

## Snell score calving sire and parent

I have run a full model and a reduced model (same as used for interbull validation test3).

I have counted how many offspring each bull have in full and reduced.

### Regression of bull index full and parent index reduced

Bulls. AI. Nordic. Bull has >250 offspring in full model and zero offspring in reduced model.

Father has >250 offspring in reduced and MGS has >250 offspring in reduced.

Model1: own\_index\_full = mother\_index\_reduc + father\_index\_reduc

Model2: own\_index\_full = mgs\_index\_reduc + father\_index\_reduc

#### HOL current

trait	model1 N	model1 b1mother	model1 b1father	model1 Rsqr	Model2 N	model2 b1mgs	model2 b1father	model2 Rsqr
dSB1	42	0.02	0.43	0.23	45	0.10	0.44	0.25
dCE1	42	0.32	0.17	0.13	45	0.26	0.25	0.18
dCS1	28	0.55	-0.16	0.26	31	0.34	0.14	0.16
dSB2	79	0.03	0.39	0.14	84	0.10	0.39	0.17
dCE2	78	0.20	0.02	0.04	81	0.22	0.17	0.06
dCS2	60	0.32	0.47	0.21	63	0.25	0.54	0.25

#### HOL snell score

trait	model1 N	model1 b1mother	model1 b1father	model1 Rsqr	Model2 N	model2 b1mgs	model2 b1father	model2 Rsqr
dSB1	42	0.08	0.48	0.25	45	0.11	0.48	0.27
dCE1	42	0.26	0.11	0.09	45	0.24	0.20	0.15
dCS1	28	0.54	-0.18	0.20	31	0.35	0.11	0.15
dSB2	79	-0.01	0.38	0.16	84	0.14	0.39	0.19
dCE2	78	0.18	-0.12	0.04	81	0.23	0.05	0.06
dCS2	61	0.30	0.46	0.18	64	0.25	0.52	0.24

#### RDC snell score

trait	model1 N	model1 b1mother	model1 b1father	model1 Rsqr	Model2 N	model2 b1mgs	model2 b1father	model2 Rsqr
dSB1	40	0.16	0.13	0.03	40	0.21	0.12	0.07
dCE1	37	0.12	0.31	0.13	37	0.21	0.36	0.21
dCS1	4	-0.92	-0.03	0.98	4	-0.26	-0.44	0.92
dSB2	67	0.45	0.26	0.11	67	0.22	0.24	0.09
dCE2	56	0.25	0.34	0.12	56	0.14	0.37	0.12
dCS2	10	-0.08	0.17	0.02	10	0.06	0.22	0.02

#### JER snell score

trait	model1 N	model1 b1mother	model1 b1father	model1 Rsqr	Model2 N	model2 b1mgs	model2 b1father	model2 Rsqr
dSB1	20	0.32	0.66	0.18	20	0.13	0.65	0.16
dCE1	20	0.22	0.27	0.11	20	0.09	0.27	0.10
dCS1	18	0.19	0.58	0.41	18	0.28	0.60	0.50
dSB2	32	0.50	0.41	0.14	32	0.23	0.41	0.11
dCE2	30	-0.22	0.28	0.04	30	-0.14	0.26	0.04
dCS2	30	0.30	0.60	0.46	30	0.28	0.60	0.52

### For phenotypic means the limitations are less strict than the index regressions

Therefore it is based on more bulls. RAW data and EDIT data are studied.

The limits are:

- Breed of the calf (HOL, RDC or JER)
- Birth year of the calf (>2015)
- Birth country of the calf (DNK, FIN or SWE)
- Nav\_sid of the calf must have status1
- Minimum number of offspring behind the mean

### Test of heritabilities for calving traits

Offspring of the bull is split randomly in two groups. The minimum number of offspring in each of the two groups are shown in the table (300, 350 or 500). Based on the expected heritability (these are from Jørrn) and the minimum number of offspring, the reliability of the bulls' progeny mean is calculated (r). The mean of the first group is correlated with the mean of the second group for the bulls (c). The number of bulls in the correlation (N). The expectation is that (r) and (c) is at similar level if the heritability is correct.

#### Current HOL, RAW, BYR >2015

trait	h2	DNK			FIN			SWE		
		r500	c500	N500	r350	c350	N350	r500	c500	N500
SB1	0.049	0.86	0.80	206	0.81	0.76	47	0.86	0.67	29
CE1	0.101	0.93	0.94	196	0.90	0.90	23	0.93	0.83	29
CS1	0.247	0.97	0.91	195	.	.	.	.	.	.
SB2	0.012	0.60	0.36	282	0.51	0.30	121	0.60	0.22	78
CE2	0.061	0.89	0.83	264	0.84	0.82	61	0.89	0.44	76
CS2	0.222	0.97	0.94	259	.	.	.	.	.	.

#### Current HOL, RAW, BYR >2015, more bulls

trait	h2	DNK			FIN			SWE		
		r150	c150	N150	r150	c150	N150	r150	c150	N150
SB1	0.049	0.65	0.70	309	0.65	0.58	152	0.65	0.62	143
CE1	0.101	0.80	0.90	296	0.80	0.83	105	0.80	0.71	141
CS1	0.247	0.91	0.88	295	.	.	.	.	.	.
SB2	0.012	0.31	0.22	536	0.31	0.10	234	0.31	0.23	245
CE2	0.061	0.70	0.71	498	0.70	0.76	167	0.70	0.29	239
CS2	0.222	0.90	0.80	492	.	.	.	.	.	.

#### Current HOL, RAW, BYR 1995-2000

trait	h2	DNK			FIN			SWE		
		r500	c500	N500	r300	c300	N300	r350	c350	N350
SB1	0.049	0.86	0.88	54	0.79	0.72	24	0.81	0.75	31
CE1	0.101	0.93	0.93	46	.	.	.	0.90	0.84	29
CS1	0.247	0.97	0.98	45	.	.	.	.	.	.
SB2	0.012	0.60	0.78	64	0.47	0.33	42	0.51	0.66	45
CE2	0.061	0.89	0.94	55	.	.	.	0.84	0.53	42
CS2	0.222	0.97	0.99	52	.	.	.	.	.	.

#### Current HOL, RAW, BYR 1995-2000, more bulls

trait	h2	DNK			FIN			SWE		
		r150	c150	N150	r150	c150	N150	r150	c150	N150
SB1	0.049	0.65	0.61	85	0.65	0.31	50	0.65	0.62	41
CE1	0.101	0.80	0.88	79	.	.	.	0.80	0.72	41
CS1	0.247	0.91	0.95	79	.	.	.	.	.	.
SB2	0.012	0.31	0.28	141	0.31	0.30	114	0.31	0.22	109
CE2	0.061	0.70	0.80	113	.	.	.	0.70	0.40	78
CS2	0.222	0.90	0.91	112	.	.	.	.	.	.

Current RDC, RAW, BYR >2015

trait	h2	DNK			FIN			SWE		
		r300	c300	N300	r300	c300	N300	r350	c350	N350
SB1	0.042	0.76	0.41	32	0.76	0.39	77	0.79	0.31	39
CE1	0.074	0.85	0.78	30	0.85	0.92	43	0.87	0.81	38
CS1	0.284	0.96	0.89	30	.	.	.	.	.	.
SB2	0.012	0.47	0.30	55	0.47	0.38	142	0.51	0.15	78
CE2	0.024	0.64	0.62	44	0.64	0.84	93	0.68	0.64	77
CS2	0.261	0.95	0.91	44	.	.	.	.	.	.

Current RDC, RAW, BYR >2015, more bulls

trait	h2	DNK			FIN			SWE		
		r100	c100	N100	r100	c100	N100	r100	c100	N100
SB1	0.042	0.51	0.40	98	0.51	0.44	198	0.51	0.27	136
CE1	0.074	0.65	0.78	97	0.65	0.84	154	0.65	0.61	134
CS1	0.284	0.88	0.84	95	.	.	.	.	.	.
SB2	0.012	0.23	0.10	134	0.23	0.33	304	0.23	0.18	209
CE2	0.024	0.38	0.54	124	0.38	0.74	213	0.38	0.43	209
CS2	0.261	0.87	0.84	126	.	.	.	.	.	.

Current RDC, RAW, BYR 1995-2000

trait	h2	DNK			FIN			SWE		
		r250	c250	N250	r350	c350	N350	r350	c350	N350
SB1	0.042	0.73	0.91	25	0.79	0.74	72	0.79	0.82	31
CE1	0.074	0.82	0.97	23	.	.	.	0.87	0.89	30
CS1	0.284	0.95	0.99	23	.	.	.	.	.	.
SB2	0.012	0.43	0.83	32	0.51	0.76	133	0.51	0.74	40
CE2	0.024	0.60	0.81	29	.	.	.	0.68	0.86	39
CS2	0.261	0.95	0.97	30	.	.	.	.	.	.

Current RDC, RAW, BYR 1995-2000, more bulls

trait	h2	DNK			FIN			SWE		
		r100	c100	N100	r100	c100	N100	r100	c100	N100
SB1	0.042	0.51	0.75	40	0.51	0.53	687	0.51	0.21	274
CE1	0.074	0.65	0.93	40	.	.	.	0.65	0.42	202
CS1	0.284	0.88	0.91	39	.	.	.	.	.	.
SB2	0.012	0.23	0.39	95	0.23	0.44	771	0.23	0.27	548
CE2	0.024	0.38	0.60	55	.	.	.	0.38	0.32	452
CS2	0.261	0.87	0.88	54	.	.	.	.	.	.

Current JER, RAW, BYR >2015

trait	h2	DNK			FIN			SWE		
		r500	c500	N500						
SB1	0.036	0.82	0.64	50						
CE1	0.012	0.60	0.51	47						
CS1	0.134	0.95	0.91	45						
SB2	0.012	0.60	0.57	92						
CE2	0.012	0.60	0.47	88						
CS2	0.134	0.95	0.91	86						

Current JER, RAW, BYR >2015, more bulls

trait	h2	DNK			FIN			SWE		
		r100	c100	N100						
SB1	0.036	0.48	0.38	115						
CE1	0.012	0.23	0.54	113						
CS1	0.134	0.78	0.80	112						
SB2	0.012	0.23	0.25	174						
CE2	0.012	0.23	0.50	162						
CS2	0.134	0.78	0.81	158						

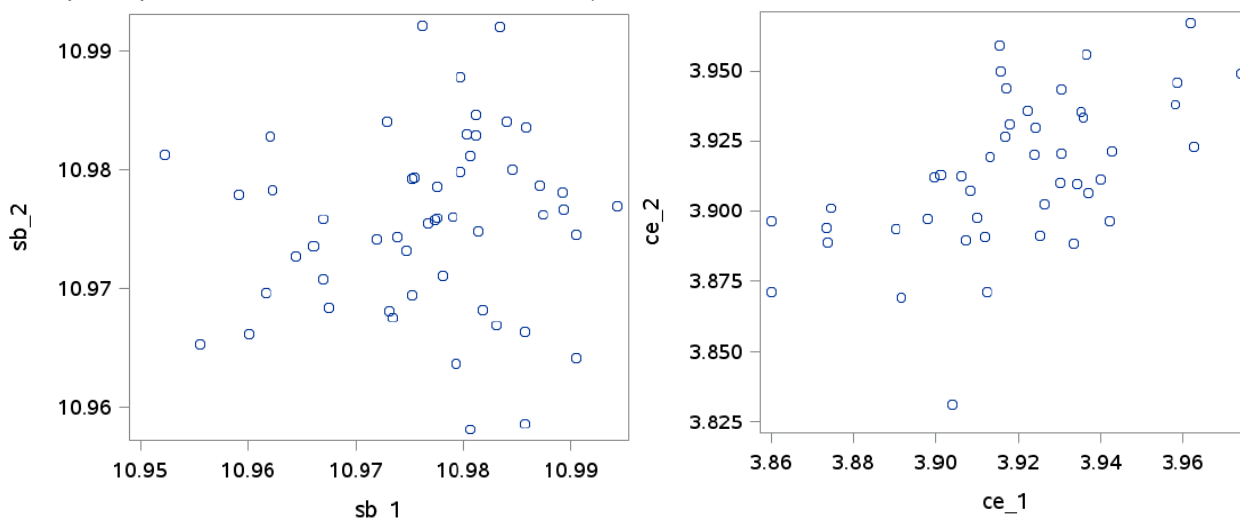
Current JER, RAW, BYR 1995-2000

trait	h2	DNK			FIN	SWE
		r350	c350	N350		
SB1	0.036	0.76	0.81	25		
CE1	0.012	0.51	0.74	24		
CS1	0.134	0.92	0.97	24		
SB2	0.012	0.51	0.39	36		
CE2	0.012	0.51	0.76	33		
CS2	0.134	0.92	0.94	33		

Current JER, RAW, BYR 1995-2000, more bulls

trait	h2	DNK			FIN	SWE
		r80	c80	N80		
SB1	0.036	0.42	0.76	43		
CE1	0.012	0.19	0.57	41		
CS1	0.134	0.73	0.85	40		
SB2	0.012	0.19	0.19	258		
CE2	0.012	0.19	0.22	95		
CS2	0.134	0.73	0.83	82		

Example of plots: Current RDC, DNK, RAW, SB2 (corr300=0.30) and CE2 (corr300=0.62)



Means and STD for phenotypic means of bulls and fathers

Current HOL, DNK

		RAW			EDIT		
		mean	STD	N	Mean	STD	N
SB1	bull	10.947	0.017	83	10.949	0.019	82
	father	10.941	0.016		10.942	0.018	
CE1	bull	3.835	0.049	78	3.873	0.068	78
	father	3.786	0.053		3.804	0.074	
CS1	bull	2.493	0.067	78	2.484	0.078	75
	father	2.519	0.067		2.516	0.077	
SB2	bull	10.974	0.006	121	10.974	0.005	114
	father	10.975	0.005		10.975	0.005	
CE2	bull	3.904	0.023	112	3.921	0.031	106
	father	3.888	0.025		3.898	0.035	
CS2	bull	2.759	0.070	107	2.756	0.079	105
	father	2.781	0.067		2.779	0.077	

**Correlation between progeny mean for bull and father and regression of bull on father progeny mean**

Progeny means for bulls and for fathers are based on a minimum number of offspring. In the table you see the number of bulls (N), the regression coefficient b1 as bull on father progeny mean, the R-squared value from the regression and the correlation (c) between progeny mean of bull and progeny mean of father.

Expectations: reg\_b1 = 0.50 and reg\_Rsq maximum 0.25

**Current HOL, RAW**

trait	DNK				FIN				SWE			
	N	reg_b1	reg_Rsq	c500	N	reg_b1	reg_Rsq	c350	N	reg_b1	reg_Rsq	c350
SB1	83	0.47	0.21	0.45	37	0.28	0.09	0.30	31	0.42	0.17	0.42
CE1	78	0.57	0.39	0.62	19	0.49	0.24	0.49	31	0.49	0.19	0.44
CS1	78	0.20	0.04	0.20								
SB2	121	0.12	0.01	0.10	57	0.34	0.07	0.27	66	0.24	0.05	0.23
CE2	112	0.44	0.24	0.49	40	0.58	0.26	0.51	66	0.29	0.06	0.25
CS2	107	0.39	0.14	0.38								

**Current RDC, RAW**

trait	DNK				FIN				SWE			
	N	reg_b1	reg_Rsq	c250	N	reg_b1	reg_Rsq	c350	N	reg_b1	reg_Rsq	c350
SB1	37	-0.14	0.02	-0.14	75	0.01	0.00	0.01	33	0.13	0.03	0.17
CE1	34	0.32	0.14	0.38	48	0.33	0.19	0.44	31	0.16	0.07	0.26
CS1	34	0.35	0.11	0.33								
SB2	53	0.01	0.00	0.01	108	0.26	0.07	0.26	73	0.11	0.02	0.13
CE2	50	0.50	0.29	0.54	79	0.51	0.26	0.51	72	0.13	0.01	0.12
CS2	50	0.49	0.18	0.42								

**Current JER, RAW**

trait	DNK				FIN				SWE			
	N	reg_b1	reg_Rsq	c350	N	reg_b1	reg_Rsq	c350	N	reg_b1	reg_Rsq	c350
SB1	72	0.20	0.03	0.16								
CE1	70	0.23	0.04	0.20								
CS1	69	0.31	0.10	0.32								
SB2	100	0.64	0.11	0.34								
CE2	96	-0.32	0.04	-0.20								
CS2	96	0.56	0.31	0.56								

**Divided by sex of the calf**

**Current HOL, RAW, DNK**

trait	ALL				MALE				FEMALE			
	N	reg_b1	reg_Rsq	c500	N	reg_b1	reg_Rsq	c500	N	reg_b1	reg_Rsq	c500
SB1	83	0.47	0.21	0.45	49	0.35	0.18	0.43	65	0.35	0.10	0.31
CE1	78	0.57	0.39	0.62	46	0.53	0.35	0.59	63	0.60	0.48	0.69
CS1	78	0.20	0.04	0.20	44	0.24	0.05	0.22	63	0.10	0.01	0.09
SB2	121	0.12	0.01	0.10	81	0.26	0.03	0.17	82	0.15	0.02	0.15
CE2	112	0.44	0.24	0.49	77	0.39	0.18	0.43	80	0.51	0.34	0.58
CS2	107	0.39	0.14	0.38	77	0.47	0.18	0.42	80	0.29	0.08	0.29

**Current HOL, RAW, FIN**

trait	ALL				MALE				FEMALE			
	N	reg_b1	reg_Rsq	c350	N	reg_b1	reg_Rsq	c200	N	reg_b1	reg_Rsq	c200
SB1	37	0.28	0.09	0.30	30	0.24	0.07	0.26	30	0.27	0.10	0.32
CE1	19	0.49	0.24	0.49	12	0.78	0.64	0.80	12	0.27	0.06	0.24
CS1												
SB2	57	0.34	0.07	0.27	54	0.12	0.01	0.09	53	0.28	0.05	0.23
CE2	40	0.58	0.26	0.51	37	0.48	0.22	0.47	36	0.47	0.18	0.42
CS2												

#### Current HOL, RAW, SWE

trait	ALL				MALE				FEMALE			
	N	reg_b1	reg_Rsq	c350	N	reg_b1	reg_Rsq	c200	N	reg_b1	reg_Rsq	c200
SB1	31	0.42	0.17	0.42	22	0.11	0.01	0.11	27	0.29	0.13	0.35
CE1	31	0.49	0.19	0.44	21	0.28	0.08	0.28	25	0.50	0.20	0.45
CS1												
SB2	66	0.24	0.05	0.23	61	0.27	0.08	0.28	57	-0.03	0.00	-0.04
CE2	66	0.29	0.06	0.25	58	0.01	0.00	0.01	56	-0.02	0.00	-0.02
CS2												

#### Current RDC, RAW, DNK

trait	ALL				MALE				FEMALE			
	N	reg_b1	reg_Rsq	c250	N	reg_b1	reg_Rsq	c150	N	reg_b1	reg_Rsq	c150
SB1	37	-0.14	0.02	-0.14	16	-0.55	0.15	-0.39	33	-0.37	0.16	-0.39
CE1	34	0.32	0.14	0.38	16	0.09	0.01	0.09	31	0.28	0.14	0.37
CS1	34	0.35	0.11	0.33	16	0.09	0.01	0.08	31	0.19	0.03	0.18
SB2	53	0.01	0.00	0.01	46	0.18	0.03	0.16	43	-0.38	0.13	-0.37
CE2	50	0.50	0.29	0.54	44	0.50	0.26	0.51	42	0.30	0.07	0.27
CS2	50	0.49	0.18	0.42	44	0.51	0.24	0.49	42	0.34	0.08	0.29

#### Current RDC, RAW, FIN

trait	ALL				MALE				FEMALE			
	N	reg_b1	reg_Rsq	c350	N	reg_b1	reg_Rsq	c200	N	reg_b1	reg_Rsq	c200
SB1	75	0.01	0.00	0.01	62	-0.09	0.00	-0.06	69	0.09	0.00	0.07
CE1	48	0.33	0.19	0.44	39	0.33	0.16	0.40	37	0.24	0.11	0.33
CS1												
SB2	108	0.26	0.07	0.26	101	0.18	0.03	0.17	97	0.32	0.11	0.34
CE2	79	0.51	0.26	0.51	68	0.53	0.31	0.55	63	0.29	0.10	0.32
CS2												

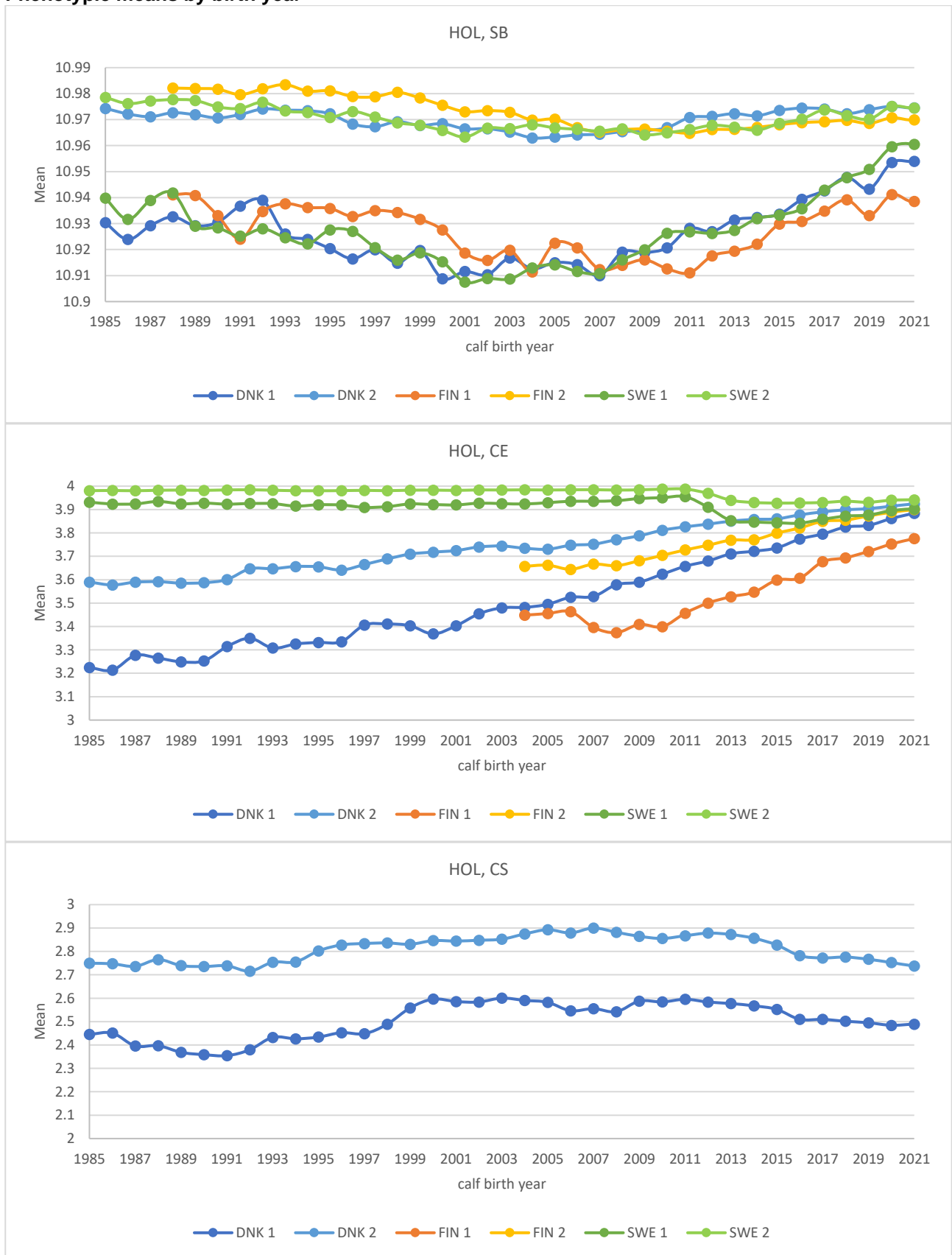
#### Current RDC, RAW, SWE

trait	ALL				MALE				FEMALE			
	N	reg_b1	reg_Rsq	c350	N	reg_b1	reg_Rsq	c200	N	reg_b1	reg_Rsq	c200
SB1	33	0.13	0.03	0.17	26	0.21	0.05	0.22	28	0.00	0.00	0.00
CE1	31	0.16	0.07	0.26	26	0.13	0.07	0.27	28	0.10	0.02	0.15
CS1												
SB2	73	0.11	0.02	0.13	63	0.02	0.00	0.02	60	0.32	0.13	0.36
CE2	72	0.13	0.01	0.12	62	0.04	0.00	0.04	60	0.21	0.04	0.20
CS2												

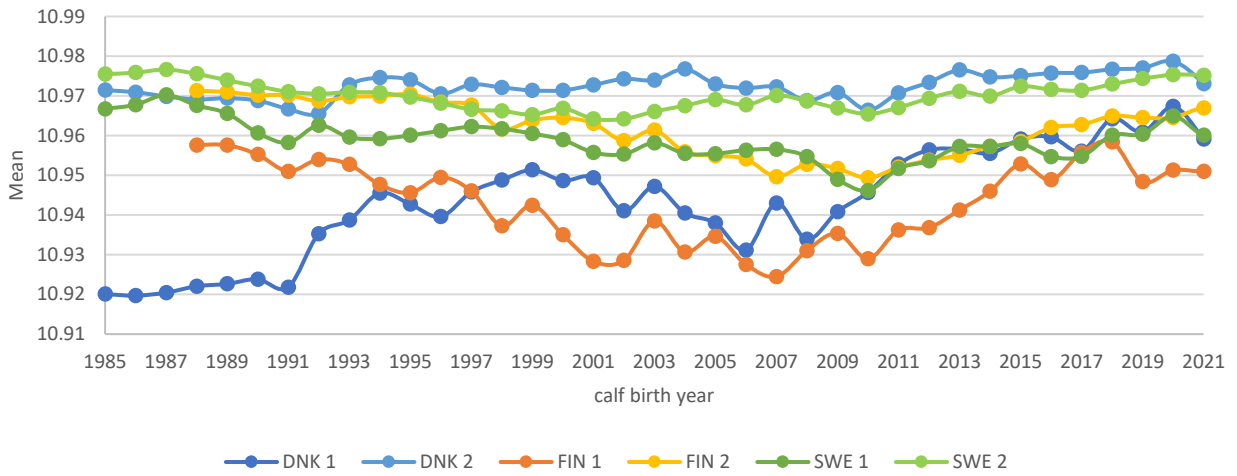
#### Current JER, RAW, DNK

trait	ALL				MALE				FEMALE			
	N	reg_b1	reg_Rsq	c350	N	reg_b1	reg_Rsq	c250	N	reg_b1	reg_Rsq	c250
SB1	72	0.20	0.03	0.16	29	0.22	0.03	0.17	63	0.15	0.02	0.13
CE1	70	0.23	0.04	0.20	22	0.24	0.01	0.10	60	0.26	0.05	0.23
CS1	69	0.31	0.10	0.32	20	0.25	0.06	0.25	60	0.41	0.19	0.43
SB2	100	0.64	0.11	0.34	79	0.29	0.03	0.18	92	0.17	0.01	0.12
CE2	96	-0.32	0.04	-0.20	76	0.17	0.04	0.21	92	-0.41	0.03	-0.16
CS2	96	0.56	0.31	0.56	74	0.54	0.28	0.53	92	0.42	0.22	0.47

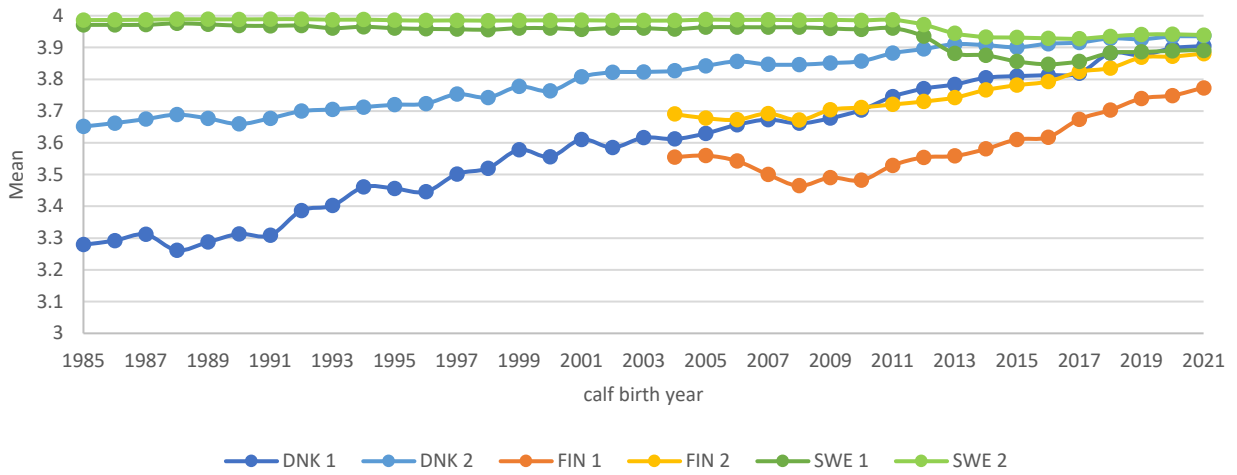
### Phenotypic means by birth year



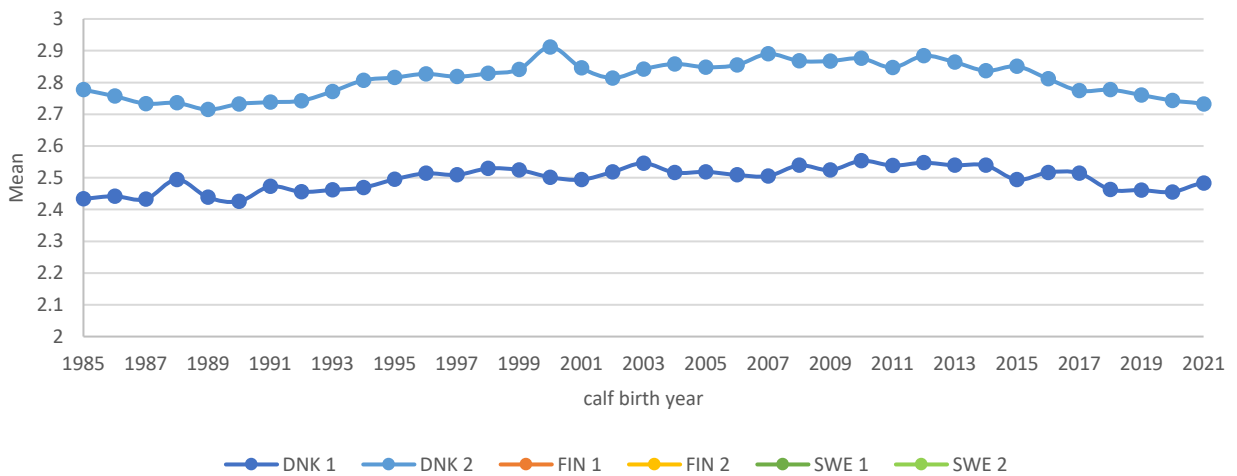
RDC, SB



RDC, CE

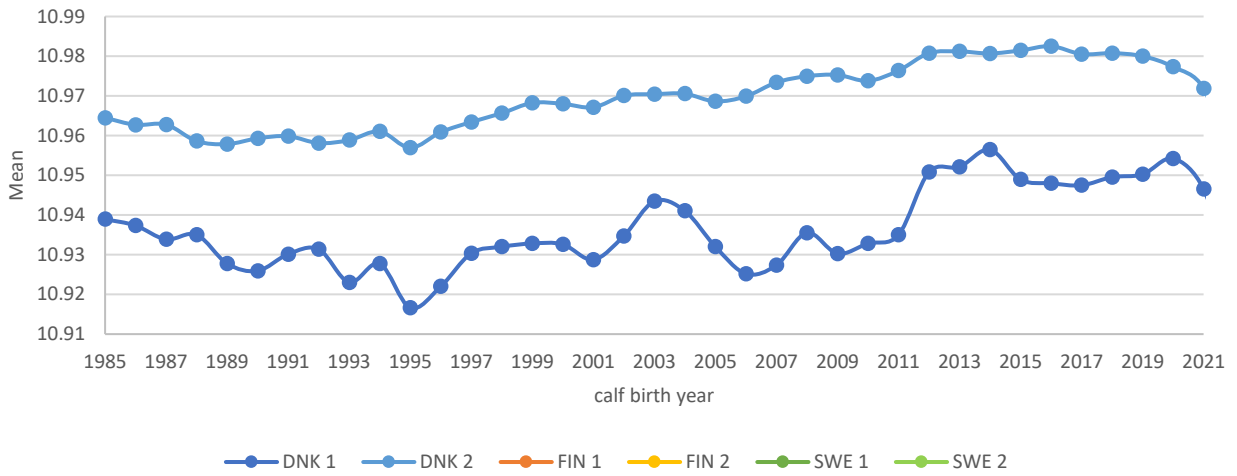


RDC, CS

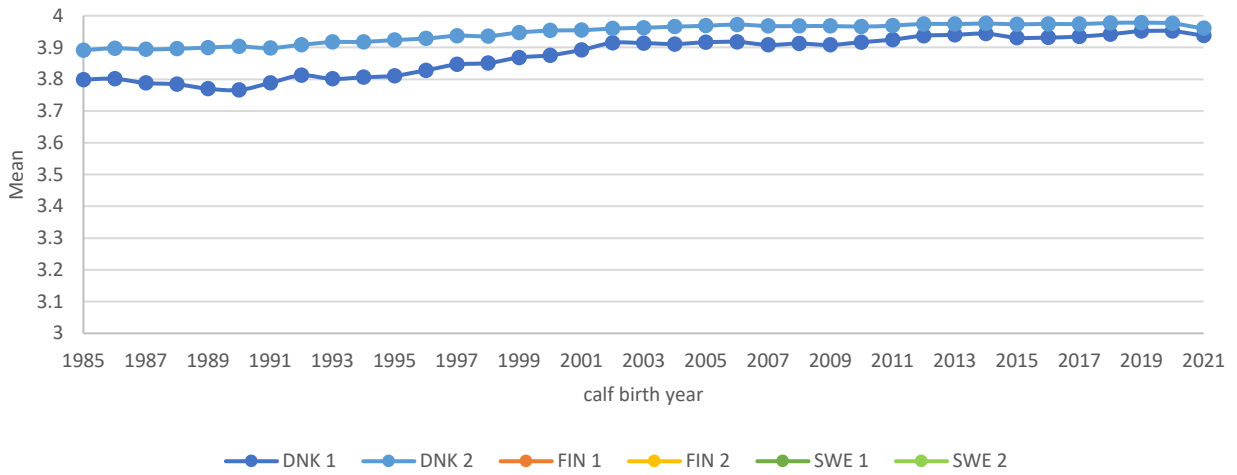




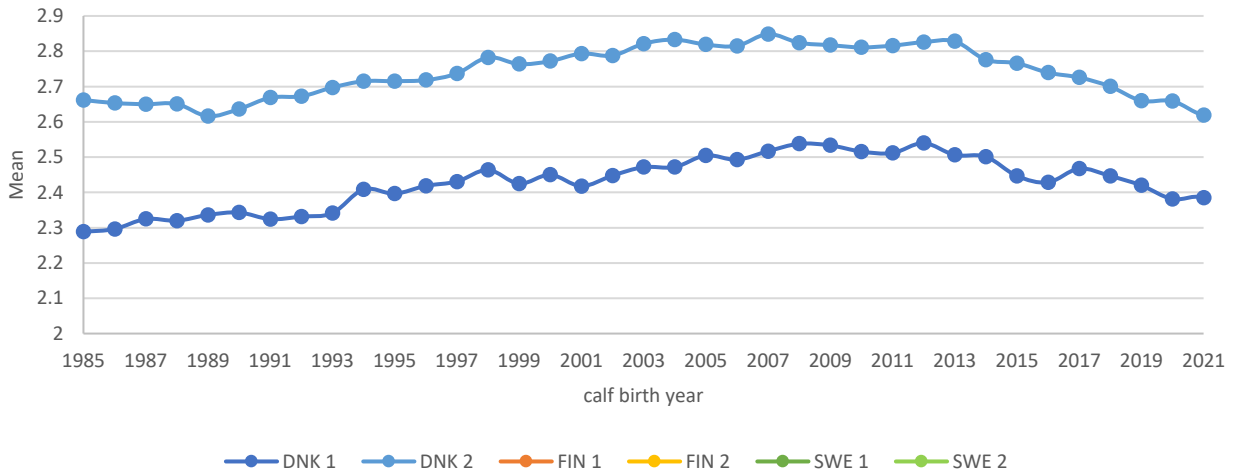
JER, SB



JER, CE



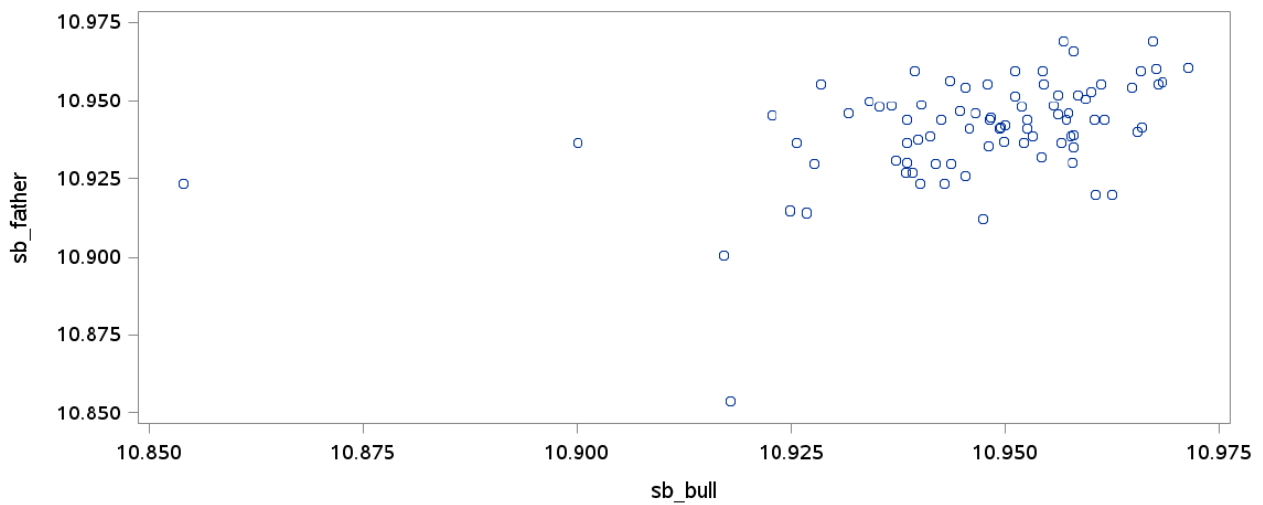
JER, CS



**Below you find plots of bull means and father means**

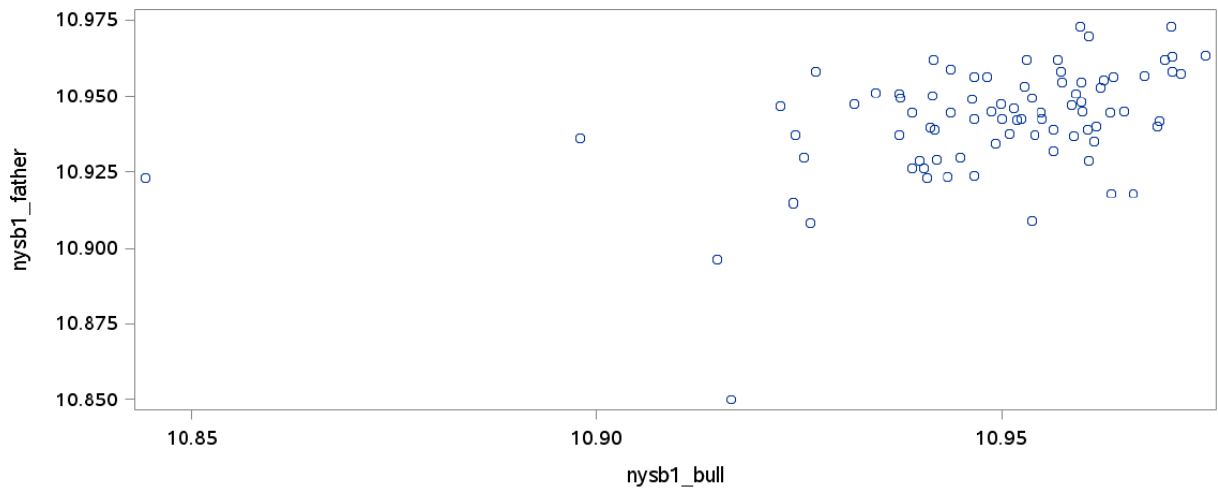
the plots are shown for Danish HOL calves, and there is a minimum of 500 calves behind each mean. The bull and the father of the bull are AI bulls. For each trait the plot is shown for RAW (raw data), EDIT (edit data, same as used in evaluation), RAW male (raw data but only male calves), RAW female (Raw data but only female calves)

**RAW, DNK SB1, calf\_id\_nor is HOL, N\_calves >500 for bull and sire, bull and sire are status1**



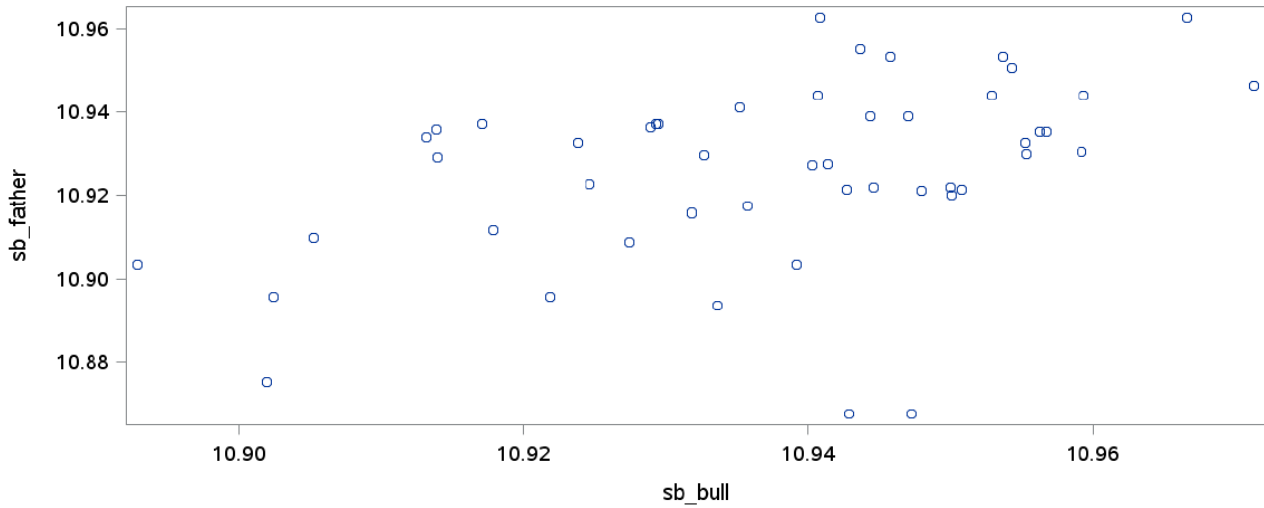
Obs	t	land	m1n	b1father	m1R_sq	c500	N500
1	1	1	83	0.46640	0.20578	0.45363	83

**EDIT, DNK SB1, calf\_id\_nor is HOL, N\_calves >500 for bull and sire, bull and sire are status1**



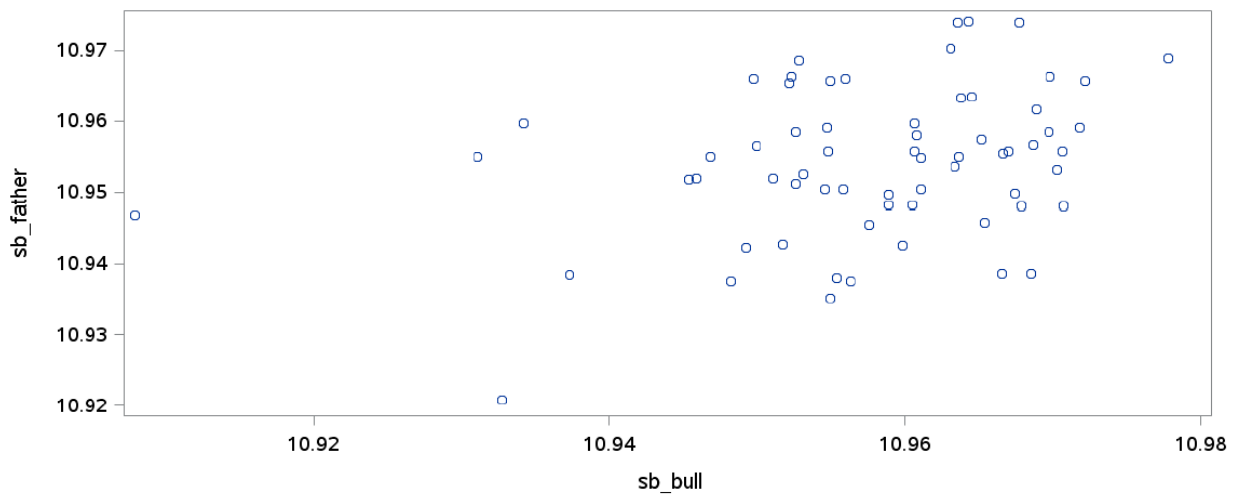
Obs	t	land	m1n	b1father	m1R_sq	c500	N500
1	1	1	82	0.46206	0.19639	0.44316	82

**RAW MALE, DNK SB1, calf\_id\_nor is HOL, N\_calves >500 for bull and sire, bull and sire are status1**



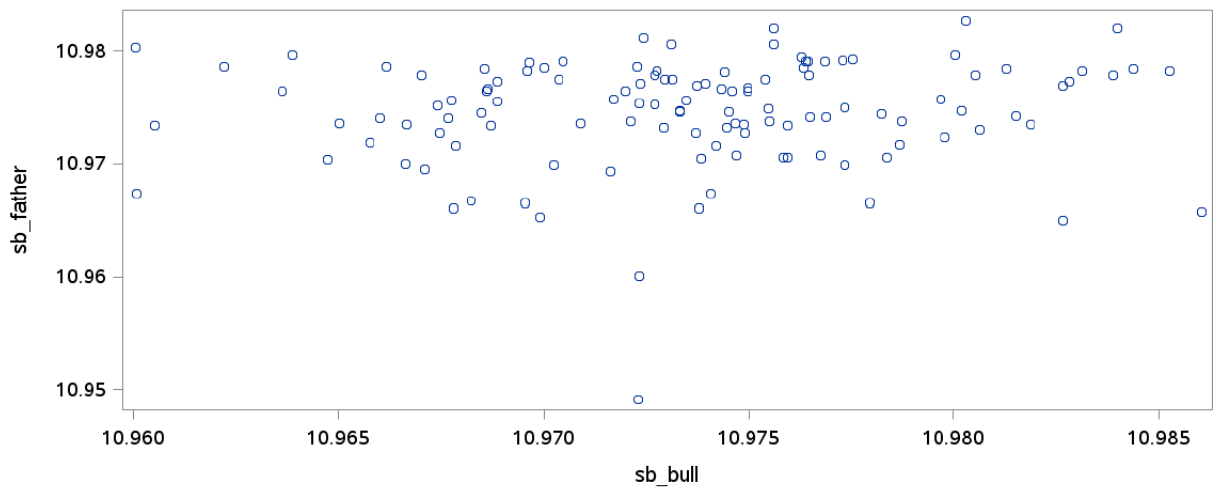
Obs	t	land	m1n	b1father	m1R_sq	c500	N500
1	1	1	49	0.34555	0.18065	0.42503	49

**RAW FEMALE, DNK SB1, calf\_id\_nor is HOL, N\_calves >500 for bull and sire, bull and sire are status1**



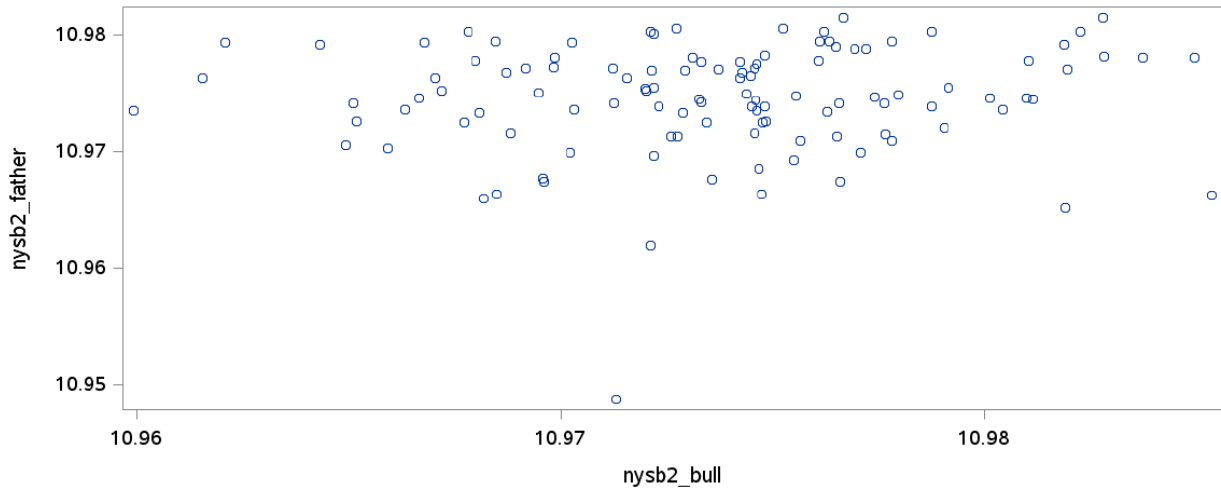
Obs	t	land	m1n	b1father	m1R_sq	c500	N500
1	1	1	65	0.34804	0.098995	0.31463	65

**RAW, DNK SB2, calf\_id\_nor is HOL, N\_calves >500 for bull and sire, bull and sire are status1**



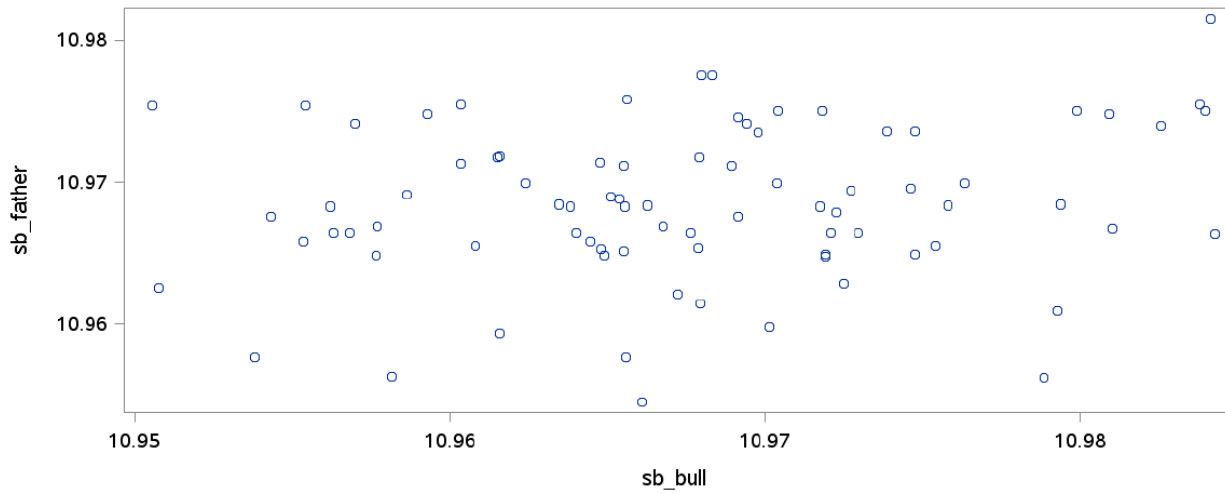
Obs	t	land	m1n	b1father	m1R_sq	c500	N500
1	4	1	121	0.11657	0.010230	0.10114	121

**EDIT, DNK SB2, calf\_id\_nor is HOL, N\_calves >500 for bull and sire, bull and sire are status1**



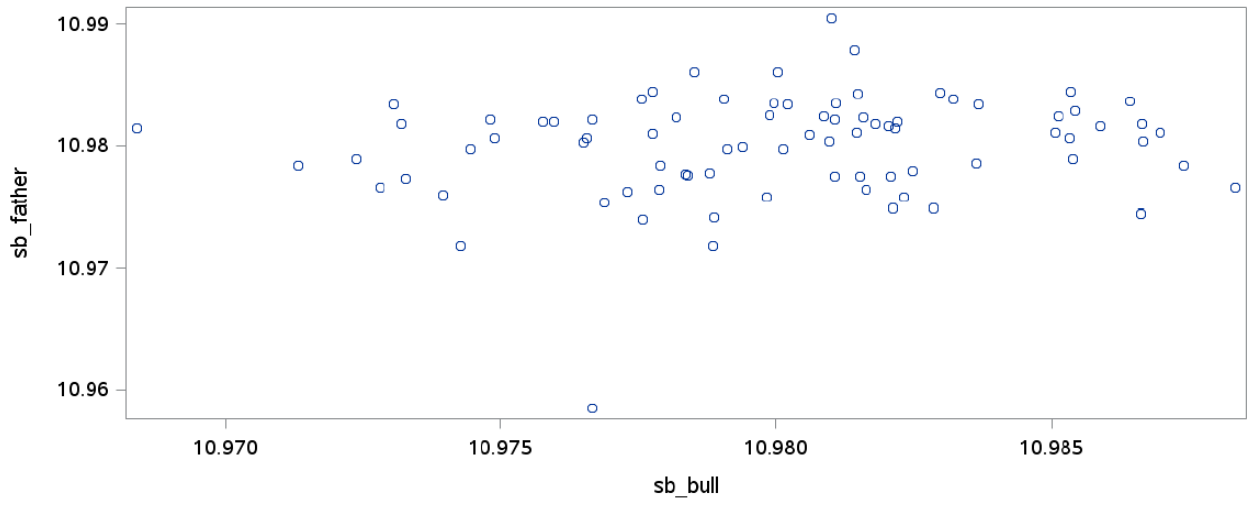
Obs	t	land	m1n	b1father	m1R_sq	c500	N500
1	4	1	114	0.089328	.006886094	0.082982	114

**RAW MALE, DNK SB2, calf\_id\_nor is HOL, N\_calves >500 for bull and sire, bull and sire are status1**



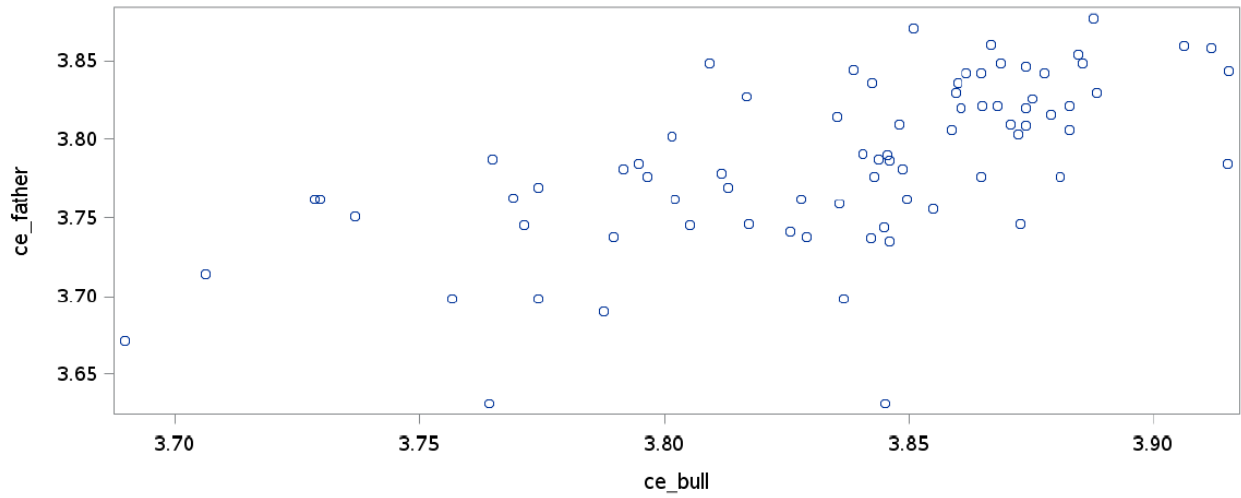
Obs	t	land	m1n	b1father	m1R_sq	c500	N500
1	4	1	81	0.26379	0.030588	0.17489	81

**RAW FEMALE, DNK SB2, calf\_id\_nor is HOL, N\_calves >500 for bull and sire, bull and sire are status1**



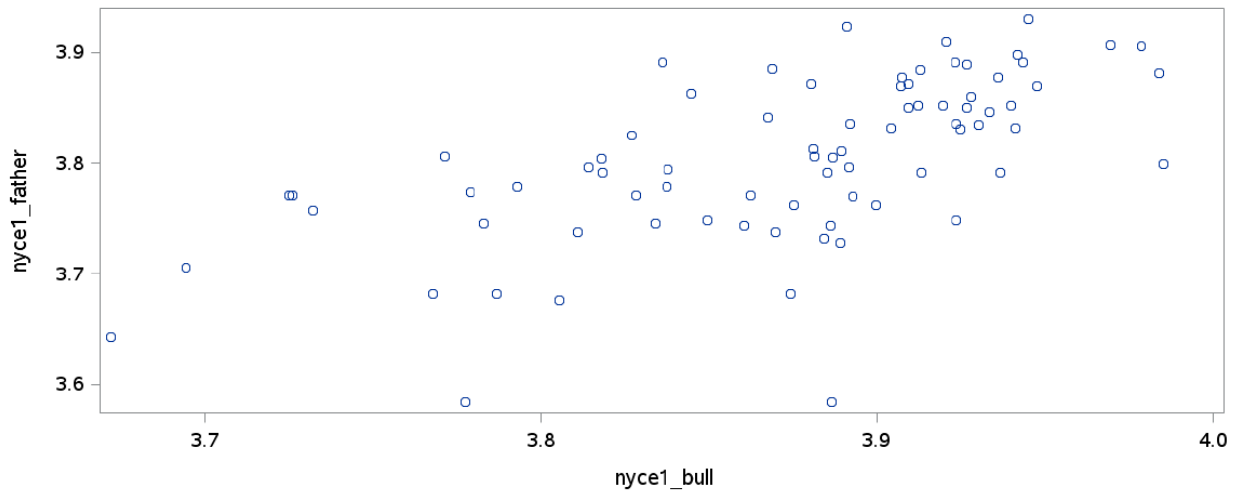
Obs	t	land	m1n	b1father	m1R_sq	c500	N500
1	4	1	82	0.14768	0.022670	0.15057	82

RAW, DNK CE1, calf\_id\_nor is HOL, N\_calves >500 for bull and sire, bull and sire are status1



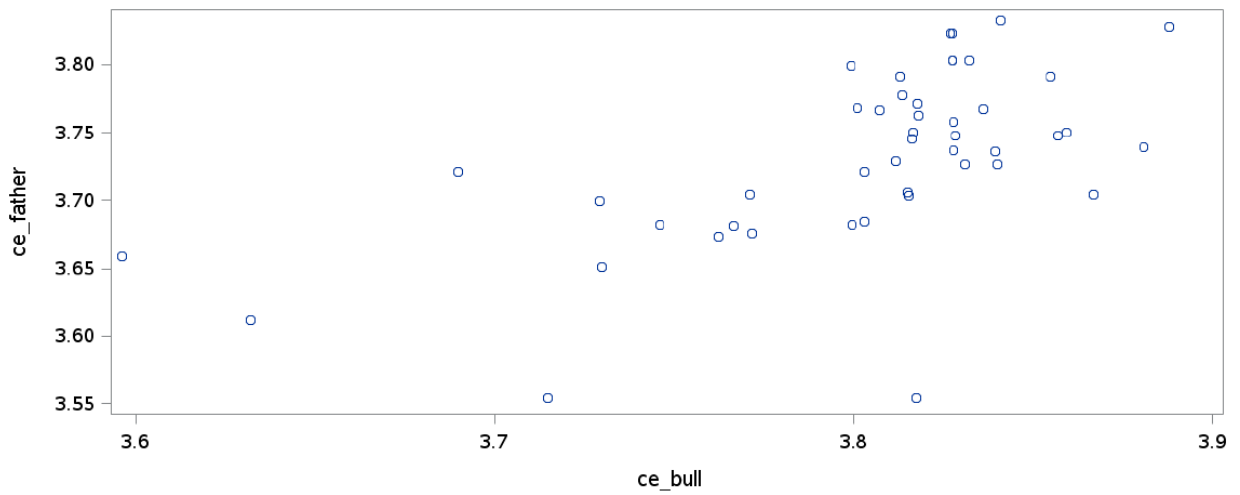
Obs	t	land	m1n	b1father	m1R_sq	c500	N500
1	2	1	78	0.57098	0.38685	0.62198	78

EDIT, DNK CE1, calf\_id\_nor is HOL, N\_calves >500 for bull and sire, bull and sire are status1



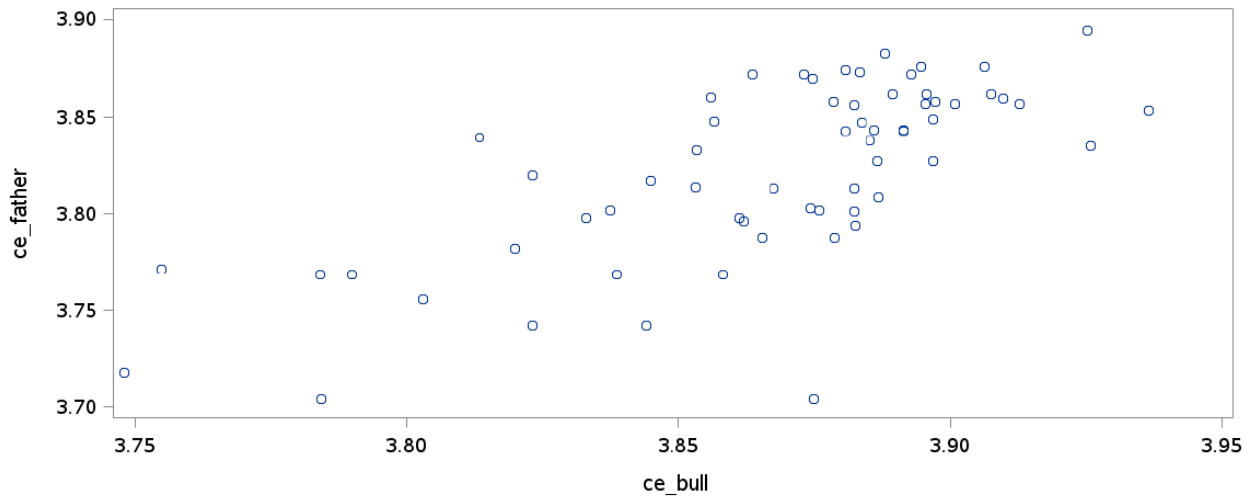
Obs	t	land	m1n	b1father	m1R_sq	c500	N500
1	2	1	78	0.55795	0.37168	0.60966	78

RAW MALE, DNK CE1, calf\_id\_nor is HOL, N\_calves >500 for bull and sire, bull and sire are status1



Obs	t	land	m1n	b1father	m1R_sq	c500	N500
1	2	1	46	0.53323	0.34553	0.58781	46

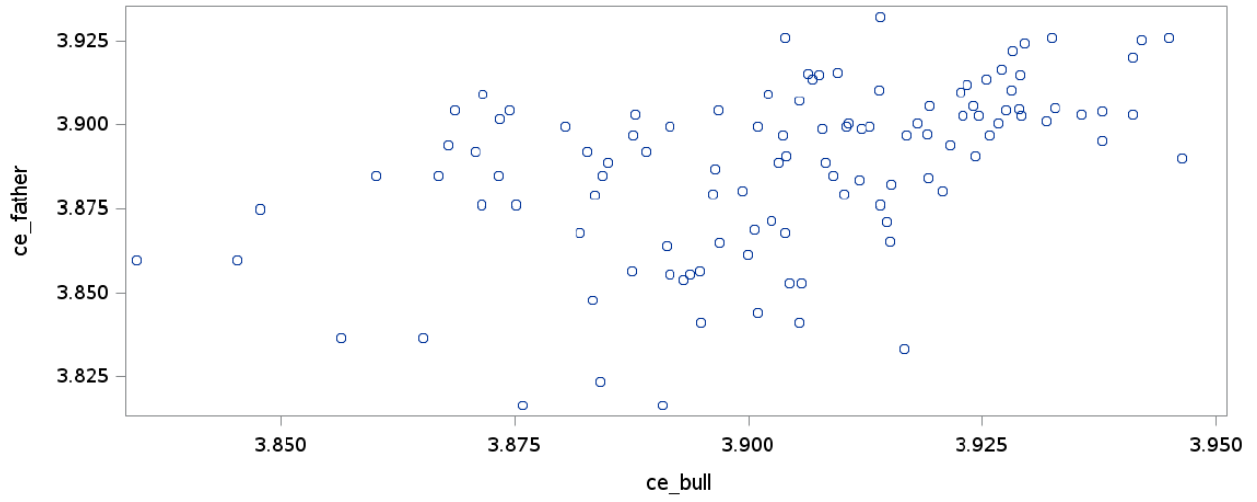
**RAW FEMALE, DNK CE1, calf\_id\_nor is HOL, N\_calves >500 for bull and sire, bull and sire are status1**



Obs	t	land	m1n	b1father	m1R_sq	c500	N500
1	2	1	63	0.59855	0.48286	0.69488	63

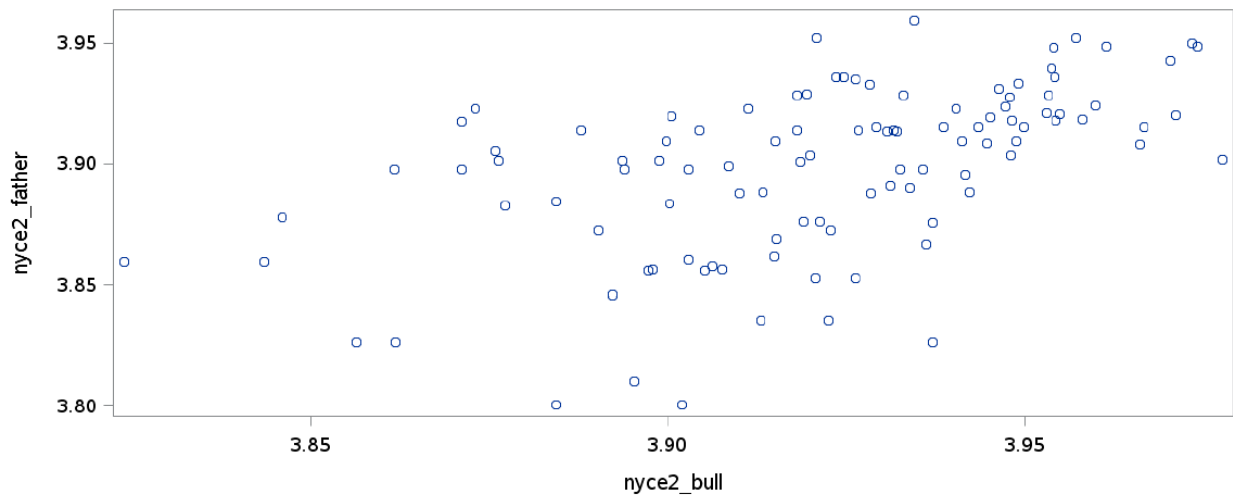
**RAW, DNK CE2 , calf\_id\_nor is HOL, N\_calves >500 for bull and sire, bull and sire are status1**





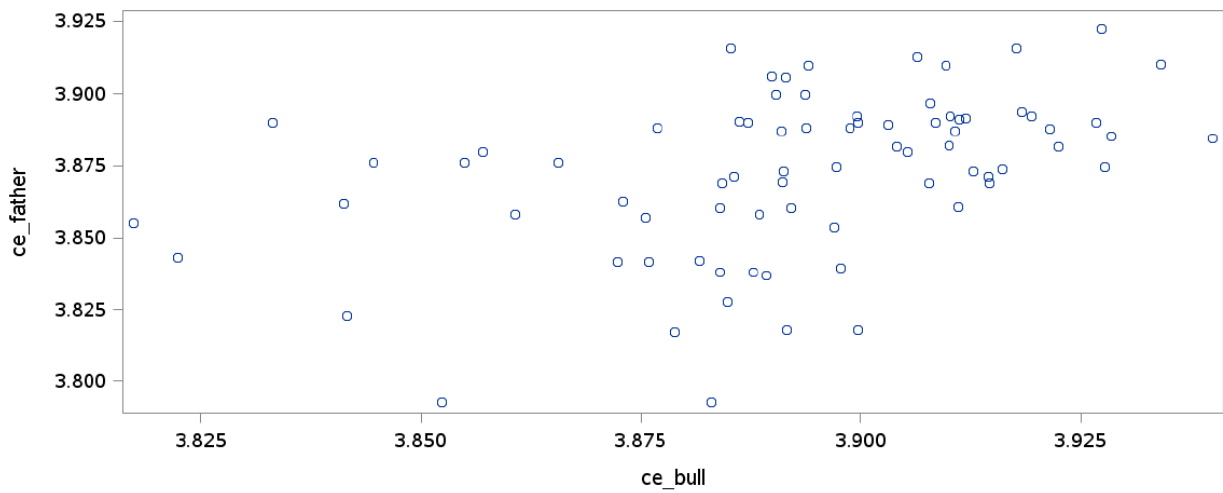
Obs	t	land	m1n	b1father	m1R_sq	c500	N500
1	5	1	112	0.44447	0.23575	0.48554	112

**EDIT, DNK CE2 , calf\_id\_nor is HOL, N\_calves >500 for bull and sire, bull and sire are status1**



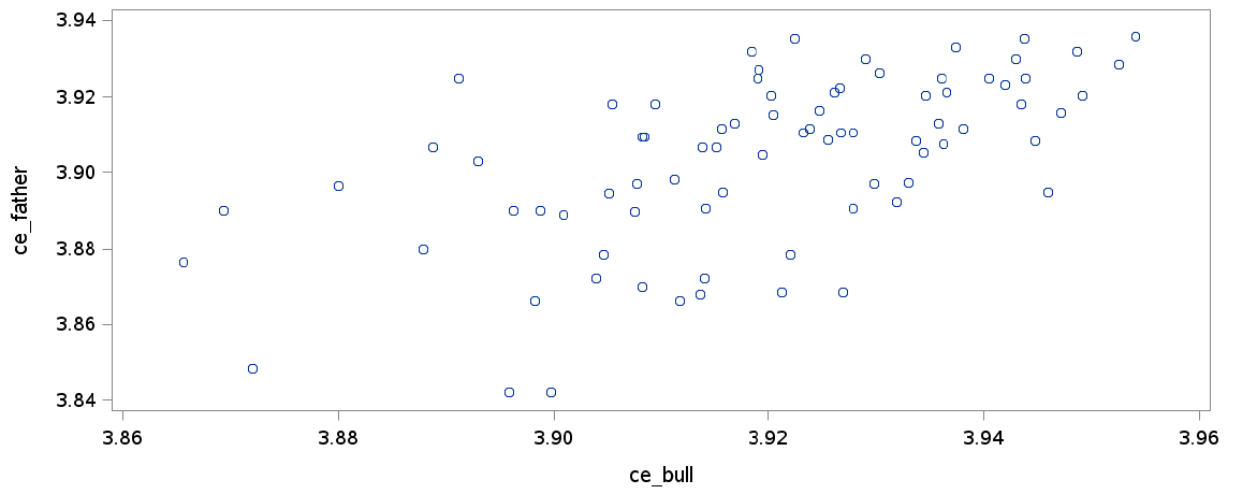
Obs	t	land	m1n	b1father	m1R_sq	c500	N500
1	5	1	106	0.47091	0.27483	0.52425	106

**RAW MALE, DNK CE2, calf\_id\_nor is HOL, N\_calves >500 for bull and sire, bull and sire are status1**



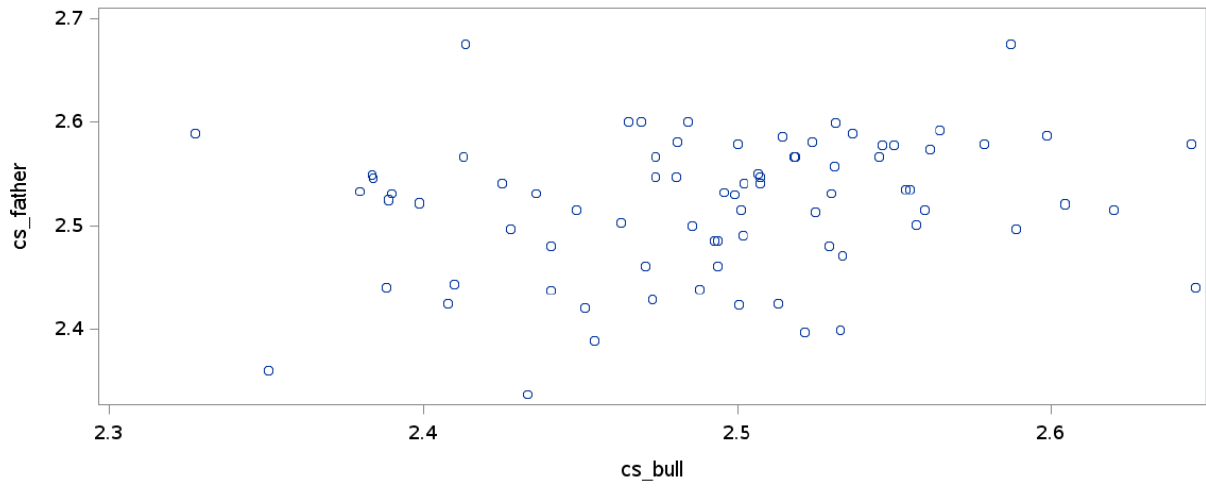
Obs	t	land	m1n	b1father	m1R_sq	c500	N500
1	5	1	77	0.38866	0.18461	0.42966	77

**RAW FEMALE, DNK CE2, calf\_id\_nor is HOL, N\_calves >500 for bull and sire, bull and sire are status1**



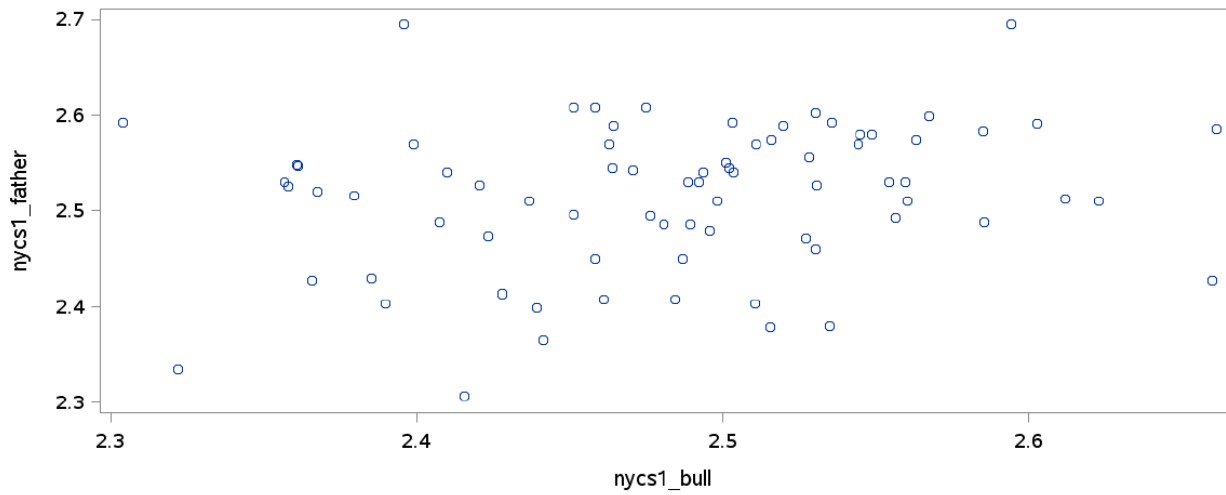
Obs	t	land	m1n	b1father	m1R_sq	c500	N500
1	5	1	80	0.50818	0.33787	0.58127	80

RAW, DNK CS1 , calf\_id\_nor is HOL, N\_calves >500 for bull and sire, bull and sire are status1



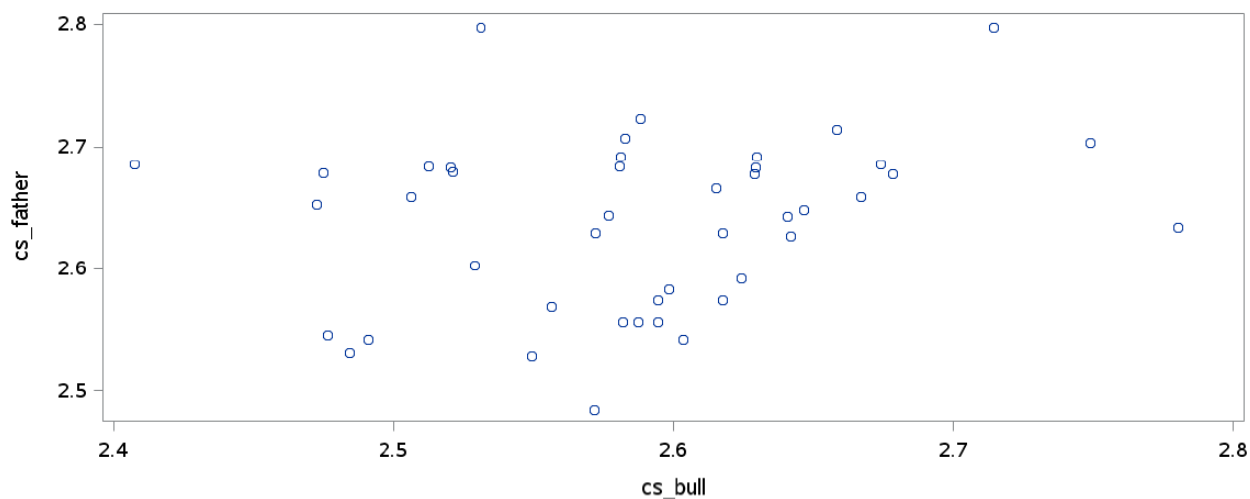
Obs	t	land	m1n	b1father	m1R_sq	c500	N500
1	3	1	78	0.20446	0.041833	0.20453	78

EDIT, DNK CS1 , calf\_id\_nor is HOL, N\_calves >500 for bull and sire, bull and sire are status1



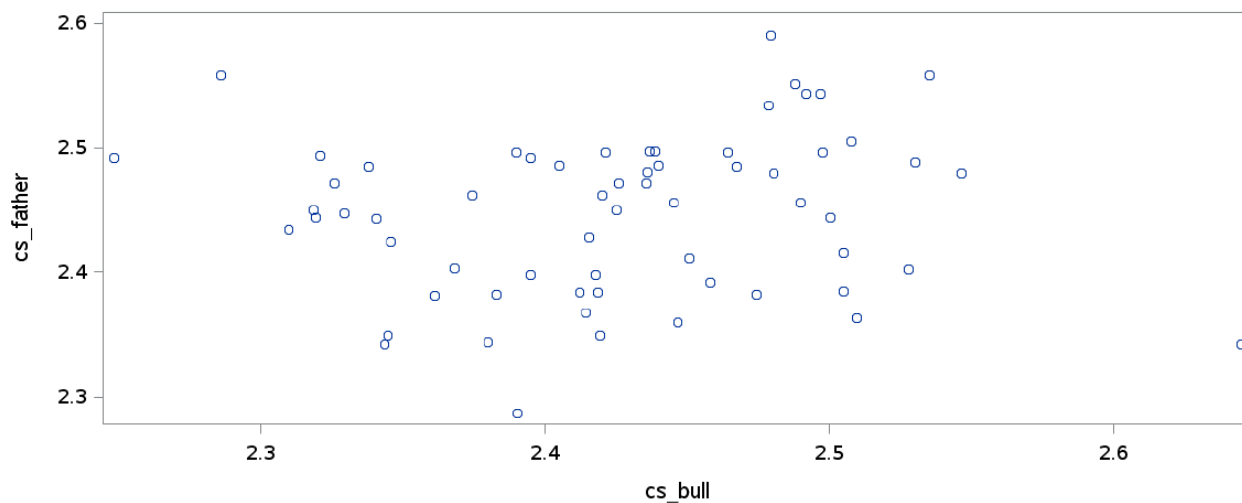
Obs	t	land	m1n	b1father	m1R_sq	c500	N500
1	3	1	75	0.21443	0.045234	0.21268	75

RAW MALE, DNK CS1, calf\_id\_nor is HOL, N\_calves >500 for bull and sire, bull and sire are status1



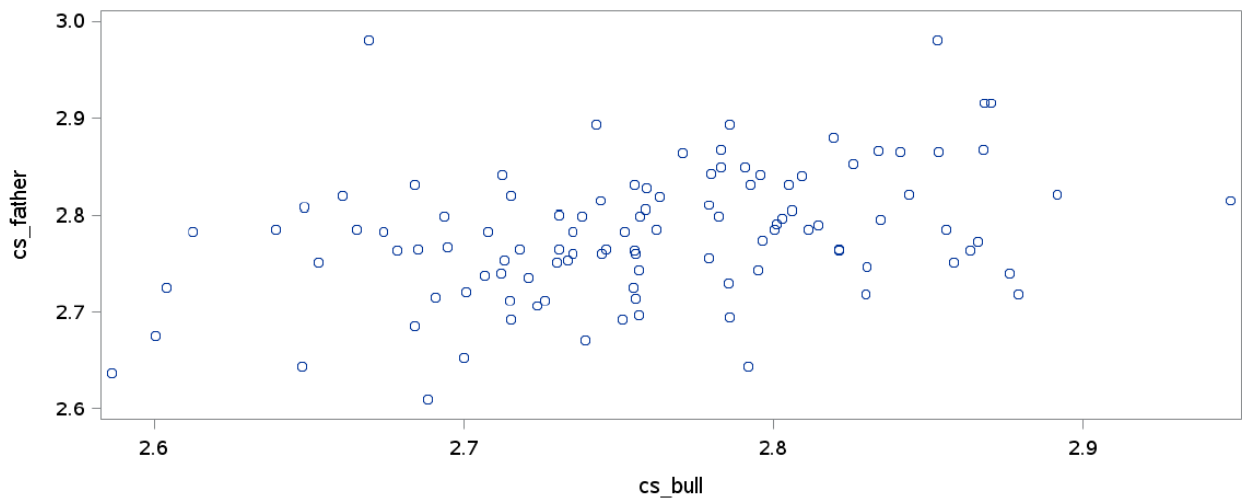
Obs	t	land	m1n	b1father	m1R_sq	c500	N500
1	3	1	44	0.23933	0.049321	0.22208	44

**RAW FEMALE, DNK CS1, calf\_id\_nor is HOL, N\_calves >500 for bull and sire, bull and sire are status1**



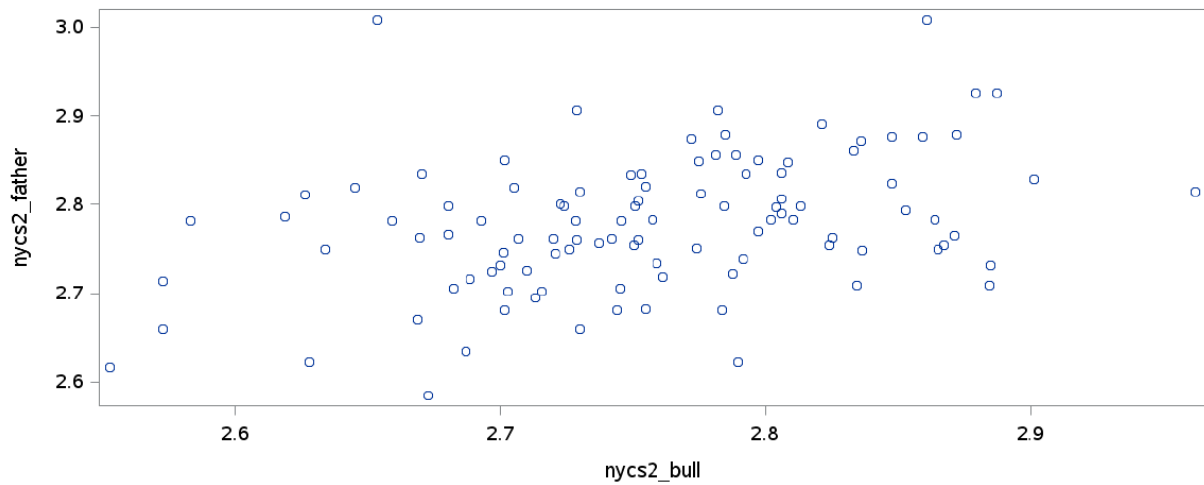
Obs	t	land	m1n	b1father	m1R_sq	c500	N500
1	3	1	63	0.097758	.007292101	0.085394	63

**RAW, DNK CS2, calf\_id\_nor is HOL, N\_calves >500 for bull and sire, bull and sire are status1**



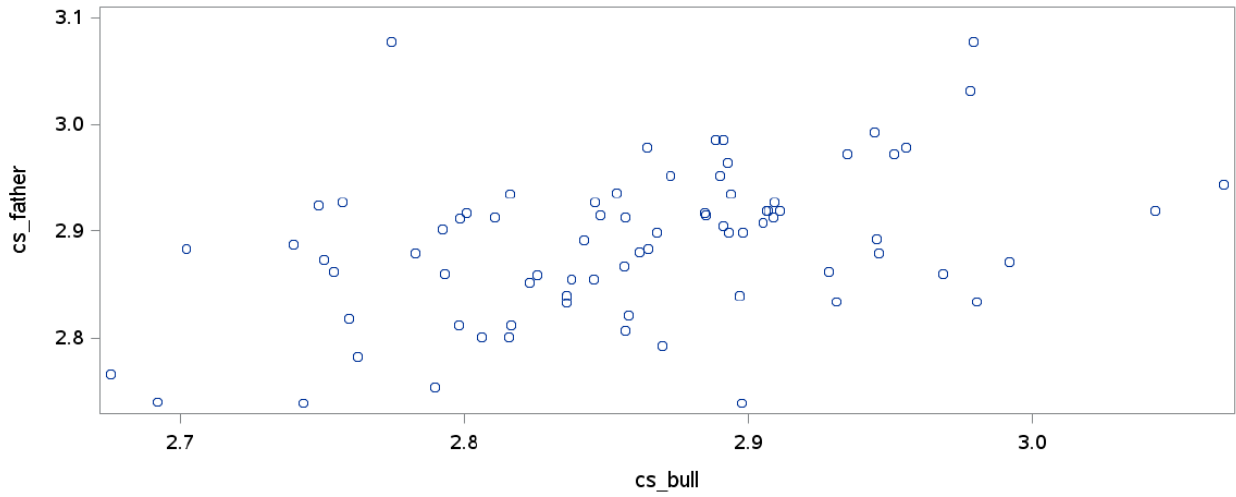
Obs	t	land	m1n	b1father	m1R_sq	c500	N500
1	6	1	107	0.39113	0.14166	0.37637	107

**EDIT, DNK CS2, calf\_id\_nor is HOL, N\_calves >500 for bull and sire, bull and sire are status1**



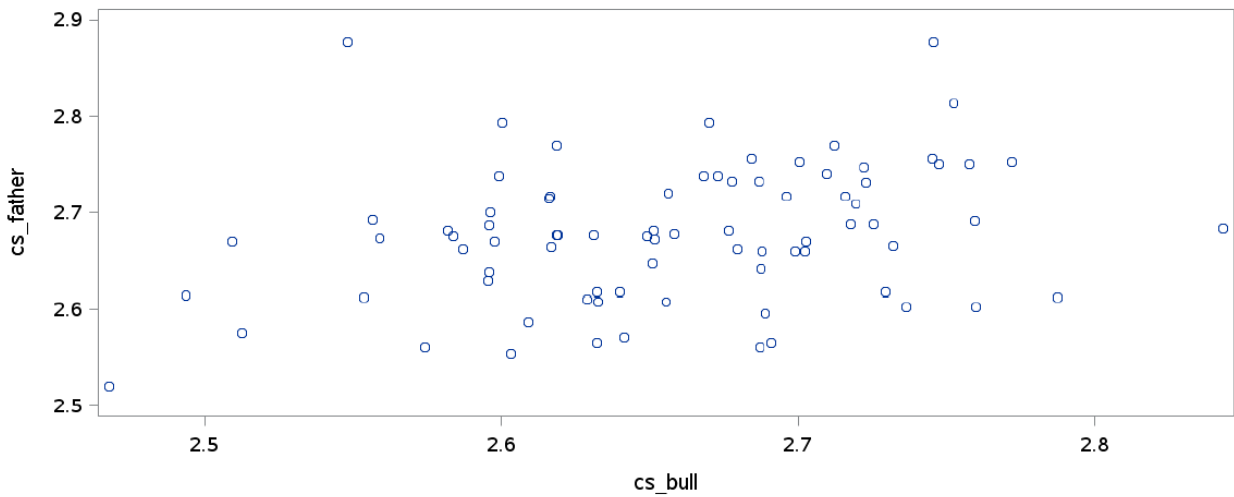
Obs	t	land	m1n	b1father	m1R_sq	c500	N500
1	6	1	105	0.39015	0.14471	0.38041	105

**RAW MALE, DNK CS2, calf\_id\_nor is HOL, N\_calves >500 for bull and sire, bull and sire are status1**



Obs	t	land	m1n	b1father	m1R_sq	c500	N500
1	6	1	77	0.46764	0.17685	0.42054	77

RAW FEMALE, DNK CS2, calf\_id\_nor is HOL, N\_calves >500 for bull and sire, bull and sire are status1



Obs	t	land	m1n	b1father	m1R_sq	c500	N500
1	6	1	80	0.29042	0.082896	0.28792	80