

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



Breed data sheet

SICILIANA

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 Brown wild Siciliana conserved
at the University of Molise (UniMOL) and at the University of Pisa (UniPI).

Latest update: November 25th, 2024



Siciliana

Gallus gallus domesticus Sp.

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

Breed origin and development

Name of the breed	Siciliana
Synonyms or local names	-
Geographic origin	Sicily
Geographic distribution	Sicily and other southern-Italy regions
Estimated total population size	186 (Castillo et al., 2021)
Extinction risk status (FAO, 1998)	Threatened conserved
Any other specific information	Medium-sized chicken breed

Historical origin
<p>It is a very ancient breed, the most ancient European breed according to some Authors. It is believed that it originated from hybridisations between local breeds from Sicilian countryside and Tripolina breed, from northern Africa. Its antique origin is testified by ancient Greek coins and by vases and mosaics from the Roman times that represent the “crowned cock”.</p> <p>The breed was exported to America between 1830 and 1860 by Captain Dawes, who bought great numbers of chickens to provide the crew with eggs and meat during their journey back to Boston. The hens proved to be excellent layers, so the birds that reached the United States were carefully selected by American breeders. More chickens were imported during the following years. In particular, the selection of birds imported in 1892 led to a breed, that was named Sicilian Buttercup, from which all the chickens available nowadays were originated. The breed was also imported to England, where it has been successfully raised ever since the beginning of the 1900. On the contrary, local populations in Sicily have been progressively disappearing.</p>

Qualitative and quantitative morphological traits in adult breeders

Discrete or qualitative traits

Feather morphology	Normal
Feather distribution	Normal
Plumage structure	Abundant and soft, well adherent to the body, with stiff shaft feathers
Plumage colours	Brown wild (<i>Selvatica bruna</i>), Golden (<i>Collo oro</i>), Black, White, Blue
Colour features	Single colour, without sexual dimorphism: Black, White, Blue Bi-colour, with sexual dimorphism: Brown wild, Golden
Chick plumage colour	Brown wild, Golden: chick down similar to adult down, with white/yellowish streaks on the back Black, White, Blue: yellow, black
Comb type	Buttercup comb , red and upright, with a fine and smooth texture. It begins as a simple comb at the base of the beak and then, at the second point, it acquires the cup shape, preferably closed in the back. Well-formed cup, smooth inside.
Comb spikes	Preferable five regular spikes on each side, carried upright and well perpendicular. Slightly sloping is admitted in laying hens.
Iris colour	Red-dark orange
Ear-lobe colour	Red or slightly streaked with white
Beak colour	Yellow with dark-horn stripes in the Black and the Brown wild; yellow in the White and the Blue
Tuft	Absent
Muffs	Absent
Beard	Absent
Skin colour	Yellow
Shank colour	Willow green
Shank feathering	Free from feathers
Skeletal variants	-
Other specific and distinct visible traits	-

Colour pattern
Brown wild: In the cock , head gold brown, neck hackles gold brown more or less striped with black. Back, shoulders, and wing coverts dark red brown. Main wing coverts black with metallic green/blue sheen. Saddle hackles red brown to gold brown, with light black striping permitted. Primaries black with narrow brown edging on the outer web. Secondaries inner colour and tips black, outer colour red brown forming brown wing bay. Breast, belly, and legs black, with brown traces permitted. Tail black with green sheen, brown edging on lesser sickles permitted. Down grey. In the hen , head gold brown to red brown, neck hackle gold

brown to red brown with black striping. Remainder of plumage is brown with black peppering (uneven and not fine) on every feather; light shafts. Primaries, outer barbs black with narrow brown edging and brown peppering, inner barbs black with brown peppering, secondaries, outer rusty brown barbs with blackish peppering and inner barbs black. Tertiaries barred with black. Main tail coverts rusty brown with black peppering and main tail feathers black. Breast dark salmon. Belly and legs brown with greyish peppering.

Golden: In the **cock**, head intense gold yellow, neck hackle gold yellow, slightly yellow toward the end, with black striping. Back, shoulders, and wing coverts brilliant dark red. Saddle hackles gold yellow with black striping. Main wing coverts black with metallic green/blue sheen. Primaries black, narrow brown border on the outer web permitted. Secondaries with inner colour and tips black and with outer colour brown forming wing bay. Breast black free from traces of brown. Belly and legs black. Tail black with strong green sheen. Down greyish. In the **hen**, head gold yellow, neck hackle gold yellow with black striping. Plumage gold/brown with fine and even black peppering, slightly lighter shaft permitted. Primaries black with narrow peppered brown outer edging. Secondaries with inner colour and tips black, outer colour peppered brown. Breast salmon, darker in the upper part, with slightly lighter shaft. Legs and belly grey/brown. Tail black, the two main tail feathers marked as the rest of the plumage permitted.

Black: in the cock and in the hen, the plumage is intense black, with green sheen in the cock. In young birds, light shading of the shank is admitted. The down is black.

White: in the cock and in the hen, the plumage is pure white, brighter in the cock. The down is white.

Blue: in the cock and in the hen, plumage is uniform pigeon blue. Feathers can have a slight edging. Down light blue. In the cock, head, neck hackle, wing coverts, and saddle hackles dark blue to brilliant velvet black/blue. In the hen, neck hackle dark blue.

Quantitative traits

Parameters	Male		Female	
	Min	Max	Min	Max
Body weight (g)	1452	2702	1117	1826
Body length (cm)	37.0	45.5	33.0	40.0
Chest circumference (cm)	29.0	37.1	20.0	34.2
Shank length (cm)	6.9	11.0	5.6	10.0
Shank diameter (cm)	1.1	1.5	0.8	1.4
Wing span (cm)	42.2	51.0	35.9	44.0

Rearing traits

Breed type	Rural chicken, rustic, and extremely lively
Growth speed (precocious vs tardive)	
Feathering speed (precocious vs tardive)	Precocious
Broodiness	Possible
Parental care attitude	Yes
Ease of breeding	Yes
Male:female ratio for breeding	1:8-10
Tolerance or resistance to diseases and parasites	Not available
Tolerance to extremes of temperature	Not available
Reported uses (meat, eggs)	Primary: eggs Secondary: meat

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 heterozygosity He: expected heterozygosity F _{HOM} : inbreeding coefficient

Year		N**	MAF	Ho	He	F _{HOM}
2019	Mean	24	0.259	0.129	0.123	0.648
	SD*		0.361	0.205	0.189	0.034

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

Characterisation of nucleus populations with microsatellites and mating plans

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 heterozygosity (average H-Ind) He: expected heterozygosity F: fixation index P: average kinship index
Indexes used to schedule mating plans	H-Ind P

Year		UniMOL nucleus population							
		N**	Na	Ne	I	Ho	He	F	P
2022	Mean	58	3.15	2.04	0.75	0.457	0.42	-0.06	0.65
	SE*		0.30	0.20	0.09	0.054	0.04	0.04	0.00
2023	Mean	44	3.19	2.26	0.82	0.44	0.46	0.03	0.59
	ES*		0.28	0.24	0.09	0.05	0.04	0.04	

Year		UniPI nucleus population							
		N**	Na	Ne	I	Ho	He	F	P
2020	Mean	42	2.500	1.685	0.555	0.349	0.356	0.069	0.710
	SE*		0.174	0.130	0.081	0.058	0.054	0.097	0.008
2022	Mean	37	2.42	1.51	0.46	0.283	0.29	0.04	0.74
	SE*		0.17	0.08	0.05	0.040	0.04	0.05	0.00

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

Reproductive and productive quantitative traits

Oviposition, brooding and incubation data

Age at sexual maturity of hens (weeks)	20-22
Length of first oviposition cycle (weeks)	57
Average annual egg production per hen (min-max)*	94.3 (86.5-102.0)
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*		Second oviposition cycle**	
	Average	Min-max	Average	Min-max
Egg weight (g)	40.1	60.6	40.0	64.1
Shell colour	White			

* Total n. of measured eggs: 1656; ** Total n. of measured eggs: 2014

Parameters (sample measurement)	Min	Max
Egg weight (g)	40.1	62.4
Shell weight (g)	2.8	8.1
Albumen weight (g)	17.8	31.7
Yolk weight (g)	11.8	21.6
Egg Shape Index*	59.7	77.7

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

Reproductive traits

Incubation parameters	First oviposition cycle		Second oviposition cycle	
	Min*	Max*	Min*	Max*
Fertility (% produced eggs)	55.6	100.0	75.8	100
Hatchability (% fertile eggs)	53.7	86.9	55.6	100
Hatchability (% produced eggs)	53.1	83.3	45.5	88.9

*Per family line

Body weight and growth data

Age (weeks)	Male weight (g)		Female weight (g)	
	Average	SD*	Average	SD*
0 (hatching)	36.1	2.1	34.8	2.5
8	621.8	59.4	511.8	36.2
12	929.2	71.5	760.9	52.0
16	1228.5	93.9	954.5	66.8
24	1566.4	114.4	1286.7	113.2
30	1683.8	165.6	1408.9	127.4
34	1735.0	191.3	1447.4	121.7

*SD: standard deviation

Mortality

Age (weeks)	Average (%)	
	Male	Female
0-1	2.1	0
1-8	0	3.2
8-20	0	0
20-70	0	10.0

Slaughter data (age: 180 days)

Slaughter parameters	Male		Female	
	Average	SD*	Average	SD*
Live weight (g)	1511.8	130.7	1214.2	122.1
Carcass weight (eviscerated) (g)	1065.2	120.1	779.8	91.2
Carcass weight (eviscerated) yield (%)	70.3	3.1	64.1	1.6

*SD: standard deviation

Siciliana male and female

Wild brown



Di Iorio Donato Farm, UniMOL



Di Iorio Donato Farm, UniMOL



Poultry Breeding Farm
Podere Le Querciole, UniPI



Poultry Breeding Farm
Podere Le Querciole, UniPI

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

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Project coordinator

Prof. Silvia Cerolini
Department of Veterinary Medicine and Animal Sciences
University of Milan

Email silvia.cerolini@unimi.it

www www.pollitaliani.it