

## Conservation of poultry genetic resource in the Veneto region of Italy

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### Summary

A conservation scheme for local poultry breeds from the Veneto region (Italy), the Co.Va. (*Conservazione e Valorizzazione di Razze Avicole Locali Venete* - Conservation and valorisation of local poultry genetic resources of Veneto region) project began in 2000 with finance provided by the Veneto Region. This project involved four organic farms located in different areas (mountain, hill and plain) in the region. The local chicken breeds included in the project were the Robusta Maculata, Robusta Lionata, Ermellinata di Rovigo, Pépoi and Padovana; the local duck breeds were the Germana Veneta and Mignon; the local turkey breeds were the Bronzato Comune and Ermellinato di Rovigo; and the local guinea fowl breed was the Camosciata. All breeds are dual-purpose breeds and are utilized for meat and egg production. The Department of Animal Science of the University of Padova planned a marker-assisted conservation scheme based on the maintenance and multiplication of these breeds within their production system (*in situ* conservation scheme). The objectives of the farmers involved in this project were to use these genotypes to generate typical regional products for local markets, to support the development of economically marginal areas through the revaluation of local breeds and to allow the preservation of animal biodiversity.

### Resumen

En el año 2000 se empezó un esquema de conservación para razas avícolas locales de la region del Veneto en Italia a través del proyecto Co.Va (*Conservación y Valorización de las Razas Avícolas Locales del Veneto*) con financiamiento de la Región Veneto Este proyecto involucró cuatro granjas orgánicas situadas en distintas áreas de la región (montaña, colina y llanura). Las razas locales de pollo incluidas en el proyecto fueron la Robusta Maculata, Robusta Lionata, Ermellinata de Rovigo, Pépoi y Padovana; las razas locales de patos utilizadas fueron la Germana Veneta y la Mignon; las razas locales de pavo la Bronzato Comune y la Ermellinato de Rovigo; y la raza local de ave de corral fue la Camosciata. Todas las razas son de doble propósito y se utilizan para la producción de carne y de huevos. El Departamento de Ciencias Animales de la Universidad de Padua planificó un esquema de conservación con marcador asistido basado en el mantenimiento y multiplicación de estas razas dentro de su sistema de producción (esquema de conservación *in situ*). Los objetivos de los granjeros involucrados en este proyecto eran la utilización de estos genotipos para generar productos típicos regionales para los mercados locales, apoyar el desarrollo de las zonas económicamente marginales a través de la revaluación de las razas locales y permitir la conservación de la biodiversidad animal.

**Keywords:** Local poultry breeds, Chicken, Turkey, Duck, Guinea fowl, Characteristics, Performance.

## Introduction

An important action designed to safeguard the domestic animal biodiversity of the Veneto region of Italy was implemented in 2000. The Co.Va. (*Conservazione e Valorizzazione di Razze Avicole Locali Venete*) project was developed by the Veneto Agricultural Agency (VAA) (2004) with the scientific support of the Department of Animal Science of the University of Padova to provide economic support for an organic production system using local breeds. The Co.Va. project was the first marker-assisted conservation scheme for animal genetic resources in the Veneto region. Ten poultry breeds were included, these being the Robusta Maculata, Robusta Lionata, Ermellinata di Rovigo, Pépoi and Padovana chicken; the Germana Veneta and Mignon duck; the Bronzato Comune and Ermellinato di Rovigo turkey and the Camosciata guinea fowl. These ten breeds were added to the list of traditional Italian products recognised by the Ministry of Agricultural and Forestry Policy (MIPAF, 2003). It was hoped that the listing of these breeds and their subsequent description and characterization would assist in the development of economically marginal areas of the region through the revaluation of local and typical breeds and would thereby promote conservation of local breeds and preservation of biodiversity (De Marchi *et al.*, 2003).

The conservation of animal genetic resources is essential to enable farmers to adapt to changing environmental conditions and consumer demands. It is therefore in the best interest of societies to ensure that farmers and breeders have access to the widest possible range of animal genetic resources so that they can effectively respond to change (FAO, 2004). Biodiversity is essential for the survival of species and populations, and is assuming greater

importance in modern animal science because of an expanding global emphasis on only a few highly selected breeds (Notter, 1999). The poultry breeds of the Veneto region showed distinctive meat quality characteristics (dark colour and good flavour) that distinguished them from the more common commercial birds (Cassandro *et al.*, 2002). The demand for products from the Veneto poultry breeds has also increased because of their perceived image as a source of nutritious and healthy natural products from birds that are reared in a clean and natural environment with no industrial residues. In developing systems of breeding, production and marketing for the Veneto avian breeds, emphasis was placed on an organic system of production including housing in an indoor pen with access to a grass paddock. Commercial diets supplemented with maize were provided, and a marker-assisted conservation scheme was developed to control inbreeding. The aim of this report is to provide a first general description of these Veneto poultry breeds.

## Design and Establishment of the Project

The information for the study was gathered from 2000 through 2004. In this period, pedigree, performance, and reproductive data were recorded. The number of birds for each breed and the number of flocks involved in the conservation project, in the third year of activity (August 2003), are shown in Table 1. The four different flocks are located in the mountain (Feltre-BL), hill (Montebelluna-TV) and plain (Ceregnano-RO and Padova-PD) areas of the Veneto region.

## Characteristics of the Chicken Breeds

The five breeds of Veneto chicken used in this project are the Robusta Maculata

Table 1. Numbers of pure line birds by flock and breed in the Co. Va. project.

Breeds	Feltre		Montebelluna		Ceregnano		Padova	
	Breeding males	Breeding females	Breeding males	Breeding females	Breeding males	Breeding females	Breeding males	Breeding females
Chicken								
• Robusta Maculata	15	41	31	45	28	38		
• Robusta Lionata	16	44	27	46	28	52		
• Ermellinata di Rovigo	16	15	28	40	29	49		
• Pépoi	13	43	29	47	36	43		
• Padovana Camosciata							30	44
• Padovana Dorata							23	37
Duck								
• Germinata Veneta	24	39	30	38				
• Mignon	26	39	25	40				
Turkey								
• Bronzato Comune	16	34	20	43	18	35		
• Ermellinato di Rovigo	16	15	6	5				
Guinea fowl								
• Camosciata	24	35	29	37				



Figure 1. *Robusta Maculata* chicken.



Figure 2. *Robusta Lionata* chicken.

(Figure 1), Robusta Lionata (Figure 2), Ermellinata di Rovigo (Figure 3), Pépoi (Figure 4), and Padovana (Figure 5). Information about these breeds was previously published in an Italian report (Veneto Agricultural Agency, 2004). The Pépoi and Padovana are small-sized chicken breeds, whereas the other three breeds are medium-sized with heavier mature weights. Characteristics of the birds are shown in Table 2. All breeds showed a good environmental adaptability and stability for reproduction traits (Cassandro *et al.*, 2004).

A preliminary study estimated the daily weight gain of these chicken breeds during summer 2003 at the Agricultural Secondary School of Castelfranco Veneto (TV). This simple experiment involved four chicken breeds: Robusta Maculata, Robusta Lionata, Ermellinata di Rovigo and Pépoi. At hatching, chicks were individually weighed and reared in an indoor pen with an open grass paddock; feed and water were supplied *ad libitum*. Body weights were

recorded every 10 days for 156 days. The average daily gains are reported in Table 3. As expected, the sex difference in average daily weight gain was highly significant in favour of males. The daily weight gain of the Pépoi breed was significantly different to that of the other breeds. There were no significant differences between the Robusta Lionata and Ermellinata breeds.

The Robusta Maculata chicken breed was developed in 1965 at the Rovigo Experiment Station from crosses between Tawny Orpingtons and White Americans and was selected to be a dual-purpose bird (providing eggs and meat). Adult birds have white plumage with black spots, the skin and tarsus are yellow (Figure 1). The Robusta Maculata exhibited an average daily weight gain to 156 days of 13.8 kg and 18.4 g, respectively. The daily weight gain of the Robusta Maculata was higher than the 9.6 g/d reported for the Ancona breed by Castellini *et al.* (1994).



Figure 3. Ermellinata di Rovigo chicken.

Table 2. Traits of Veneto chicken breeds (Veneto Agricultural Agency, 2004).

Trait	Breed				
	Robusta Maculata	Robusta Lionata	Ermellinata di Rovigo	Pépoi	Padovana
Age of sexual maturity (months)	5-7	5-7	5-7	5-6	5-7
Adult female body weight (kg)	2.8-3.3	2.8-3.3	2.2-2.6	1.0-1.1	1.5-2.0
Adult male body weight (kg)	4.0-4.5	4.0-4.5	3.0-3.5	1.3-1.5	1.8-2.3
Egg production	150-160	160-170	150-160	160-180	120-130
Egg weight (g)	55-60	55-60	55-60	40-45	50-60
Egg colour	Rose	Rose	Rose	Rose	White

Table 3. Average daily gains (g/d) of Robusta Maculata, Robusta Lionata, Ermellinata di Rovigo and Pépoi chickens of each sex.

Breeds	Number of observation	Average daily gain (g/d)	
		Female	Male
Robusta Maculata	20	13.8	18.4
Robusta Lionata	20	10.7	16.0
Ermellinata di Rovigo	28	11.6	15.7
Pépoi	26	5.6	8.7



Figure 4. Pépoi chicken.