	Udder_balance	71	331	420	97.7	96.7	10.9	11.1	0.9	1.7	0.99
175	2016	Udder_balance	69	285	416	102.5	101.5	8.4	8.5	1.0	2.0	0.97
176	2017	Udder_balance	43	144	173	102.1	101.4	12.7	13.0	0.7	2.0	0.99
177	2010	Body	165	120	307	99.3	99.0	10.2	9.1	0.3	2.3	0.98
178	2011	Body	167	145	294	100.1	99.7	10.8	9.9	0.4	2.3	0.98
179	2012	Body	168	148	248	98.3	97.9	11.7	10.7	0.4	2.3	0.98
180	2013	Body	120	203	333	98.5	97.8	10.4	9.7	0.7	2.1	0.98

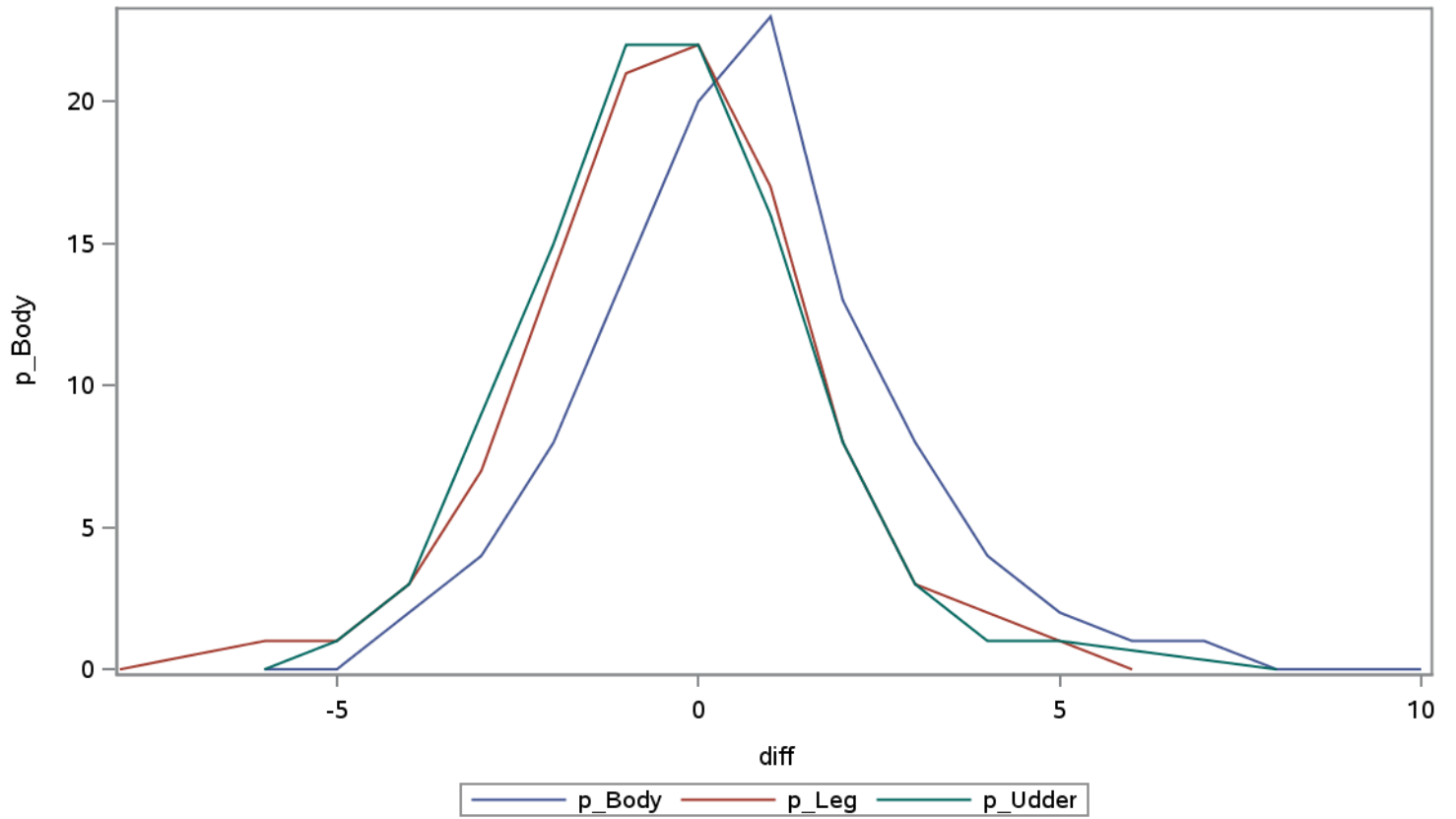
**RDC summery statistics for SS and current breeding value for nordic AI bulls with minimum 15 offspring, by birth year**

Obs	BYR	name	no	mean_noff	std_noff	mean_ss	mean_ebv	std_ss	std_ebv	mean_dif	std_dif	corr_SS_ebv
181	2014	Body	84	307	454	100.5	99.7	12.0	11.2	0.8	2.0	0.99
182	2015	Body	71	331	420	97.5	96.8	10.4	10.1	0.7	1.7	0.99
183	2016	Body	69	285	416	99.1	98.3	13.4	13.0	0.8	1.9	0.99
184	2017	Body	43	144	173	101.8	100.8	10.5	10.0	1.0	1.5	0.99
185	2010	leg	165	120	307	93.4	94.4	10.4	10.3	-1.0	2.0	0.98
186	2011	leg	167	145	294	95.1	96.0	10.4	10.2	-0.9	1.8	0.99
187	2012	leg	168	148	248	96.8	97.2	10.7	10.4	-0.4	1.8	0.99
188	2013	leg	120	203	333	98.5	99.1	9.7	9.8	-0.5	1.9	0.98
189	2014	leg	84	307	454	99.1	99.5	11.0	10.9	-0.4	1.7	0.99
190	2015	leg	71	331	420	103.5	103.2	9.3	9.4	0.3	1.5	0.99
191	2016	leg	69	285	416	103.8	102.8	10.6	10.6	1.0	1.5	0.99
192	2017	leg	43	144	173	105.0	103.6	10.0	10.7	1.4	1.9	0.99
193	2010	udder	165	120	307	95.8	97.0	9.1	9.0	-1.2	1.7	0.98
194	2011	udder	167	145	294	93.4	94.3	8.1	7.7	-0.9	1.4	0.98
195	2012	udder	168	148	248	94.8	95.8	8.4	8.5	-1.0	1.6	0.98
196	2013	udder	120	203	333	98.1	99.0	7.9	7.8	-0.9	1.6	0.98
197	2014	udder	84	307	454	100.2	100.2	8.3	8.3	0.0	1.3	0.99
198	2015	udder	71	331	420	100.5	99.9	9.2	9.4	0.7	1.4	0.99
199	2016	udder	69	285	416	104.0	102.8	7.0	7.1	1.2	1.2	0.99
200	2017	udder	43	144	173	105.7	104.0	7.4	8.1	1.8	2.1	0.97

**distribution of differences in number of bulls and in percentage**

Obs	diff	d_Body	d_Leg	d_Udder	p_Body	p_Leg	p_Udder
1	-8	.	1	.	.	0	.
2	-6	4	5	1	0	1	0
3	-5	4	7	7	0	1	1
4	-4	19	30	23	2	3	3
5	-3	32	64	77	4	7	9
6	-2	72	128	137	8	14	15
7	-1	124	185	198	14	21	22
8	0	176	191	192	20	22	22
9	1	203	149	143	23	17	16
10	2	116	73	69	13	8	8
11	3	71	29	26	8	3	3
12	4	32	18	8	4	2	1
13	5	17	6	5	2	1	1
14	6	7	1	.	1	0	.
15	7	7	.	.	1	.	.
16	8	2	.	1	0	.	0
17	10	1	.	.	0	.	.

distribution of differences in number of bulls and in percentage



## RDC summary statistics for SS and current breeding value for nordic AI bulls with no offspring, by birth year

Obs	BYR	name	no	mean_noff	std_noff	mean_ss	mean_ebv	std_ss	std_ebv	mean_dif	std_dif	corr_SS_ebv
1	2019	Stature	60	.	.	101.1	99.6	8.2	5.4	1.5	3.2	0.97
2	2020	Stature	63	.	.	99.8	99.0	9.5	6.4	0.8	3.7	0.97
3	2021	Stature	35	.	.	102.3	99.6	9.4	5.8	2.7	4.1	0.96
4	2019	Body_depth	60	.	.	99.4	99.1	9.1	7.8	0.3	2.2	0.98
5	2020	Body_depth	63	.	.	99.8	99.4	8.5	7.5	0.4	2.3	0.97
6	2021	Body_depth	35	.	.	100.4	99.8	9.3	8.7	0.6	1.8	0.98
7	2019	Chest_width	60	.	.	99.2	99.5	8.7	8.4	-0.3	2.8	0.95
8	2020	Chest_width	63	.	.	101.0	101.7	7.7	6.7	-0.7	2.7	0.94
9	2021	Chest_width	35	.	.	99.6	100.3	7.9	8.0	-0.8	2.4	0.95
10	2019	Dairy_form	60	.	.	104.0	103.0	4.4	4.5	1.0	1.8	0.92
11	2020	Dairy_form	63	.	.	101.5	100.6	4.4	4.2	0.9	2.0	0.89
12	2021	Dairy_form	35	.	.	101.9	101.1	4.4	4.1	0.7	1.9	0.90
13	2019	top_line	60	.	.	100.6	99.7	6.9	6.6	0.8	1.9	0.96
14	2020	top_line	63	.	.	99.2	98.7	8.5	8.2	0.5	2.3	0.96
15	2021	top_line	35	.	.	101.6	101.3	8.3	8.5	0.3	2.1	0.97
16	2019	Rump_width	60	.	.	99.8	99.9	8.7	7.3	-0.1	2.5	0.97
17	2020	Rump_width	63	.	.	99.8	99.7	9.4	8.1	0.2	2.4	0.97
18	2021	Rump_width	35	.	.	101.3	100.8	7.7	6.1	0.5	2.9	0.94
19	2019	Rump_angle	60	.	.	97.9	97.6	7.7	7.8	0.2	1.7	0.98
20	2020	Rump_angle	63	.	.	99.0	99.3	6.7	6.9	-0.3	2.0	0.96
21	2021	Rump_angle	35	.	.	96.3	95.9	6.8	6.6	0.3	1.9	0.96
22	2019	Rear_legs_sv	60	.	.	99.5	99.9	6.3	6.9	-0.4	2.0	0.96
23	2020	Rear_legs_sv	63	.	.	98.4	98.2	5.9	6.3	0.2	1.9	0.96
24	2021	Rear_legs_sv	35	.	.	98.0	98.1	5.2	5.5	-0.1	1.6	0.96
25	2019	Rear_legs_bv	60	.	.	103.7	103.4	7.1	7.5	0.3	2.1	0.96
26	2020	Rear_legs_bv	63	.	.	104.4	104.1	6.3	6.1	0.3	2.3	0.93
27	2021	Rear_legs_bv	35	.	.	107.5	107.8	7.1	6.9	-0.4	1.9	0.96
28	2019	Hock_quality	60	.	.	105.5	103.2	7.5	5.3	2.3	2.7	0.97
29	2020	Hock_quality	63	.	.	104.0	102.1	7.6	5.6	1.8	2.6	0.97
30	2021	Hock_quality	35	.	.	105.9	103.7	8.1	5.4	2.2	3.4	0.95
31	2019	Bone_quality	60	.	.	106.1	103.6	8.5	6.5	2.6	2.6	0.97
32	2020	Bone_quality	63	.	.	106.1	103.9	8.9	7.1	2.2	2.5	0.98
33	2021	Bone_quality	35	.	.	107.4	104.9	9.6	7.4	2.5	3.1	0.97
34	2019	Foot_angle	60	.	.	100.2	100.8	5.1	5.1	-0.6	1.8	0.94
35	2020	Foot_angle	63	.	.	100.2	100.5	5.1	4.5	-0.3	2.0	0.92
36	2021	Foot_angle	35	.	.	100.6	100.6	4.7	5.0	0.0	2.0	0.92

## RDC summary statistics for SS and current breeding value for nordic AI bulls with no offspring, by birth year

Obs	BYR	name	no	mean_noff	std_noff	mean_ss	mean_ebv	std_ss	std_ebv	mean_dif	std_dif	corr_SS_ebv
37	2019	Fore_udder_att	60	.	.	108.3	105.3	7.1	5.9	3.0	2.8	0.93
38	2020	Fore_udder_att	63	.	.	107.6	105.0	7.7	6.4	2.6	2.8	0.94
39	2021	Fore_udder_att	35	.	.	109.5	106.7	7.2	5.9	2.9	2.5	0.95
40	2019	Rear_udder_hei	60	.	.	106.4	104.2	7.0	5.4	2.1	2.7	0.94
41	2020	Rear_udder_hei	63	.	.	107.0	104.3	6.6	5.6	2.7	2.4	0.94
42	2021	Rear_udder_hei	35	.	.	106.6	104.5	5.7	5.0	2.1	2.2	0.92
43	2019	Rear_udder_wid	60	.	.	104.4	102.7	6.1	6.0	1.6	1.8	0.95
44	2020	Rear_udder_wid	63	.	.	106.1	104.2	6.4	6.1	1.9	2.0	0.95
45	2021	Rear_udder_wid	35	.	.	105.1	103.6	6.6	6.6	1.6	2.2	0.95
46	2019	Udder_cleft_su	60	.	.	100.4	100.2	8.1	7.8	0.2	2.1	0.97
47	2020	Udder_cleft_su	63	.	.	103.5	103.5	7.7	7.1	0.0	2.1	0.96
48	2021	Udder_cleft_su	35	.	.	105.3	104.8	8.6	8.2	0.5	2.0	0.97
49	2019	Udder_depth	60	.	.	108.6	106.9	7.8	7.2	1.7	2.0	0.97
50	2020	Udder_depth	63	.	.	106.8	104.9	7.2	6.6	1.9	1.7	0.97
51	2021	Udder_depth	35	.	.	109.1	107.6	6.8	6.7	1.5	1.9	0.96
52	2019	Teat_length	60	.	.	99.4	100.1	8.2	7.5	-0.8	1.9	0.97
53	2020	Teat_length	63	.	.	99.6	100.2	6.8	6.3	-0.5	1.8	0.96
54	2021	Teat_length	35	.	.	102.7	103.0	6.7	6.5	-0.3	1.8	0.96
55	2019	Teat_thickness	60	.	.	99.8	100.0	7.3	7.7	-0.2	1.8	0.97
56	2020	Teat_thickness	63	.	.	99.4	100.2	6.4	6.4	-0.9	1.8	0.96
57	2021	Teat_thickness	35	.	.	98.9	99.4	5.1	5.2	-0.5	1.7	0.95
58	2019	Teat_place_f	60	.	.	101.3	100.5	9.4	9.0	0.8	2.3	0.97
59	2020	Teat_place_f	63	.	.	103.4	102.4	8.8	8.3	1.0	2.6	0.96
60	2021	Teat_place_f	35	.	.	105.4	103.5	7.3	7.0	1.9	2.2	0.95
61	2019	Teat_place_B	60	.	.	101.9	100.8	7.9	8.3	1.1	2.9	0.94
62	2020	Teat_place_B	63	.	.	104.4	104.1	8.4	8.6	0.3	2.5	0.96
63	2021	Teat_place_B	35	.	.	103.9	102.4	8.1	9.2	1.5	2.4	0.97
64	2019	Udder_balance	60	.	.	102.6	102.4	9.5	8.2	0.2	2.7	0.96
65	2020	Udder_balance	63	.	.	102.9	102.7	7.3	6.7	0.2	2.4	0.94
66	2021	Udder_balance	35	.	.	102.7	102.4	8.9	8.1	0.3	2.6	0.96
67	2019	Body	60	.	.	100.3	99.8	8.3	7.1	0.5	2.2	0.97
68	2020	Body	63	.	.	100.5	100.3	9.4	8.0	0.2	2.4	0.97
69	2021	Body	35	.	.	101.1	100.3	8.5	7.4	0.8	2.3	0.97
70	2019	leg	60	.	.	107.0	104.6	8.6	7.1	2.4	2.9	0.95
71	2020	leg	63	.	.	106.6	104.7	7.8	6.3	2.0	2.5	0.96
72	2021	leg	35	.	.	110.0	107.7	9.0	7.1	2.3	3.4	0.94

**RDC summary statistics for SS and current breeding value for nordic AI bulls with no offspring, by birth year**

Obs	BYR	name	no	mean_noff	std_noff	mean_ss	mean_ebv	std_ss	std_ebv	mean_dif	std_dif	corr_SS_ebv
73	2019	udder	60	.	.	107.4	105.4	6.2	5.7	2.0	1.9	0.95
74	2020	udder	63	.	.	107.3	105.2	6.2	5.2	2.1	2.1	0.95
75	2021	udder	35	.	.	110.4	108.2	5.9	5.0	2.2	2.1	0.94



**distribution of differences in number of bulls and in percentage**

Obs	diff	d_Body	d_Leg	d_Udder	p_Body	p_Leg	p_Udder
1	-8	1	.	.	1	.	.
2	-6	1	.	.	1	.	.
3	-5	.	1	.	.	1	.
4	-4	4	2	1	3	1	1
5	-3	9	4	2	6	3	1
6	-2	12	8	6	8	5	4
7	-1	27	8	7	17	5	4
8	0	24	18	15	15	11	9
9	1	34	26	24	22	16	15
10	2	18	23	31	11	15	20
11	3	14	22	37	9	14	23
12	4	7	13	20	4	8	13
13	5	5	14	10	3	9	6
14	6	1	8	4	1	5	3
15	7	1	5	1	1	3	1
16	8	.	2	.	.	1	.
17	9	.	3	.	.	2	.
18	10	.	1	.	.	1	.

distribution of differences in number of bulls and in percentage

