

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



Breed data sheet

ANCONA

Sp. Gallus gallus domesticus

**Origin and morphological,
genetic, reproductive,
and productive traits**



**FONDO EUROPEO AGRICOLO PER LO SVILUPPO
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**MINISTERO DELL'AGRICOLTURA
DELLA SOVRANITÀ ALIMENTARE
E DELLE FORESTE**





The presented data were registered in nucleus populations of Black mottled Ancona conserved at the University of Perugia (UniPG) and at the University of Pisa (UniPI).

Latest update: November 25th, 2024



Ancona

Sp. Gallus gallus domesticus

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

Breed origin and development

Name of the breed	Ancona
Synonyms or local names	-
Geographic origin	Italia Centrale
Geographic distribution	Marche, Lazio, and Umbria
Estimated total population size	379 (2021, Castillo et al.)
Extinction risk status (FAO, 1998)	Threatened conserved
Any other specific information	Light breed

Historical origin
<p>Ancona breed originated in central Italy.</p> <p>Imported to England from Ancona around 1848, it underwent a careful selection especially to obtain a colouring with regular spotting. In fact, the native Ancona had the coat with many irregularly arranged white feathers. It was in 1880 that the breeder Mr. M. Cobb managed to obtain what he wanted and presented a group of Ancona at an exhibition. The Ancona with rose comb was presented in 1910, at an exhibition in Birmingham. In the Standards of some countries there are also varieties with pink compound comb.</p>

Qualitative and quantitative morphological traits in adult breeders

Discrete or qualitative traits

Feather morphology	Normal
Feather distribution	Normal
Plumage structure	Abundant, quite soft and well adherent, with large and rounded feathers with a stiff shaft
Plumage colours	Black mottled, Blue mottled
Colour features	Bicolour, without sexual dimorphism
Chick plumage colour	Yellow and black
Comb type	<p>Simple comb: in the male, red, well-developed and upright. The well-formed blade follows the line of the head, without getting too close to the nape. In the female the comb falls gracefully to one side after the second spike.</p> <p>Rose comb: red, rather small, finely pearly; wider at the front, it narrows towards the back; medium-length conical rear spike, approximately horizontal.</p>
Comb spikes	Simple comb: Five regularly formed spikes, wide at the base, with quite deep serrations. Except for the first, the spikes are of equal height and width, forming a regular curve.
Ear-lobe colour	Ivory to cream white, oval, middle-sized, smooth, and well adherent to the face.
Beak colour	Yellow with black streaks on the top, strong and slightly arched.
Iris colour	Orange to red
Muffs	Absent
Beard	Absent
Tuft	Absent
Skin colour	Yellow
Shank colour	Yellow with slate to black speckles
Shank feathering	Free from feathers
Skeletal variants	-
Other specific and distinct visible traits	-

Colour pattern
<p>Black mottled: in the male and in the female the plumage is bright black with metallic green sheen. The pattern is formed by V-shaped white pearls at the tip of some feathers, distributed as regularly as possible and not too big. Approximately, the proportion of the pearls on the plumage is one feather every three. In the male, the proportion is one every five on the back, and one every two in neck and saddle hackles, where the spot is smaller. Main tail, sickles, and flight feathers must all have the white tip. The black ground must always prevail, white must be pure and as clearly as possible separated from the black. Shafts follow the color of the drawing. Tipping is regularly aligned at the wing bands and at the end of the secondaries.</p>

Down is dark slate.

Blue mottled: in the male and in the female, the ground colour is light grey/blue. The ground colour must be as even as possible and predominant. Darker cape and saddle are tolerated in both the male and the female. Down is grey. The tipping pattern is the same as in the Black.

Quantitative traits

Parameters	Male		Female	
	Min	Max	Min	Max
Body weight (g)	1826	2500	1254	2390
Body length (cm)	42.0	49.0	36.0	43.0
Chest circumference (cm)	33.0	41.0	29.0	38.5
Shank length (cm)	10.0	12.0	8.0	10.5
Shank diameter (cm)	1.2	1.7	0.9	1.5
Wing span (cm)	45.0	59.0	38.0	46.0

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	0.267	0.263	0.274	0.284
	SD*		0.242	0.181	0.187	0.100

*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		UniPG nucleus population							
		N**	Na	Ne	I	Ho	He	F	P
2022	Mean	19	2.769	2.002	0.731	0.396	0.432	0.085	0.587
	SE*		0.162	0.099	0.053	0.037	0.029	0.053	0.010
2023	Mean	9	2.77	2.00	0.73	0.40	0.43	0.09	0.59
	SE*		0.16	0.10	0.05	0.04	0.03	0.05	0.10
Year		UniPI nucleus population							
		N**	Na	Ne	I	Ho	He	F	P
2020	Mean	38	2.481	1.652	0.546	0.321	0.330	0.020	0.701
	SE*		0.149	0.074	0.048	0.034	0.029	0.040	0.005
2022	Mean	35	2.96	1.66	0.58	0.321	0.34	0.06	0.70
	SE*		0.25	0.10	0.06	0.043	0.04	0.05	0.01

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

Reproductive and productive quantitative traits

Oviposition, brooding and incubation data

Age at sexual maturity of hens (weeks)	24-25
Length of first oviposition cycle (weeks)	54
Annual egg production per hen (min-max)*	150-177
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**	
	Min	Max	Min	Max
Egg weight (g)	43.7	58.2	44.7	60.0
Shell colour	White			

* Total n. of measured eggs: 391; ** Total n. of measured eggs: 247

Parameters (sample measurement)	Min	Max
Egg weight (g)	43.7	58.2
Shell weight (g)	4.5	6.3
Albumen weight (g)	24.8	34.1
Yolk weight (g)	14.2	21.35
Egg Shape Index*	68.2	85.2

* 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)	80	100	76	100
Hatchability (% fertile eggs)	79	90	86	100
Hatchability (% produced eggs)	68	78	61	100

*Per family line

Body weight and growth data

Age (weeks)	Male weight (g)		Female weight (g)	
	Average	SD*	Average	SD*
0 (hatching)	39.4	2.4	34.9	2.8
8	621.9	101.6	536.8	53.5
12	977.7	103.4	825.1	68.8
16	1221.6	153.9	1021.3	88.9
26	1935.4	161.3	1510.0	151.3
34	2137.1	203.6	1672.1	219.6

*SD: standard deviation

Mortality

Age (weeks)	Average (%)	
	Male	Female
1-8	3.8	0
8-20	13.3	3.8
20-70	15.4	4.0

Slaughter data (age: 140 days)

Slaughter parameters	Male		Female	
	Average	SD*	Average	SD*
Live weight (g)	1950	10	1800	10
Carcass weight (eviscerated) (g)	1306	47	1188	30
Carcass weight (eviscerated) yield (%)	67		66	

*SD: standard deviation

Rearing traits

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

Ancona male and female

Black mottled



Experimental Poultry
and Rabbit Farm, UniPG



Experimental Poultry
and Rabbit Farm, UniPG



Poultry Breeding Farm
Podere Le Querciole, UniPI



Poultry Breeding Farm
Podere Le Querciole, UniPI

Bibliography

Manuale STANDARD ITALIANO DELLE RAZZE AVICOLE (*ITALIAN STANDARD OF POULTRY BREEDS Manual*), FIAV, 2013-14.

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

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