

Supplementary information for the article:

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**Table S1.** Number and percentage (between parentheses) of chickens with normal breasts or defective breasts presenting a single myopathy or associated myopathies: whole data set

	All chickens	Females	Males
	n	n	n
Normal	354 (27.7%)	156 (28.4%)	198 (27.2%)
Only white striping	576 (45.1%)	203 (37.0%)	373 (51.2%)
Only wooden breast	46 (3.6%)	20 (3.6%)	26 (3.6%)
Only spaghetti meat	39 (3.1%)	39 (7.1%)	0 (0.0%)
White striping and wooden breast	202 (15.8%)	82 (14.9%)	120 (16.5%)
White striping and spaghetti meat	41 (3.2%)	34 (6.2%)	7 (1.0%)
Wooden breast and spaghetti meat	-	-	-
All myopathies	20 (1.6%)	15 (2.7%)	5 (0.7%)

**Table S2.** Number of chickens with normal breasts or defective breasts presenting a single myopathy or associated myopathies: data set used for the evaluation of the effect of myopathy occurrence on meat quality

	All chickens	Females	Males
	n	n	n
Normal	236	109	127
Only white striping	380	143	237
Only wooden breast	30	17	13
Only spaghetti meat	33	33	-
White striping and wooden breast	166	75	91
White striping and spaghetti meat	32	27	5
Wooden breast and spaghetti meat	-	-	-
All myopathies	13	9	4

**Table S3.** Univariate analysis results of myopathy occurrence evaluating sex as potential influencing factor.

	Myopathy		P-value	Odds ratio (95% CI)
<i>White striping</i>	WS 0 (n = 439)	WS 1 (n = 839)		
Males (Ref)	223 (30.6%)	505 (69.4%)	-	-
Females	216 (39.3%)	334 (60.7%)	<0.01	0.68 (0.54 – 0.86)
<i>Wooden breast</i>	WB 0 (n = 1058)	WB 1 (n = 220)		
Males (Ref)	557 (79.3%)	151 (20.7%)	-	-
Females	481 (87.5%)	69 (12.5%)	<0.001	0.55 (0.40 – 0.75)
<i>Spaghetti meat</i>	SM 0 (n = 584)	SM 1 (n = 159)		
Males (Ref)	338 (96.3%)	13 (3.70%)	-	-
Females	246 (62.8%)	146 (37.2%)	<0.001	15.4 (8.55 – 27.8)

WS = white striping; WB = wooden breast; SM = spaghetti meat; CI = confidence interval; Ref = reference. Sample size per each sex is presented outside the parenthesis.

**Table S4.** Potential influencing factors of white striping occurrence in female and male broiler chickens.

	White striping		P-value	Odds ratio (95% CI)
	WS = 0	WS = 1		
<i>Females</i>				
Genotype				
A (Ref)	18 (58.1%)	13 (41.9%)	-	-
B	185 (39.4%)	285 (60.6%)	0.86	2.13 (1.02 – 4.46)
C	12 (25.0%)	36 (75.0%)	<0.01	4.15 (1.58 – 10.9)
Daily weight gain				
Medium: 63.3 – 67.7 g/d (Ref)	60 (32.8%)	123 (67.2%)	-	-
Low: <63.3 g/d	92 (50.0%)	92 (50.0%)	<0.001	0.48 (0.32 – 0.75)
High: >67.7 g/d	63 (34.6%)	119 (65.4%)	0.14	0.92 (0.60 – 1.42)
Slaughter weight				
Medium: 2720 – 2935 g (Ref)	61 (33.3%)	122 (66.7%)	-	-
Low: <2720 g	87 (47.5%)	96 (52.5%)	<0.01	0.55 (0.36 – 0.84)
High: >2935 g	67 (36.6%)	116 (63.4%)	0.41	0.87 (0.56 – 1.33)
Breast weight, g				
Medium: 798 – 871 g (Ref)	49 (32.9%)	100 (67.1%)	-	-
Low: <798 g	84 (54.9%)	69 (45.1%)	<0.001	0.40 (0.25 – 0.64)
High: >871 g	43 (28.5%)	108 (71.5%)	<0.001	1.23 (0.75 – 2.01)
Breast yield, %				
Medium: 40.0 – 42.0% (Ref)	65 (43.1%)	86 (56.9%)	-	-
Low: <40.0%	67 (44.7%)	83 (55.3%)	0.06	0.94 (0.59 – 1.48)
High: >42.0%	44 (29.0%)	108 (71.0%)	<0.01	1.86 (1.15 – 2.99)
<i>Males</i>				
Genotype				
A (Ref)	14 (43.8%)	18 (56.2%)	-	-
B	168 (31.1%)	372 (68.9%)	0.05	1.72 (0.84 – 3.55)
C	41 (26.3%)	115 (73.7%)	0.49	2.18 (1.00 – 4.78)
Daily weight gain				
Medium: 70.7 – 78.0 g/d (Ref)	72 (29.3%)	174 (70.7%)	-	-
Low: <70.7 g/d	99 (40.7%)	144 (59.3%)	<0.001	0.60 (0.41 – 0.88)
High: >78.0 g/d	52 (21.8%)	187 (78.2%)	<0.001	1.49 (0.99 – 2.24)
Slaughter weight				
Medium: 3225 – 3325 g (Ref)	73 (30.3%)	168 (69.7%)	-	-
Low: <3225 g	96 (39.5%)	147 (60.5%)	<0.001	0.67 (0.46 – 0.97)
High: >3325 g	54 (22.1%)	190 (77.9%)	<0.001	1.53 (1.02 – 2.30)
Breast weight, g				
Medium: 935 – 1040 g (Ref)	40 (25.3%)	118 (74.7%)	-	-
Low: <935 g	63 (39.9%)	95 (60.1%)	<0.001	0.51 (0.32 – 0.83)
High: >1040 g	36 (22.5%)	124 (77.5%)	<0.05	1.17 (0.70 – 1.96)
Breast yield, %				
Medium: 38.4 – 40.0% (Ref)	46 (28.6%)	115 (71.4%)	-	-
Low: <38.4%	58 (38.7%)	92 (61.3%)	<0.01	0.63 (0.40 – 1.02)
High: >40.0%	35 (21.2%)	130 (78.8%)	<0.01	1.49 (0.90 – 2.47)

WS = white striping; CI = confidence interval; Ref = reference.

**Table S5.** Potential influencing factors of wooden breast occurrence in female and male broiler chickens.

	Wooden breast		P-value	Odds ratio (95% CI)
	WB = 0	WB = 1		
<i>Females</i>				
Genotype				
A (Ref)	26 (83.9%)	5 (16.1%)	-	-
B	407 (86.6%)	63 (13.4%)	0.13	0.11 (0.01 – 1.00)
C	47 (97.2%)	1 (2.08%)	0.05	0.81 (0.30 – 2.17)
Daily weight gain				
Medium: 63.3 – 67.7 g/d (Ref)	158 (86.4%)	25 (13.7%)	-	-
Low: <63.3 g/d	163 (88.6%)	21 (11.4%)	0.56	0.91 (0.50 – 1.68)
High: >67.7 g/d	159 (87.4%)	23 (12.6%)	0.96	0.81 (0.44 – 1.51)
Slaughter weight				
Medium: 2720 – 2935 g (Ref)	155 (84.7%)	28 (15.3%)	-	-
Low: < 2720 g	163 (89.1%)	20 (10.9%)	0.44	0.68 (0.37 – 1.26)
High: >2936 g	162 (88.55)	21 (11.5%)	0.62	0.72 (0.39 – 1.32)
Breast weight, g				
Medium: 798 – 871 g (Ref)	128 (85.9%)	21 (14.1%)	-	-
Low: <798 g	138 (90.2%)	15 (9.80%)	0.23	0.66 (0.33 – 1.34)
High: >872 g	127 (84.1%)	24 (15.9%)	0.13	1.15 (0.61 – 2.17)
Breast yield, %				
Medium: 40.0 – 42.0% (Ref)	133 (88.1%)	18 (11.9%)	-	-
Low: <40.0%	133 (88.7%)	17 (11.3%)	0.43	0.94 (0.47 – 1.91)
High: >42.0%	127 (83.6%)	25 (16.4%)	0.15	1.46 (0.76 – 2.80)
<i>Males</i>				
Genotype				
A (Ref)	28 (87.5%)	4 (12.5%)	-	-
B	402 (74.4%)	138 (25.6%)	<0.001	2.40 (0.83 – 6.97)
C	147 (94.2%)	9 (5.77%)	<0.01	0.43 (0.12 – 1.49)
Daily weight gain				
Medium: 70.7 – 78.0 g/d (Ref)	204 (82.9%)	42 (17.1%)	-	-
Low: <70.7 g/d	203 (83.5%)	40 (16.5%)	0.06	0.96 (0.60 – 1.54)
High: >78.0 g/d	170 (71.1%)	69 (28.9%)	<0.001	1.97 (1.28 – 3.04)
Slaughter weight				
Medium: 3225 – 3325 g (Ref)	192 (79.7%)	49 (20.3%)	-	-
Low: <3225 g	195 (80.3%)	48 (19.8%)	0.65	0.97 (0.62 – 1.51)
High: >3325 g	190 (77.9%)	54 (22.1%)	0.51	1.14 (0.72 – 1.72)
Breast weight, g				
Medium: 935 – 1040 g (Ref)	114 (72.2%)	44 (27.9%)	-	-
Low: <935 g	128 (81.0%)	30 (19.0%)	0.19	0.61 (0.36 – 1.03)
High: >1040 g	126 (78.8%)	34 (21.3%)	0.65	0.70 (0.42 – 1.17)
Breast yield, %				
Medium: 38.4 – 40.0% (Ref)	126 (78.3%)	35 (21.7%)	-	-
Low: <38.4%	122 (81.3%)	28 (18.7%)	0.17	0.83 (0.47 – 1.44)
High: >40.0%	120 (72.7%)	45 (27.3%)	0.08	1.35 (0.81 – 2.24)

WB = wooden breast; CI = confidence interval; Ref = reference.

**Table S6.** Potential influencing factors of spaghetti meat occurrence in female and male broiler chickens.

	Spaghetti meat		P-value	Odds ratio (95% CI)
	SM = 0	SM = 1		
<i>Females</i>				
Genotype				
B	246 (62.8%)	146 (37.2%)	-	-
Daily weight gain				
Medium: 63.3 – 67.7 g/d (Ref)	87 (59.6%)	59 (40.4%)	-	-
Low: <63.3 g/d	94 (71.2%)	38 (28.8%)	<0.05	0.57 (0.36 – 0.98)
High: >67.7 g/d	65 (57.0%)	49 (43.0%)	0.11	1.12 (0.68 – 1.83)
Slaughter weight				
Medium: 2720 – 2935 g (Ref)	96 (65.3%)	51 (34.7%)	-	-
Low: <2720 g	96 (66.7%)	48 (33.3%)	0.16	0.94 (0.58 – 1.53)
High: >2935 g	54 (53.5%)	47 (46.5%)	<0.05	1.64 (0.98 – 2.75)
Breast weight, g				
Medium: 798 – 871 g (Ref)	67 (58.8%)	47 (41.2%)	-	-
Low: <798 g	81 (67.5%)	39 (32.5%)	<0.05	0.69 (0.40 – 1.17)
High: >872 g	57 (51.8%)	53 (48.2%)	<0.05	1.33 (0.78 – 2.25)
Breast yield, %				
Medium: 40.0 – 42.0% (Ref)	69 (59.0%)	48 (41.0%)	-	-
Low: <40.0%	66 (59.5%)	45 (40.5%)	0.84	0.95 (0.56 – 1.60)
High: >42.0%	70 (60.3%)	46 (39.7%)	0.97	0.98 (0.58 – 1.66)
<i>Males</i>				
Genotype				
B	338 (96.3%)	13 (3.70%)	-	-
Daily weight gain				
Medium: 70.7 – 78.0 g/d (Ref)	99 (94.3%)	6 (5.71%)	-	-
Low: <70.7 g/d	99 (96.1%)	4 (3.88%)	0.21	0.67 (0.18 – 2.44)
High: >78.0 g/d	140 (97.9%)	3 (2.10%)	0.86	0.35 (0.09 – 1.45)
Slaughter weight				
Medium: 3225 – 3325 g (Ref)	115 (96.6%)	4 (3.36%)	-	-
Low: <3225 g	123 (95.4%)	6 (4.65%)	0.52	1.40 (0.39 – 5.10)
High: >3325 g	100 (97.1%)	3 (2.91%)	0.64	0.86 (0.19 – 3.95)
Breast weight, g				
Medium: 935 – 1040 g (Ref)	83 (95.4%)	4 (4.60%)	-	-
Low: <935 g	106 (96.4%)	4 (3.64%)	0.73	0.78 (0.19 – 3.22)
High: >1040 g	57 (98.3%)	1 (1.72%)	0.41	0.36 (0.04 – 3.34)
Breast yield, %				
Medium: 38.4 – 40.0% (Ref)	86 (96.6%)	3 (3.37%)	-	-
Low: <38.4%	85 (100%)	0 (0.00%)	0.94	-
High: >40.0%	75 (92.6%)	6 (7.41%)	0.93	2.29 (0.55 – 9.49)

SM = spaghetti meat; CI = confidence interval; Ref = reference.

**Table S7.** Factors influencing white striping occurrence in broiler chickens and extracted by forward selection in the multivariate logistic regression analysis (n = 929)

Variable	Estimate	SE	Odds ratio	95% CI		<i>P</i> value
				Lower	Upper	
<i>Genotype B</i>						
Intercept	0.72	0.08				<0.001
Breast weight						
Medium: 850 – 960 g (Ref)	-	-	-	-	-	-
Low: <850 g	-0.53	0.11	0.53	0.37	0.75	<0.001
High: >960 g	0.42	0.12	1.37	0.91	2.05	<0.001
<i>Genotype C</i>						
Intercept	0.73	0.30				<0.05
Breast weight						
Medium: 850 – 960 g (Ref)	-	-	-	-	-	-
Low: <850 g	-1.10	0.51	0.28	0.05	1.48	<0.05
High: >960 g	0.92	0.37	2.08	0.64	6.73	<0.05
Breast yield						
Medium: 39.0 – 40.7% (Ref)	-	-	-	-	-	-
Low: <39.0% g	-1.10	0.38	0.30	0.08	1.10	<0.001
High: >40.7%	1.00	0.40	2.48	0.34	9.67	<0.05

SE = standard error; CI = Confidence interval; Ref = reference; genotype A: Ross 708; genotype B: Ross 308; genotype C: Cobb 500



**Table S8.** Factors influencing wooden breast occurrence in male broiler chickens of three different genotypes and extracted by forward selection in the multivariate logistic regression analysis (n = 728).

Variable	Estimate	SE	Odds ratio	95% CI		<i>P</i> value
				Lower	Upper	
<i>Genotype B</i>						
Intercept	-0.83	0.13				<0.001
Breast yield						
Medium: 38.4 – 40.0% (Ref)	-	-	-	-	-	-
Low: <38.4%	-0.41	0.16	0.72	0.43	1.22	<0.05
High: >40.0%	0.50	0.20	1.79	0.93	3.42	<0.05

SE = standard error; CI = Confidence interval; Ref = reference; genotype A: Ross 708; genotype B: Ross 308; genotype C: Cobb 500

**Table S9.** Factors influencing spaghetti meat occurrence in female broiler chickens of three different genotypes and extracted by forward selection in the multivariate logistic regression analysis (n = 344)

Variable	Estimate	SE	Odds ratio	95% CI		<i>P</i> value
				Lower	Upper	
<i>Genotype A</i>						
Intercept	-0.30	0.11				<0.05
Slaughter weight						
Medium: 2720 – 2935 g (Ref)	-	-	-	-	-	-
Low: < 2720 g	-0.34	0.16	0.87	0.53	1.42	<0.05
High: >2936 g	0.54	0.18	2.10	1.18	3.76	<0.01
<i>Genotype B</i>						
Intercept	-0.30	0.12				<0.05
Slaughter weight						
Medium: 2720 – 2935 g (Ref)	-	-	-	-	-	-
Low: < 2720 g	-0.34	0.16	0.87	0.53	1.42	<0.05
High: >2936 g	0.54	0.18	2.10	1.18	3.76	<0.01

SE = standard error; CI = Confidence interval; Ref = reference; genotype A: Ross 708; genotype B: Ross 308; genotype C: Cobb 500.