

CERTIFICATION OF MAREMMA BOVINE MEAT

Fagiolo A., Grifoni G., Roncoroni C.

Istituto Zooprofilattico Sperimentale delle Regioni Lazio e Toscana, V. Appia Nuova 1411, 00187 Roma

Background

The Maremma bovine is the most typical representative of the Macrocerro steppe bovine, the so said *bos silvestris* described by Plinius in his "natural history", and which would most probably be crossbred with Podolic bovine which appeared in Italy due to the Barbaric invasions, thus giving origin to the "Maremmana" breed. For centuries the said breed could be found in inhospitable and barren surroundings such as mountains, hills, marshes and malarial regions such as tuscan and latium "Maremma" so that a natural selection happened through the elimination of the weakest subjects consequently unable to adapt to harsh life conditions. From those areas, reproductive subjects were afterward exported throughout various regions in Italy and abroad. During the period following the second world war which was characterized by intense agricultural mechanization as well as agrarian reforms, the Maremma livestock recorded a conspicuous numerical decrease. On the whole the negative impact of substitution crossbreeding is to be stressed. Such breeding method which aimed at obtaining more productive and precocious subjects consequently contributed to further reduce the number of thoroughbred. Notwithstanding the above, the interest towards the "Maremmano" bovine is increasing and its perfect integrating into the environment which characterized his development and diffusion throughout time can be witnessed again; some areas where it was previously unknown are now being populated. The breed is actually present throughout Grosseto, Viterbo, Roma, Terni, Latina, Pisa, Livorno and Arezzo provinces. However the interest for the Maremma cattle has lately been increasing among South Italian and foreign breeders, especially as regards Spanish and Central Americans who perceive in the rusticity of this breed the possibility of exploiting their own difficult environment, the latter being possible due to the following characteristics of the animals:

- unquestionable maternal aptitude (easy implementation of calving and placenta expelling; correct conformation of the mammary gland and teats and good milk production)
- longevity (correct limbs and hooves, good quality of bones, harmonious movements)
- excellent adaptation to extensive or semi-extensive breeding (skin elasticity, good sebaceous secretion and cutaneous muscles activity do help in ectoparasites defense)
- survival possibility with poor and discontinuous fodder resources typical of Mediterranean climate (the huge horns help the animal proceeding through the most luxurious vegetation and the high abdominal capacity allows low digestibility food intake)
- capacity of producing good quality meat even if under difficult conditions (good muscle development of neck, shoulder, withers, back, loin, breast, chest, rump, haunch and buttock).

The ANABIC (Italian bovine meat breeders National Association) are presently dealing with selection. Since 1986 the breed standard has started to gradually neglect the external beauty concept in favour of that of functional beauty. Morphological characteristics connected to meat production and reproductive functions are more and more taken into consideration so as to meet the market requirements.

Objectives

The intent is to improve Maremma bovine breeding due to the positive impacts it has at food, socio-economical and environmental level:

- improvement of the activity of breeders operating in areas where zootechny is not so evidently applicable giving a new vigour to the economy of marginal and mountain areas. This would also be possible in the areas with naturalistic restrictions. In fact not only is breeding of Maremma cattle compatible with the maintainance of park environment but it also helps maintaining landscape and natural balances. It is to be stressed on the other hand that the Maremma bovine meat is already listed among the Latium Region traditional products, the only problem would be then to give an official asset to a position already gained.
- Meeting all requirements of the modern demanding consumer:
 - Lean meat with special nutritional and extranutritional characteristics (antitumoral, antioxidant, immunostimulant and low in cholesterol the fat; improving GH and serotonin secretions that are connected to growth, satiety and peace sensations the proteins; antioxidant activity due to vitamins, most of all to the E one, and finally highly assimilable minerals); Breeding in uncontaminated environments where no chemical fertilizer for fodder production are used and pollution is absent due to the fact that industrial and urban centres are at a considerable distance;
 - Respect of animal welfare, little use of industrial products in feeding animals and minimal use of medicines;
 - Greatest transparency along the whole production line due to the fact that the breed is a local one.
- Improvement of production of meadows and pastures in territories which are not easy to be cultivated thanks to the natural grazing capacity of this bovine. Safeguarding of environment through the control of spontaneous plant development preventing from risks of summer wildfires. Positive impact on the environment pollution also due to a minor use of medicines.

Last but not least the intent is to maintain the purity of the breed which is unique for its characteristics of rusticity as well as adaptation to the environment. Its survival is more and more threatened by the crossbreeding whose immediate result is to increase productivity but in the end reduces the number of pure-bred subjects and consequently the genetic variability of the population.

Methods

The qualification of a product, in accordance to the (CE) 1760/2000 law regarding labelling of bovine meat and meat-made products, goes through the approval by MiPAF of a production protocol; this allows to provide the compulsory label with further informations such as breed, category or genetic type, breeding techniques, type of feeding and so on which precise some characteristics of the product. The optional labelling aims in fact at the definition of the quality of the product and can be used as a real guarantee of a special or localized process so that an easy identification is possible for the consumer.

To this end a production protocol proposal was written down regarding the Maremma bovine meat where all the important processing steps of this product are described.

Results and discussion

-Environment and breeding system: located in marginal areas where it is difficult or impossible to economically implement other zootechnic or agronomic activities. The breeding system is totally extensive: the animals live all over the year in the open air using the spontaneous vegetal productions. The animals are confronted with difficult climatic conditions which they overcome thanks to their morphologic characteristics (extremity dark skin which is particularly useful under violent sun irradiation; big dewlap which is quite useful for

thermoregulation under high temperature conditions) and also thanks to the behavioural strategies (changing pasture level and recover under the bushes). Anyway for any environmental or climatic reasons suitable shelters could be provided for according to the number of subjects liable to meet their physiological and ethologic requirements. At the end of winter and the beginning of spring, period when deliverings take place, the animals are confined in paddocks where the bushes shelter them from bad weather. The animals have access to trees and bushes and the food integration generally consists in hay. Less frequently concentrates are used especially in the fattening period. At the beginning of spring the animals use either spontaneous or sown pasture, and the important spring fodder production allows good milking of calves. Afterwards, from the month of May on, the animals move to the mountain and then, after hay cutting and the crops, even the cultivated areas are left to become pastures. These are nutrition resources for the Maremma cattle until mid-summer, when the grass production decrease causes food integration to be organised.

This is an extremely simple breeding system that allows, with a minimum investment as regards structures as well as labour, to exploit difficult areas without having as a consequence excessive quantities of manure, whose impact on environment as well as on animal health is most significant particularly for the diffusion and persisting of endoparasites. It is said extensive breeding as the number of subjects per surface unit is to be proportioned to plant production, so as to avoid damaging of pastures and limit any kind of pollution of water and soil. Calves are parted from adults at the beginning of winter so as to allow their mothers to meet the increasing nutritional requirements related to the last phases of pregnancy and to regain the physiological reserves necessary to maintain the next lactation. The fattening period is carried out in paddocks with a richer proteinic and energetic feeding.

-Sanitary check ups: scarcely applicable due to the problems of approaching animals in such a breeding system. Their rusticity makes animals quite resistant to infectious and parasitic illnesses such as Tuberculosis and Pyroplasmosis. All breedings in accordance to the Italian D.L.vo n° 196 dated 22 of May 1999, must be free from any illness considered by the state prophylaxis: LEB, tuberculosis and brucellosis, the latter being particularly important as being zoonosis. If this breedings were introduced in a region certification system the sanitary authority controls would be further eased.

Wherever pasture is the main feeding source for the animals, parasitic diseases are to be compulsory and regularly checked by means of a parasitic exam of faeces. In case high level of contamination were detected, suitable antiparasitic treatments are to be provided for, according to the kind of parasite as well as to the environmental conditions and if necessary the intervention can be limited to the group concerned whenever these animals can be separated from the others. A treatment can be particularly envisaged:

1. Against the particular type of parasite and the productive category concerned;
2. Carried out in dedicated paddocks to be then risanitized by the only application of green manure system in order to limit the spreading of antiparasitic products on the soil as well as contamination of meadows and pastures.
3. In the most adequate season taking into account the parasitic cycle, possibly in the middle of summer in so as the climatic conditions such as humidity, temperature and sun radiation, can help reducing the contamination.

-Animals feeding: calves are naturally milked by their mother up to the weaning. In a following step feeding consists in fresh or dried fodders coming from natural and artificial meadows. In the fattening period crushed or flaked cereals are used as well as vitamins and minerals.

-Slaughter: the slaughterhouses are in the production areas. This characteristic of local product is a guarantee for the consumer on the origin of the meat and on the respect of animal welfare during road trips.

-Butcher's shops: no selling of Maremma bovine meat exclusively as the breeding system does not allow a restocking constant of the market because the production being a seasonal one.

Conclusions

This breed peculiarities explain the exigency of labelling the "Maremma" bovine meat in accordance with a protocol which outlines the breeding characteristics of the "Maremma" breed subjects listed in the "Libro Genealogico".

The protocol will evidence the typical area production, as well as the positive aspects in order to inform the consumer through the optional labelling as well as posters to be exhibited in the selling points, and will suggest the controls to be adequately carried out in the critical points of production.

Introducing "Maremma" bovine meat among the high commercial value products will give a new socio-economical impulse to the marginal areas. In the end the protocol will allow to underline the undiscussed value of this breeding system as for the safeguard of the balance between plants and animals maintained throughout the centuries and for the maintenance of the animal biodiversity. The certification mark will allow the consumer to identify this product of undiscussed quality.