CONSERVATION OF BIODIVERSITY IN ITALIAN POULTRY BREEDS:
deepening and monitoring
TuBAvI-2

Breed data sheet

ROBUSTA MACULATA

Gallus gallus domesticus Sp.

Origin and morphological, genetic, reproductive, and productive traits

FONDO EUROPEO AGRICOLO PER LO SVILUPPO RURALE: l'Europa investe nelle zone rurali

MINISTERO DELL'AGRICOLTURA DELLA SOVRANITÀ ALIMENTARE E DELLE FORESTE

The presented data were registered in nucleus populations
of Robusta Lionata conserved at the “Sasse Rami” Experimental Farm,
in Ceregnano (Rovigo).

Latest update: October 14th, 2023

Robusta maculata

Gallus gallus domesticus Sp.

Breed data sheet: origin and morphological, genetic, reproductive, and productive traits

Breed origin and development

Name of the breed	Robusta maculata
Synonyms or local names	-
Geographic origin	Veneto (Rovigo)
Geographic distribution	Veneto
Estimated total population size	433 (Castillo et al., 2021)
Extinction risk status (FAO, 1998)	Threatened conserved
Any other specific information	-

Historical origin
Created in 1965 at the Poultry Experimental Station of Rovigo, using the Brown Orpington and White America breeds. It is included in the National Plan on Biodiversity in Agriculture as a local breed, and in the Atlas of Traditional Agri-food Products (*Atlante dei Prodotti Agroalimentari Tradizionali*) of the Veneto region.

Qualitative and quantitative morphological traits in adult breeders

Discrete or qualitative traits

Feather morphology	Normal
Feather distribution	Normal
Plumage structure	Soft, abundant
Plumage colour	White plumage with black spots
Colour features	Bi-colour, with sexual dimorphism
Chick plumage colour	Dark down with little light yellow spots, belly down yellow, brown spot on the head
Comb type	**Single comb**, upright, well developed
Comb spikes	Five or six spikes
Ear-lobe colour	Red
Beak colour	Yellow
Iris colour	Orange to red
Muffs	Absent
Beard	Absent
Tuft	Absent
Skin colour	Yellow
Shank colour	Yellow
Shank feathering	Free from feathers
Skeletal variants	-
Other specific and distinct visible traits	-

Colour pattern
In the **male**, neck hackle white/silver with black feathers with black striping; rest of plumage silver with irregular black spots; primaries, main tail feathers and sickle feathers black with beetle-green sheen. In the **female**, white/silver plumage with large deep grey/black spots, irregularly spread on the body.

Quantitative traits

Parameters	Male		Female	
	Average	Min-max	Average	Min-max
Body weight (g)	4220	3600-4900	2830	2420-3300
Body length (cm)	46	44-49	39	36-44
Chest circumference cm)	42	39-49	37	33-43
Shank length (cm)	12	11-13	10	9-11
Shank diameter (cm)	6	5-6	5	4-5
Wing span (cm)	54	51-55	46	44-50

Genetic traits

Characterisation of the breed with Single Nucleotide Polymorphisms (SNPs)

Molecular marker	Affymetrix Axiom 600K Chicken Genotyping Array
Laboratory that performed the analyses	Department of Agronomy, Food, Natural Resources, Animals and Environment (DAFNAE) University of Padua
Analysed parameters	MAF: minor allelic frequency Ho: observed heterozygosis He: expected heterozygosis F_{HOM}: inbreeding coefficient

Year		N**	MAF	Ho	He	F_{HOM}
2019	Mean	24	0.304	0.157	0.166	0.572
	SD*		0.358	0.190	0.193	0.032

*SD: standard deviation; **N: number of samples

Characterisation of nucleus populations with microsatellites

Molecular marker	Microsatellites (26 markers)
Laboratory that performed the analyses	Laboratory of Animal Molecular Genetics Department of Veterinary Science (DSV) University of Turin
Analysed parameters	Ne: effective number of alleles Na: observed number of alleles I: Shannon diversity index H-Ind: individual variability index Ho: observed heterozygosis (average H-Ind) He: expected heterozygosis F: fixation index P: average kinship index

Year		N**	Na	Ne	I	Ho	He	F	P
2020	Mean	23	2.143	1.655	0.502	0.261	0.316	0.142	0.72
	SE*		0.206	0.165	0.101	0.061	0.064	0.089	

*SE: standard error; **N: number of samples

Reproductive and productive quantitative traits

Oviposition, brooding and incubation data

Age at sexual maturity of hens (weeks)	23-27
Length of first oviposition cycle (weeks)	N.a.**
Annual egg production per hen (min-max)*	150-160
Average clutch size (min-max)	N.a.**
Clutch interval (days)	N.a.**
Incubation length (days)	21

*As measured during the first year of age, min-max of family line
**N.a.: Not available information

Egg-quality traits

Parameters	First oviposition cycle	
	Average	Min-max
Egg weight (g)	57.5	Not available
Shell colour	Pinkish	

Parameters (sample measurement)	Average	Min-max
Egg weight (g)	60.6	55.5-65.7
Shell weight (g)	4.88	4.32-5.44
Albumen weight (g)	35.0	32.3-37.7
Yolk weight (g)	19.4	18.0-20.8
Egg Shape Index*	0.75	0.72-0.78

* Egg Shape Index (ESI) = short diameter/long diameter x 100

Reproductive traits

Incubation parameters	First oviposition cycle	
	Average	Min-max*
Fertility (% produced eggs)	89	85-92
Hatchability (% fertile eggs)	68	68-80
Hatchability (% produced eggs)	61	58-74

*Per family line

Slaughter data (age: 24 weeks)

Slaughter parameters	Average	
	Male	Female
Live weight (g)	3249	2192
Carcass weight (eviscerated) (g)	2135	1438
Carcass weight (eviscerated) yeald (%)	65.7	65.6

Rearing traits

Breed type	Rustic, good grazer
Growth speed (precocious *vs* tardive)	Tardive
Feathering speed (precocious *vs* tardive)	Tardive
Broodiness	Yes
Parental care attitude	Yes
Ease of breeding	Yes
Male:female ratio for breeding	1:10
Tolerance or resistance to diseases and parasites	Not available
Tolerance to extremes of temperature	Not available
Reported uses (meat, eggs)	Primary: meat Secondary: eggs

Robusta maculata male and female

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TuBAvI (2017-20)
TuBAvI-2 (2021-24)

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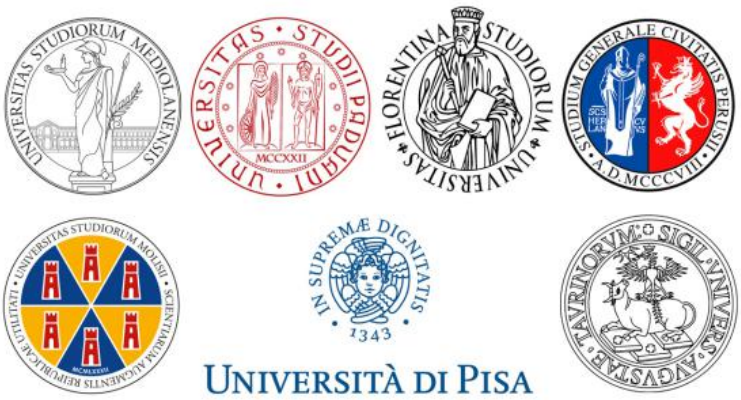
https://ec.europa.eu/agriculture/rural-development-2014-2020_en

Ministry of agriculture, food sovereignty and forestry –
National Rural Development Programme 2014/2022 – Measure 10.2 – Conservation, use and sustainable development of genetic resources in agriculture



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