Всероссийская школа-конференция «Клеточные и геномные технологии для совершенствования сельскохозяйственных животных»

Анализ генетической дифференциации по SNPs локуса NCAPG-LCORL между группами кур различного направления продуктивности

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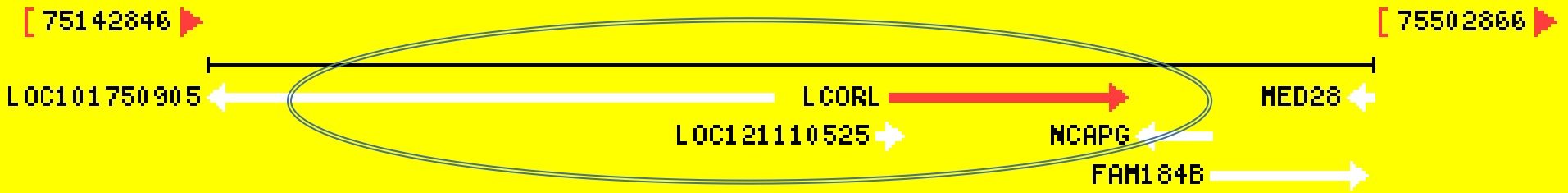
ГЗ 0445-2021-0010

GGA4, локус NCAPG – LCORL, ассоциирован с размерами скелета, массой внутренних органов, массой тела, размерами яйцевода у кур



SNP	Position	Nearest gene	Nucleotide change	Location
GGaluGA265969	76394540	LCORL	T/C	Intron
GGaluGA265966	76355221	LCORL LOC101750905	A/G	Intergenic region
rs15619223	76404421	LCORL	A/C	Intron
rs14491017	76439935	LCORL	C/T	Intron
rs14491028	76458073	NCAPG	C/T	Intron

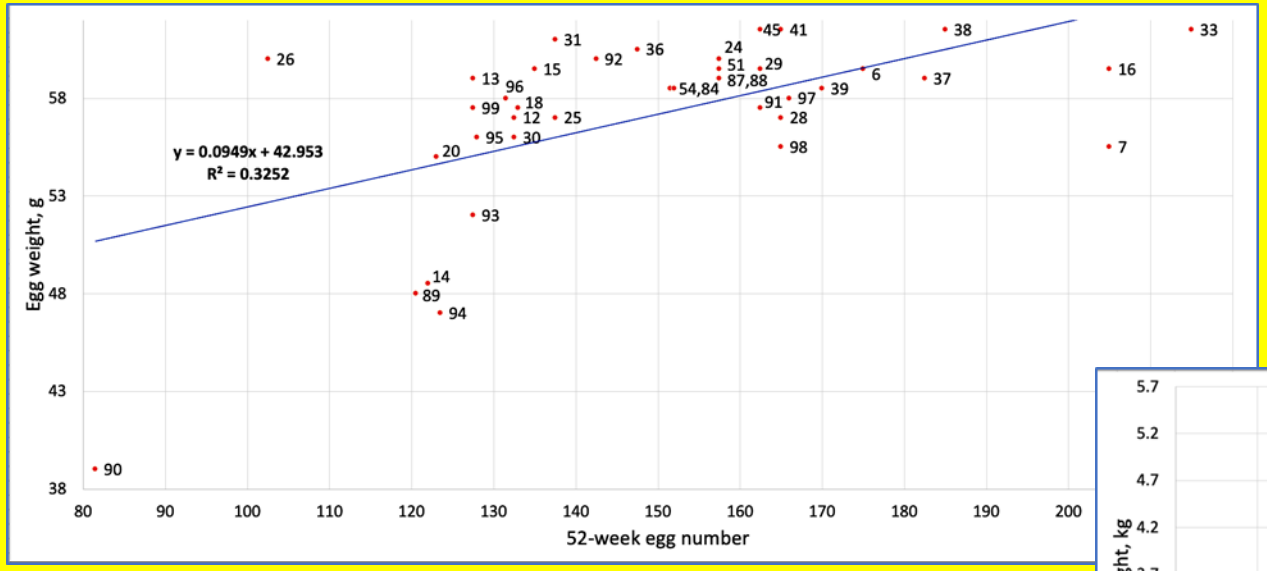
Code	Breed/population[3]	Morphometric traits													
		BW	BoL	BSL	BNL	KL	CG	CD	PA	DSJ	DHJ	FL	TL	ShL	SG
Egg-type and related breeds/populations															
97	LLB	2.79 ±0.16	17.40 ±0.25	19.73 ±0.43	34.03 ±1.65	13.03 ±0.66	34.77 ±0.97	11.30 ±0.93	76.70 ±1.9	7.53 ±0.22	9.50 ±0.35	10.00 ±0.44	15.03 ±0.18	11.07 ±0.24	4.73 ±0.09
7	RWG	2.37 ±0.08	16.86 ±0.47	17.82 ±0.32	34.40 ±0.85	11.30 ±0.26	34.40 ±0.46	10.52 ±0.51	79.60 ±1.44	7.02 ±0.19	8.94 ±0.44	9.66 ±0.43	14.82 ±0.37	10.44 ±0.13	4.36 ±0.09
28	AB	2.68 ±0.10	18.64 ±0.40	19.28 ±0.47	33.5 ±0.61	12.04 ±0.44	36.4 ±0.68	12.34 ±0.37	70.4 ±2.48	7.66 ±0.13	8.58 ±0.14	10.3 ±0.15	15.7 ±0.30	11.22 ±0.25	4.72 ±0.10
29	Ar	2.61 ±0.10	17.82 ±0.54	18.80 ±0.22	35.68 ±0.21	12.20 ±0.26	33.04 ±0.37	11.86 ±0.33	78.40 ±2.66	7.78 ±0.12	8.56 ±0.19	9.88 ±0.26	15.70 ±0.10	10.90 ±0.19	4.46 ±0.07
99	NN	2.78 ±0.07	16.76 ±0.75	19.22 ±0.23	33.56 ±0.54	11.66 ±0.34	36.10 ±1.10	12.16 ±0.38	77.2 ±1.9	7.96 ±0.10	8.94 ±0.25	10.34 ±0.22	15.82 ±0.25	11.16 ±0.25	4.72 ±0.12
13	F	2.74 ±0.02	16.58 ±0.17	17.32 ±0.26	35.90 ±0.41	11.3 ±0.33	32.94 ±0.25	10.94 ±0.60	73.15 ±3.57	6.92 ±0.12	6.78 ±0.21	9.21 ±0.26	55 ±0.21	10.5 ±0.22	4.19 ±0.22
Dual purpose and related breeds/populations *Egg-meat type and related breeds/populations*															
98	MB	2.56 ±0.15	17.63 ±0.86	20.43 ±0.55	35.03 ±0.58	12.13 ±0.38	35.70 ±0.80	12.90 ±0.26	83.70 ±0.70	7.93 ±0.15	9.27 ±0.35	11.93 ±0.99	16.30 ±0.01	12.60 ±0.31	4.97 ±0.20
6	RIR	2.99 ±0.09	18.32 ±0.32	19.70 ±0.28	36.28 ±0.69	12.42 ±0.27	38.20 ±0.33	12.52 ±0.12	78.00 ±1.97	8.06 ±0.22	9.54 ±0.30	10.62 ±0.28	16.04 ±0.26	11.18 ±0.32	4.92 ±0.12
37	LGG	3.13 ±0.12	18.99 ±0.35	20.49 ±0.38	38.29 ±0.86	12.12 ±0.18	36.68 ±0.62	12.40 ±0.24	77.2 ±0.80	8.16 ±0.18	9.98 ±0.22	10.59 ±0.15	16.00 ±0.18	11.85 ±0.22	4.89 ±0.12
41	PB	3.01 ±0.08	17.70 ±0.12	20.18 ±0.29	36.20 ±0.91	11.65 ±0.52	37.20 ±0.98	12.80 ±0.32	80.3 ±2.80	8.13 ±0.29	9.03 ±0.32	10.90 ±0.11	15.95 ±0.30	11.98 ±0.41	5.23 ±0.06
24	SL	2.83 ±0.15	18.54 ±0.34	19.78 ±0.47	36.56 ±0.80	12.28 ±0.41	36.24 ±0.85	11.80 ±0.45	79.00 ±5.29	8.48 ±0.25	9.38 ±0.43	10.56 ±0.52	16.02 ±0.48	11.64 ±0.51	4.66 ±0.16

Code	Breed/population[1]	GGaluGA265969			GGaluGA265966			rs14491017			rs14491028			rs15619223		
		TT	TC	CC	AA	AG	GG	CC	CT	TT	CC	CT	TT	AA	AC	CC
Egg-type and related breeds/populations																
97	LLB	0.84	0.16	0	0	0	1.00	0.84	0.16	0	0.95	0.05	0	0	0	1.00
7	RWG	0.07	0.37	0.56	0.07	0.53	0.40	0.57	0.33	0.10	0.37	0.56	0.07	0.20	0.63	0.17
1	RWS	0.17	0.33	0.50	0.17	0.33	0.50	1.00	0	0	0.50	0.33	0.17	0.17	0.33	0.50
2	RWP	0	1.0	0	0.09	0.36	0.55	1.00	0	0	0.73	0.18	0.09	0.09	0.18	0.73
28	AB	0.10	0.40	0.50	0.05	0.55	0.40	0.20	0.55	0.25	0.35	0.45	0.20	0.70	0.25	0.05
29	Ar	0.10	0.35	0.55	0.05	0.40	0.55	0.15	0.65	0.20	0.20	0.40	0.40	0.75	0.25	0
99	NN	0.05	0.20	0.75	0.10	0.30	0.60	0.55	0.35	0.10	0.35	0.45	0.20	0.30	0.50	0.20
13	F	0.25	0.25	0.50	0.40	0.45	0.15	0.30	0.45	0.25	0.30	0.45	0.25	0.75	0.25	0
Dual purpose and related breeds/populations *Egg-meat type and related breeds/populations*																
98	MB	0.05	0.37	0.58	0	0.16	0.84	0.47	0.36	0.17	0.68	0.21	0.11	0.31	0.53	0.16
6	RIR	0.03	0.50	0.47	0	0.38	0.62	0.47	0.38	0.15	0.22	0.44	0.34	0.25	0.62	0.13
37	LGG	0.10	0.20	0.70	0.45	0.35	0.20	0.15	0.35	0.50	0.25	0.40	0.35	0.75	0.25	0
41	PB	0.12	0.47	0.41	0.35	0.47	0.18	0.35	0.59	0.06	0.06	0.53	0.41	0.47	0.47	0.06
24	SL	0.15	0.60	0.25	0.42	0.37	0.21	0.25	0.55	0.20	0.35	0.60	0.05	0.85	0.15	0
12	FS	0	0.40	0.60	0.15	0.60	0.25	0.55	0.35	0.10	0.25	0.60	0.15	0.20	0.55	0.25
84	RC	0	0.37	0.63	0.16	0.32	0.52	0.32	0.58	0.10	0.26	0.53	0.21	0.47	0.47	0.06
95	BB	0	0.20	0.80	0.55	0.45	0	0.05	0.45	0.50	0	0.30	0.70	0.65	0.35	0
96	BL	0	0.30	0.70	0.10	0.35	0.55	0.35	0.55	0.10	0.05	0.50	0.45	0.25	0.55	0.20
Meat-egg type and related breeds/populations																
39	ZS	0.05	0.39	0.56	0.28	0.67	0.05	0.11	0.33	0.56	0.11	0.33	0.56	0.94	0.06	0
33	Pu	0.05	0.10	0.85	1.00	0	0	0.10	0.40	0.50	0.10	0.40	0.50	1.00	0	0
38	LMF	0.10	0.52	0.38	0.24	0.67	0.09	0.05	0.52	0.43	0	0.52	0.48	0.71	0.29	0
16	NH	0.16	0.42	0.42	0.21	0.37	0.42	0.21	0.42	0.37	0.21	0.21	0.58	0.83	0.17	0

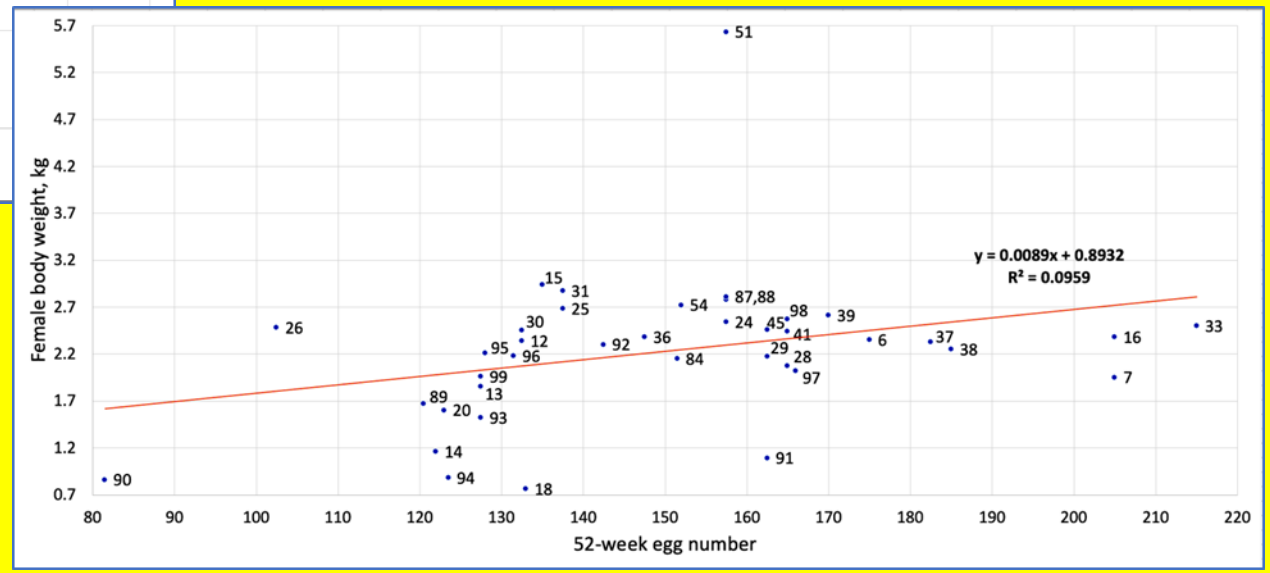
МЕТОДЫ

Результаты

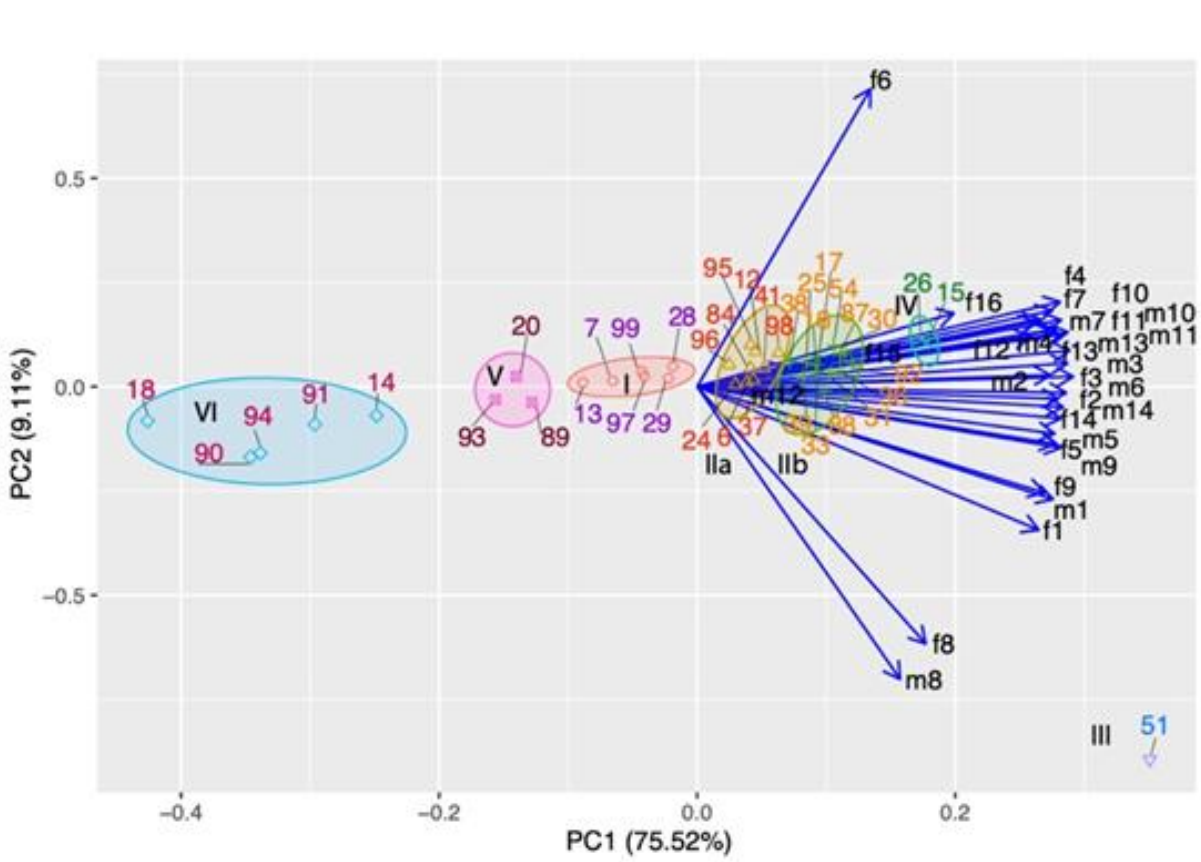
Рисунок 1. Графики корреляционной зависимости яйценоскости от массы яиц (А) и от живой массы (В).



А



В



Clusters

- I (egg)
- IIa (dual purpose, egg-meat)
- IIb (dual purpose, meat-egg)
- III (meat)
- IV (game)
- V (fancy)
- VI (Bantam)

Color coding

Egg 7,13,28,29,97,99
Dual purpose:
egg-meat 6,12,24,37,41,84, 95,96,98
meat-egg 16,25,30,31,33,36, 38,39,45,54,87,88,92
Meat 51
Game 15,26
Fancy 20,89,93
Bantam 14,18,90,94,91

Female	Male	Phenotypic traits
f1	m1	body weight
f2	m2	body length
f3	m3	body slanting length
f4	m4	body and neck length
f5	m5	keel length
f6	m6	chest girth
f7	m7	chest depth
f8	m8	pectoral angle
f9	m9	distance between shoulder joints
f10	m10	distance between hip joints
f11	m11	femur length
f12	m12	tibia length
f13	m13	shank length
f14	m14	shank girth
f15	-	52-week egg number
f16	-	egg weight

Рисунок 2. Кластеризация популяций на основе фенотипических признаков и с помощью PCA

БЛАГОДАРЮ ЗА ВНИМАНИЕ!!!!