

File S1

R-script with the simulation routines as well as the R- and Shell-scripts used for data analysis

Available for download at <http://www.genetics.org/lookup/suppl/doi:10.1534/genetics.112.144535/-/DC1>.

File S2

Supporting Data

Available for download at <http://www.genetics.org/lookup/suppl/doi:10.1534/genetics.112.144535/-/DC1>. The archive contains all files to redo the analysis of the real data set from Boysen, Heuer, Tetens, Reinhardt and Thaller: A novel approach for dissecting the genetic architecture of performance and functional traits in dairy cattle.

The archive contains the following files:

bulls.bed/bulls.bim/bulls.fam: 50k SNP data of sires and maternal grandsires in a binary plink format. Map data is included in bulls.bim and also available in Bovine_50k.map.

pedinfo.csv: Sire and maternal grandsire for each cow.

cow_phenotypes.csv: Cow's yield deviations for the relevant traits.

The animal identifiers are anonymized and represent a running integer. The true identifiers cannot be retrieved from the data.

Hapmap47511-BTA-114200	5	98579869							1.64E-01	3.76E-08	0.038	0.057	1.517					
Hapmap47185-BTA-114173	5	99044605							5.09E-01	4.41E-09	0.017	0.069	3.976					
ARS-BFGL-NGS-37981	5	100800335							3.49E-01	6.90E-08	0.024	0.063	2.578					
ARS-BFGL-NGS-28067	5	109252813												1.79E-01	9.85E-08	0.067	0.142	2.112
Hapmap24252-BTA-147305	6	50627149							7.36E-06	4.34E-08	0.213	0.162	0.760					
BTB-01794972	6	51729279	7.25E-01	1.11E-07	0.020	0.175	8.574							2.36E-01	5.24E-08	0.066	0.183	2.764
BTB-00264565	6	79705920							3.28E-02	2.12E-08	0.131	0.213	1.625					
ARS-BFGL-NGS-114934	7	15921536							7.69E-01	8.37E-09	0.009	0.080	9.240					
Hapmap47101-BTA-78263	7	16564424												8.77E-01	8.00E-08	0.006	0.103	17.032
ARS-BFGL-NGS-3043	7	17528449												3.47E-01	2.28E-07	0.039	0.118	2.982
BTB-01641665	7	57575330	7.41E-06	8.28E-08	0.139	0.066	0.472							2.56E-07	3.37E-09	0.152	0.074	0.488
Hapmap59042-rs29025710	7	57703177												1.99E-11	5.65E-08	0.195	0.066	0.337
ARS-BFGL-NGS-33130	7	58667344												4.71E-01	6.00E-08	0.025	0.082	3.252
ARS-BFGL-NGS-10904	7	59829599												6.80E-06	3.56E-08	0.152	0.088	0.581
ARS-BFGL-NGS-108586	7	59862113												2.09E-05	1.36E-07	0.135	0.078	0.575
ARS-BFGL-NGS-29389	7	60585197	2.25E-03	8.98E-08	0.094	0.059	0.631											
BTB-00315489	7	62266710	2.80E-06	4.54E-08	0.153	0.075	0.490											
BTB-01956236	8	4372100												6.41E-05	4.45E-08	0.173	0.111	0.644
ARS-BFGL-NGS-39754	8	106264025												2.08E-03	9.19E-09	0.091	0.061	0.676
Hapmap33674-BTA-156367	9	46531368												3.17E-01	3.91E-08	0.032	0.064	1.961
BTB-01878346	9	54937110												1.37E-02	3.19E-08	0.072	0.066	0.918
BTB-01576221	9	56786292												6.79E-04	1.52E-07	0.098	0.072	0.734
BTB-01573160	9	58011347							2.23E-01	1.27E-07	0.032	0.055	1.703					
BTB-01352997	9	61883731	7.63E-06	4.17E-09	0.158	0.064	0.409		2.12E-02	5.02E-11	0.070	0.075	1.081					
Hapmap35559-SCAFFOLD35632_12026	9	62961279	2.85E-01	1.35E-07	0.037	0.065	1.754							8.61E-01	9.78E-09	0.006	0.072	12.466
ARS-BFGL-NGS-113585	9	64207421							4.94E-01	1.17E-08	0.018	0.064	3.563					
ARS-BFGL-NGS-119476	9	70904362												8.69E-01	6.14E-08	0.005	0.060	11.968
ARS-BFGL-NGS-118161	9	82306396							1.84E-02	5.27E-09	0.079	0.106	1.337					
BTB-00402956	9	82586467							6.51E-01	3.43E-08	0.012	0.069	5.754					

BTB-00400339	9	82901727						2.01E-01	2.07E-11	0.036	0.087	2.408						
BTA-84397-no-rs	9	82927247						5.54E-01	2.74E-08	0.016	0.063	4.035						
ARS-BFGL-NGS-112933	9	93552330											7.65E-01	3.18E-09	0.010	0.080	8.269	
Hapmap49345-BTA-85101	9	100304045											3.56E-03	5.34E-08	0.236	0.297	1.256	
BTB-00448829	11	2140304											5.67E-01	1.13E-07	0.027	0.110	4.144	
ARS-BFGL-NGS-64657	11	5872611											4.85E-02	1.79E-07	0.083	0.092	1.118	
ARS-BFGL-NGS-35216	11	7585747											5.10E-03	3.82E-10	0.082	0.064	0.780	
ARS-BFGL-NGS-110311	11	8185823											7.43E-02	2.10E-07	0.084	0.122	1.462	
BTB-01569510	11	9755667						3.03E-01	2.17E-07	0.034	0.091	2.704						
ARS-BFGL-NGS-2493	11	13114243											1.53E-03	9.30E-08	0.104	0.079	0.767	
BTB-00463178	11	16345034											1.98E-06	1.51E-07	0.149	0.058	0.387	
BTB-00463351	11	16374116											1.31E-06	8.30E-08	0.151	0.058	0.387	
ARS-BFGL-NGS-117280	11	37783495	1.85E-01	4.55E-09	0.041	0.068	1.653	4.48E-02	2.81E-09	0.054	0.072	1.347	7.27E-02	5.61E-10	0.053	0.074	1.390	
BTB-01180855	11	58684365											1.70E-03	8.81E-08	0.112	0.079	0.706	
ARS-BFGL-NGS-1065	11	62868207	4.25E-06	1.02E-07	0.141	0.066	0.467											
BTA-101061-no-rs	11	66450428	1.66E-03	1.22E-07	0.124	0.082	0.660											
ARS-BFGL-NGS-116589	11	100901534											5.90E-01	1.34E-07	0.016	0.053	3.286	
ARS-BFGL-NGS-37815	11	101829398											4.70E-04	3.85E-09	0.139	0.124	0.892	
ARS-BFGL-BAC-775	12	6987206											7.57E-01	1.23E-07	0.009	0.057	6.207	
ARS-BFGL-NGS-116664	12	30609095	2.52E-02	1.55E-09	0.096	0.103	1.072						1.90E-02	3.88E-10	0.096	0.109	1.136	
ARS-BFGL-BAC-15026	12	30668435	4.38E-01	1.40E-08	0.036	0.122	3.385						2.96E-01	2.63E-09	0.046	0.130	2.810	
ARS-BFGL-NGS-88871	12	33535830											8.70E-01	1.28E-07	0.006	0.080	13.093	
ARS-BFGL-NGS-100956	12	37110042											1.79E-02	1.79E-08	0.167	0.245	1.471	
BTA-31928-no-rs	13	25842073											2.09E-02	9.93E-08	0.127	0.142	1.120	
ARS-BFGL-NGS-118784	13	38656618	7.54E-01	1.35E-07	0.010	0.056	5.669											
ARS-BFGL-NGS-102990	13	38943133	4.01E-01	7.45E-09	0.028	0.063	2.259											
ARS-BFGL-NGS-76148	13	54829615											1.25E-02	3.51E-08	0.138	0.154	1.116	
ARS-BFGL-NGS-107379	14	2054457						3.21E-04	5.39E-02	0.094	0.023	0.245						
ARS-BFGL-NGS-100480	14	4364952						4.98E-13	2.96E-06	0.202	0.063	0.311						
ARS-BFGL-NGS-113395	14	34189618											4.03E-01	2.00E-03	0.030	0.044	1.448	

ARS-BFGL-NGS-115927	15	39469268							1.73E-02	1.92E-07	0.086	0.104	1.205					
ARS-BFGL-NGS-33988	16	19828569												7.56E-01	2.81E-08	0.009	0.060	6.370
Hapmap42533-BTA-38667	16	34938163												5.89E-05	1.78E-09	0.146	0.101	0.692
Hapmap45766-BTA-38696	16	35896376	2.42E-02	1.52E-07	0.089	0.086	0.970											
ARS-BFGL-NGS-63687	19	20635700	4.94E-01	4.59E-08	0.027	0.087	3.184											
ARS-BFGL-NGS-70354	20	9028131												1.11E-02	3.36E-08	0.118	0.145	1.234
ARS-BFGL-NGS-12319	20	26330033												1.49E-02	1.44E-07	0.186	0.288	1.548
ARS-BFGL-NGS-58033	20	26397183												1.22E-02	6.34E-08	0.191	0.293	1.531
Hapmap42701-BTA-84483	20	47935136												3.68E-06	3.72E-08	0.181	0.105	0.578
BTB-01164745	20	48003042												5.20E-06	7.50E-08	0.177	0.102	0.574
ARS-BFGL-NGS-110784	21	51031411												5.08E-01	1.08E-07	0.019	0.062	3.199
ARS-BFGL-NGS-100124	22	21431682							1.21E-01	1.24E-07	0.051	0.077	1.530					
ARS-BFGL-NGS-65462	22	21455286							1.16E-01	9.30E-08	0.051	0.078	1.530					
Hapmap48103-BTA-86065	22	26073419	3.82E-01	2.39E-07	0.027	0.054	1.974											
Hapmap60793-rs29018735	22	31702243	3.88E-04	1.34E-07	0.152	0.086	0.565											
ARS-BFGL-NGS-60299	22	32234944	1.06E-03	1.63E-07	0.150	0.094	0.626	3.44E-03	5.42E-09	0.117	0.109	0.938	1.03E-03	1.30E-08	0.143	0.104	0.725	
Hapmap47345-BTA-60915	22	33766195						1.70E-04	3.64E-08	0.121	0.089	0.737						
ARS-BFGL-NGS-98103	22	38727002												1.76E-02	2.33E-08	0.073	0.060	0.825
ARS-BFGL-NGS-82909	22	38815613	7.00E-02	7.79E-08	0.056	0.057	1.009											
ARS-BFGL-NGS-102332	24	21918990						9.47E-01	4.91E-08	0.002	0.087	40.994						
ARS-BFGL-NGS-40316	24	39414051						4.09E-01	1.54E-07	0.022	0.065	2.958						
ARS-BFGL-NGS-13985	25	35071379	3.40E-01	1.12E-08	0.036	0.085	2.344							6.09E-01	8.78E-08	0.018	0.081	4.402
ARS-BFGL-NGS-39928	26	38846841	2.16E-04	1.21E-08	0.152	0.092	0.602											