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E-mail address of the author : roberto.tocci@unifi.it

Morphological characterization of traditional maremmano horse

Tocci, R.¹, Sargentini, C.¹, Ciani, F.², Benedettini, A.³, Lorenzini, G.¹, Martini, A.¹ and Giorgetti, A.¹

¹Università di Firenze, Scienze zootecniche, via delle Cascine, 5, 50144 Firenze, Italy, ²Consdabi, Loc. Piano Cappelle, 82100 Benevento, Italy, ³Horse breeder, Loc. Poggio alle cavalle, 57028 Suvereto (Li), Italy; roberto.tocci@unifi.it

Corresponding Author: Roberto Tocci. Dipartimento di Scienze Zootecniche. Università di Firenze. Via delle Cascine 5, 50144 Firenze, Italy - Tel. +39 055 3288333 - Fax: +39 055 321216 - Email: roberto.tocci@unifi.it.

Abstract:

The traditional Maremmano horse, listed on the Registro Volontario Regionale delle risorse genetiche autoctone della Regione Lazio (L.R. n. 15 del 01/03/2000), is a Tuscan Latial equine population. At the origin of the breed contributed the Oriental horses, and larger north European equines. Within the end of XIX and the beginning of XX century the selection and the improvement of the breed began, through the introduction of British equines. The results of the improvement was an horse with good morphology united to the frugality of Maremmano. The modern and sport Maremmano has a genealogical book run by ANAM. But together with the improved breed survives a population of Traditional Maremmano, characterized by roman or moose nose, large and inclined croup with low tail junction; strong legs, often with feathering; wide and puissant hooves. The work aims the morphological characterization of the traditional Maremmano, considering a larger group in Grosseto province, and other individuals of Tuscan and Latial provinces. The biometrics are homogeneous among the farms; the measures and the body indices didn't show significant differences.

The biometrics of traditional Maremmano were: height at withers of 159 and 163 cm, chest circumference of 195,2 and 202 cm, cannon circumference of 21,4 and 23,5, FI of 28,5 and 30,7, DTI of 10,9 and 11,7, for adult females and males respectively. The morphological characteristics were: bay or black coat color, Roman head (43%), Roman nose (20%), moose nose (16%), straight profile (10%). The legs were strong with wide hooves and often showed the feathering (26%). 10% of population showed the whiskers, a feature not found in Registro Volontario, but known among the breed experts.

Introduction:

This work dealt with the biodiversity conservation through the morphological characterization of a Tuscan-Latial equine breed: the traditional Maremmano horse. This horse derives from the Maremma, an area on the borderline between Tuscany and Latium, that in the past was an unhealthy wetland; in this region during the centuries an equine population with similar morphology originated. The traditional maremmano horse has different ancestors; many horse breeds were introduced by the alloctonous peoples that lived in this area. At the base of the traditional Maremmano there were the Oriental, the Berber, the Spanish and the north European cold blood horses. The result of this crossbreed was a rustic, mesomorphic, with strong and brawny legs, Roman head or Roman nose, large and inclined croup, with black or bay coat color horse. To promote the improvement of Maremmano, at the end of 1800 and the beginning of 1900 British breeds were introduced. The new horses showed the rusticity and the frugality of the autocnous

horses and the better morphological characteristics of the British equines. During the last decades the typical Maremmano were slowly replaced with a modern and sport Maremmano, through the introduction of alloctonous breeds (Bonanzinga et al., 1992), but some Maremmano breeders choised to preserve the traditional equine. The aim of this work is the morphological characterization of the traditional Maremmano horse to promote the conservation of this breed.

Matherials and methods:

In this work 49 traditional Maremmano horses, reared in Tuscany and Latium, were measured. The equines derived from the provinces of Grosseto, Livorno and Rome. The biometrics of a representative breeding (18 horses) in province of Grosseto were compared with the biometrics of remaining equines. For every horse the following body measures were estimated: height at withers, chest and frontshank circumference. To evaluate the Frontal Index, the width and the length of the head were also estimated. The height at withers was measured using the hippometer and the body circumferences were measured by a tape measure. Two body index were calculated: the Frontal Index (FI), that is the result of the width of the head divided by the length of the head x 100, and the Dactyl Thoracic Index (DTI), that is the result of the frontshank circumference divided by girth circumference x 100 (Falaschini et al., 1967). The variation of the biometrics was estimated submitting data of equines to analysis of variance (SAS, 2002) following a linear model with the fixed effect of the geographical origin of the rearings (representative farm and remaining farms). The mean and the standard deviation of each measure of 40 females and 3 males were estimated. Percentage, frequency of different physical characteristics, including coat color, physical conformation, head characters, were also calculated.

Results and conclusions:

The main biometric data of the traditional maremmano horses reared in one of the most representative farms were compared with the biometric data of equines reared in the remaing Tuscan-Latial farms (Table 1). This comparison was important to check the morphological uniformity of the actual population. The results didn't show significant variation between the two groups. The horses reared in the representative farm seem larger than the other equines. The reason of this results is the strong improvement and selection carried out by the sample farm; the morphology of the horses is homogeneous and the individuals are selected for saddle. The Dactyl-Thoracic Index showed a dolico-mesomorphic horse (anacaitpr, 2009) , and the IF showed a quite regular head but slightly long (Cugnini et.al, 1947).

Tab. 1: Comparison between a representative farm and other farms

Measures (cm)	n.	Representative farm	Other farms	DSR	Sign.
Height at withers	13	163,0	157,8	8,84	n.s.
Chest circumference	13	205,0	194,3	4,63	n.s
Cannon circumference	13	22,0	21,1	1,50	n.s.
FI	13	29,3	28,5	3,67	n.s.
IDT	13	10,7	10,9	0,63	n.s.

In table 2 the biometrics of adult females and males are shown; the measures meeted the standard breed of the "Registro Volontario Regionale delle risorse genetiche autoctone di interesse agrario a rischio di erosione" (Arsial, 2009). The females and males of traditional Maremmano horse showed a developed chest circumference, that engenders the endurance ability. The Dactyl-Thoracic Index showed a meso-dolicomorphic type. The cannon is strong and developed and the circumference is

larger than the mean cannon circumference of typical meso-dolichomorphic equines (Catalano, 1984). The Frontal Index showed a long head, especially in females; this is a feature of the breed.

Tab. 2: Measures and body indexes of adult females and males

Measures (cm)	Females	n.	Males	n.
Height at withers	159,0±4,0	38	163,0±4,58	3
Chest circumference	195,2±8,2	15	202,0±24,27	2
Cannon circumference	21,4±1,2	28	23,5±7,0	2
FI	28,5±3,5	15	30,7±0,8	2
DTI	10,9±0,6	13	11,7±1,07	2

In table 3 the main morphological features of adult females and males of traditional Maremmano horse are shown. The main coat color are the black and bay; these colours are typical of Mediterranean horses that derive from the Mediterranean area. In the past there were also grey or chestnut equines. Feathering and whiskers are peculiarities of this breed. These features were probably transmitted by the north European cold blood horses. The low or medium tail junction is typical of western horses; 16% of horses showed high tail junction, a feature of Oriental and British equines that were introduced in the Maremmano population to improve the breed starting from the end of 1800. The head profile is typical of the Roman horse that lived in the Mediterranean area. This equine had a northern African ancestor, the Berber (Ciani, 2002). The straight profile, typical of British horses, represents the 10 % of population. The low and medium withers met the standard of the breed.

Tab. 3: Main features of adult females and males

Main features	n.	%
Black coat colour	26	55
Bay coat colour	23	45
feathering	12	26
whiskers	4	10
Low tail junction	15	30
Medium tail junction	26	53
High tail junction	8	16
Roman head	21	43
Roman nose	9	20
Moose nose	8	16
Straight profile	5	10
Profile head no available data	6	12
Low withers	16	32
Medium withers	27	55
High withers	6	12

This work showed that the traditional Maremmano population was with uniform morphology and the morphological characters met the standard of the breed. The conservation process of the breed is now in the initial stages and in the future will be very important to deepen the knowledge of this horse. New and update census and new measurements on the horse population will be done. A selection of typical traditional Maremmano horse, following the breed standard description, will be performed. Is very important the preservation of this breed because in the last years the Maremmano was selected and improved with alloctonuos genotypes and this equine partially lost its identity. The identity of this equine is tightly connected with its environment; a very hard territory that engendered the rusticity and the frugality of the breed. The traditional Maremmano horse is

also tightly connected with the inhabitants of this area, that in the past used this equine especially for cattle management. The morphological characterization and the genealogical study of traditional Maremmano are useful to know the future of the breed and its suitable aptitudes. The valorisation of the breed can also give prestige to the territory of origin of this horse.

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