

CATTLE BREEDING AND TERRITORY: A SURVEY ON THE MAREMMANA BREED RAISED IN TUSCANY

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ABSTRACT: This study aims to highlight the importance of a cattle race native in an area of the territory of Tuscany. The Maremmana breed is a valuable breed raised in the pastures that stretch between southern Tuscany and northern Lazio. A sample of 12 farms was analyzed through direct interview, carried out at the farm. The farms surveyed implement organic farming, according to precise rules. The aspect that mostly catches in the interviews is that the only livestock activity is not sufficient for economic development of this rural area; in fact most of the farms perform multi-functional, practicing agritourism activities. In terms of remuneration of the factors of production used in animal husbandry it seems that especially farms with few animals require the integration of agricultural income with other business activities.

Keywords: Cattle Breeding, Marketing, Production Costs

Received 09 Jul. 2014
Accepted 19 Aug. 2014

ORIGINAL ARTICLE

INTRODUCTION

The cattle farms in Italy are numerous (about 15,000) with dimensions, as to the number of farm animals, very uneven from one area to another of the country and with different breeding facilities. There is a distinct difference between the farms of medium and large dimensions, which are able to respond adequately to business needs and to have adequate bargaining power relative to their customers, and the small farms, which have less impact on the beef market, both local and national. The organization of the farms in the area is very different; many farms coexist with a few other small and large structures industrial in nature, although in recent years the average size of businesses has grown. The ability to do business of small and medium-sized companies is often linked to the characteristics of the final product or race bred. With reference to the Italian breeds of cattle farms, it is evident that - alongside those imported, mainly from France - Italian breeds are of great value, such as the following: Chianina, Piemontese, Podolica, Marchigiana, Maremmana, etc. The protection of indigenous breeds is entrusted to two consortia: CCBI (Consortium of producers of fine Italian beef cattle) and Aras (Regional Association of breeders of alternative livestock and wild game). Tuscany is the second largest region for the raising of indigenous breeds; it slightly exceeds the Abruzzo region in terms of number of barns, but is well ahead in terms of overall number of livestock. The 630 barns in the Region, 90% of which breed the Chianina race, have an average dimension of 36 head of cattle. The farms that raise the breed Maremmana are present mainly in the western part of the region; unlike the Chianina, they are more concentrated in the east and have larger barns, reaching an average of 40 animals (Rama, 2008).

The Maremmana breed is a valuable breed raised in the pastures that stretch between southern Tuscany and northern Lazio, near the coastal provinces of Grosseto and Viterbo, in the heart of Maremma (The Maremma region is an extensive area of Italy bordering the Ligurian and Tyrrhenian Seas. It comprises part of southwestern Tuscany (provinces of Livorno and Grosseto), and part of northern Lazio (in the province of Viterbo and Rome on the border of the region). Cows and calves graze freely and are monitored and followed in their movement by cowboys. The grasses that grow on these soils are the favorite food of the animals and it is thanks to them that the beef has such taste and intense flavor (Giorgetti et al., 1996).

MATERIAL AND METHODS

A sample of 12 enterprises (Table 1) was analyzed through direct interview (The survey carried out is based on direct interactions with operators and privileged witnesses representative of the systems of supply and demand, open-ended interviews with both farmers both to operators of the phase transformation and distribution business (traditional butchers and direct sales outlets on the basis of a default form. Catering services, large retail businesses, buying groups were not involved.), carried out at the farm. The farms surveyed implement organic farming, according to precise rules.



Table 1 - Use of the land of surveyed farms (data in hectares)

no. Questionnaire	Natural pasture	Crop pastures	Forest	Forest grazing	Reforestation	Arable lands	Annual forage crops	Vineyard	Olive grove	Other	Total area
1	28,01	70,55	138,42	72,78	25,32	41,87	123,97	11,59	3,55	29,77	473,05
2	-	50	3,49	-	-	10	-	-	-	-	63,49
3	55	60	255	155	-	50	-	-	-	-	420
4	-	39,665	18,57	18,57	1,5	69,14	-	5,34	5,23	2,5	141,945
5	50	-	313	313	-	20	10	2	5	-	400
6	55	60	70	60	0	40	-	0,3	0,6	-	225,9
7	20	80	1100	600	-	400	-	3	6	-	1609
8	-	-	100	60	0	60	0	35	-	-	195
9	-	-	-	-	-	-	-	-	-	-	0
10	-	40	75	25	-	23	-	-	7	-	145
11	-	-	-	-	-	-	-	-	-	-	0
12	1074,2	125	225	30	-	534	400	-	-	0	2358,2
Total	1282,21	525,215	2298,48	1334,35	26,82	1248,01	533,97	57,23	27,38	32,3	6031,585

A distinctive feature of the companies is their geographical location; those located in low and midsize hills are in the province of Grosseto. Some of them have also the breeding of Maremma purebred horses. This type of farming method may be associated with the model of extensive farming in unconfined environment, pertinent to typical Italian breeds, through the cow-calf line, powered by grazing and other foods to get a final weight of 600-650 kg/ animal (Ansaloni et al., 2009; Rama, 2012). Organic farms follow regulatory criteria defined by the European Union through the EC Regulation 1804/99 and national level with the DM No. 91436 of August 4, 2000. At these farms, a kind of animal health management is practiced, a method designed to optimize the physical and behavioral health and welfare of the cattle herd. It includes the prevention, treatment and control of diseases and conditions affecting the herd, including the recording of illnesses, injuries, mortalities and medical treatments where appropriate.

The enterprises surveyed can be divided into two categories: those conducted directly by the farmer who also performs the manual and directive work (Farmers, ranchers, and other agricultural managers operate establishments that produce crops, livestock, and dairy products) and others with wage-workers, and also with workers on temporary contracts. An examination of the socio-economic conditions shows that the farmer has an average age of 40 years. Of the eleven entrepreneurs (and/or conductors), respondents only five have university degrees, five have a high school diploma; and one entrepreneur has only the title of junior high school. Always among the socio-economic aspects should be noted that eight out of eleven conductors say they have need of external technical assistance for the development of some agricultural operations. The number of employees varies with the size of farm and the availability of accommodation: it goes from a maximum of fourteen workers to a minimum of 1-2 (for example, when we are in the presence of the herd, but not of farmhouse).

An examination of the socio-economic data shows that the use of occasional workers is common on many farms, primarily used for harvesting grains, grapes, and olives. As for the present crop, extensive grazing and forest areas are predominant in terms of area used, from a minimum area of 63 hectares to a maximum of 2,000 hectares. The average datum, however, is just over 500 hectares. In terms of frequency (Table 1), the forest and arable land are present in 10 out of 12 companies. Inside the farm, there are barns, warehouses for storage of grain and other agricultural products, wine cellars, barns, farms, but some of these buildings have been renovated and are used as tourist accommodations in the farm. Agritourism has become more and more important in this area of Tuscany also because of the interest in it for its proximity to the sea.

RESULTS AND DISCUSSION

If we examine the context of the marketing of the final product (calves or beef) it should be noted that 8 out of 12 companies sell the beef directly after the slaughter of the calf in assorted pieces weighing between 5-10 kg (Table 2).

The meat is sold to restaurants, to cottages, and in some cases, is marketed in retail outlets. The average price is about 12 euro per kilo, the amount as the prices are variable and depend on the number of animals bred. Talking about the commercial aspects, we can see that the direct sale of live calves is not widespread, the sale of meat already processed or sold to other farms generally prevails; the price of live calves varies between 2 and 3.5 € per kg.

It may be interesting to consider how the appearance of the meat yields (an aspect often criticized as it compares to other more productive breeds) influences the economic performance of sales. If we consider a calf of twenty months, with an average weight of 500 kg and priced in live weight (based on the average prices shown in surveys by questionnaire) included, between 2.5 and 3.5 €/kg, we get a value per capita of 1250 and 1750 €. Slaughter with an average return of 58% we will get about 290 kg of meat, which is now calculated as a percentage of the value of the animal (1250-1750 Euro) allow us to obtain a price per kilo of meat produced between 4.3 and 6 €/kg. With the later stages of the processing of meat will get a higher price: 12.5 €/kg with the direct sale in the farm shop and 17 €/kg if the sale takes place at the butcher's counter.

An important feature that emerges from the interviews is that we are dealing with a kind of extensive (The extensive systems "tend to release the animals from the closely confined, highly controlled environments found in



intensive systems) cattle farming, which produces quality meat but needs enhancement. In fact, the market has not paid enough to meat producers; enhancement initiatives undertaken up to now have not been able to compensate for production costs, which, although lower than those of the productions of an intensive type, present a growing trend in recent years.

Table 2 - Marketing of meat and cattle.

n° Questionnaire	Beef sale	Quantity (kg)	€/kg	Beef Packet (€/kg)	Purchaser	Other products	Calves sale	Quantity (kg)	Quantity (n.)	€/kg *	Purchaser
1	no	-	-	-	-	-	yes	-	12	3	Breeder ; wholesale dealer
2	no	-	-	-	-	-	yes	35-40	-	2.5-3.0	Breeder; meat processing.
3	Yes	3000	-	15	Farmers; wholesale dealer; agritourism restaurant	-	no	-	-	-	-
4*	no	-	-	-	-	-	yes	-	-	1,5-2,0	Slaughter
5	Yes	6090	-	10	Farmers	-	no	-	-	-	-
6	Yes	-	9,5	12	Restaurants; farmers	sausage; cold pork	no	-	-	-	-
7	Yes	800	-	12	Restaurants; farmers	sausage; cold pork	-	-	0	-	-
8	Yes	75	-	12-15	Farmers	-	yes	1	2	3,5	Wholesale dealer
9	Yes	30 animals/year	6,00-1.,00	-	Final customer	-	-	-	-	-	-
10	no	-	-	-	-	-	yes	120	35	3.5 live weight; 4.5 dead weight	Slaughter
11	-	-	-	-	-	-	-	-	-	-	-
12	Yes	190	Sales at the farm store	Price varies according to the meat cutting	Sales at the farm store	-	-	-	-	4	-

In the sample of firms contacted, there is also the commercial activity (butcher with meat produced in Maremma). Criticisms are the low quality of meat traded in retail trade, where they often appear immature and there are cattle carcasses from animals that have suffered in the period prior to slaughter. These are conditions that are likely to compromise the work done in favor of the promotion of the quality of the meat.

As shown in Table 2, some farms sampled do the direct processing of meat and its subsequent marketing of the products obtained. In general, the processing of the meat is done once a week. Half-carcasses of beef and pork are divided into several commercial cuts, which in turn are vacuum packed and labeled, after which they can have different destinations; among these the most common are:

- Work and cooked in restaurants;
- Included in the cold refrigerator for agritourism guests and local customers;

Delivered in thermal Styrofoam containers under ice: this last destination is the most common. This meat has different characteristics depending on the farm from which it came. In Maremma breed, in order to facilitate the promotion and enhancement of this breed, some farms have signed a document called "Charter of Values" (Slow Food Presidium Breed Maremma). The proposed objectives are:

✓ Promoting development of farming systems that follow the method of organic farming in line with the role that the animal plays in the maintenance of the agro ecosystem (Modern agriculture implies the simplification of the structure of the environment over vast areas, replacing nature's diversity with a small number of cultivated plants and domesticated animals (Altieri, 1999).

✓ Increase and enhancement of farms breeding, always aware of the fact that this animal is the symbol of quality production;

✓ Action to protect "traditional crafts" and, in particular, that of the "buttero" (a cowboy riding in the meadows herding the cattle) who is a key figure in the development of this breed of cattle;

✓ Development and protection of the characteristics of these farms, which, unlike those in intensive production, ensure the welfare of animals.

✓ Carcasses and cuts of meat from cattle of the Maremma breed have the right balance of fats with a high incidence of long-chain fatty acids, also in series, excellent from the point of view of dietary and nutritional.

In addition, the meat produced is suitable for fast cooking dishes such as the classic "Bistecca Fiorentina", but also boiled and stewed traditional products, such as "couples" and bresaola.

Production cost

Beef cost production is generally calculated on the basis of technical and economic data collected from a sample of enterprises. For the calculation of the average cost of production, we considered all costs attributable to farming activities related to the net production in live weight kilograms. The costs were divided into explicit costs and calculated costs.

The explicit costs represent current cash expenditures and include the cost of purchasing the calf (open loop), the cost of wage labor, the costs of energy and fuel, costs incurred for veterinary health measures and other living expenses related to running the farm.

The calculated costs include (Table 3), in addition to the cost of family labor, interest on capital invested in the company and the depreciation expense of the capital invested. Their estimate is needed to make a full economic analysis of livestock.

It should be noted in this regard that several conditions may occur:

If the market price does not cover the explicit costs for cattle breeding, it is subject to significant risks and may not last long;

If the market price covers explicit costs for cattle breeding, it can continue, but it becomes difficult to make new investments;

If the market price covers the total cost of production, a long-term survival is sure.

Compared to the national average cost (Montanari et al., 2011), it appears that in 2010 the average total cost of breeding increased by 4%, from € 258.94 to € 269.93 per 100 kg of product. The increase is mainly due to grain prices and lower volumes of meat traded. In particular, the evolution of the corn market in 2010 resulted in a 7% increase in power costs, which rose to € 131.42 per 100 kg. The overall increase in average direct costs (€ 168.05/100 kg) is about 5%.

The farms that we have examined, present an average cost of breeding less than the typical cost of factory farming.

From the information obtained through interviews to the owners of the farms, we were not able to calculate an average cost of production of the meat of Maremma. We then proceeded to a parallel cost analysis within a single farm.

Table 3 shows the various phases of determining the cost (€/100 kg of meat), expressed in live weight. The power costs (both for the integration of pasture grasses, and for fattening calves) were calculated considering their market price. The consumption of feed and fodder are estimated with reference to the market price actually paid by the farmer. The companies buy supplies annually for fattening calves, cows and heifers.

Interest on land and buildings were valued at a rate of 2.2%, while capital advance was applied at a rate of interest equal to the average yield on 12-month Treasury bills, 1.2%. Interest on current expenditure has been calculated assuming an exposure period of six months. We have determined these values considering a depreciation rate of 3% for buildings and 12% for machinery, applied on 50% of their original value. The calculation of the cost of family labor is considered to be the hourly rate of fixed-term farm workers (Piani, 2012).

The total cost increases even more if you add the cost of cattle slaughtering and the costs for the transport and the subsequent distribution of the meat.

CONCLUSION

The analysis of the data collected showed that the Maremma represents an opportunity in economic terms: despite the low yield, good quality of meat is guaranteed. With the commercialization of a product as “fresh meat” (Marescotti et al., 2011), the market does not identify simply with the brand of the producer, but rather with the production area, the territory of the Maremma, while in the case of processed products the brand plays a marginal role.

In terms of remuneration of the factors of production used in animal husbandry, also based on the evidence collected in the questionnaires, it seems that especially farms with few animals require the integration of agricultural income with other business activities, such as agritourism. In many cases, this activity has been useful as well as an income supplement to aid the preservation of rural property irrevocably destined to decline after the end of sharecropping contracts, which were once very common in this area of Tuscany. The multi-functional activities represent opportunities for overcoming the technical and organizational difficulties that they incur, such as the promotion of sales among consumers who live in big cities.

It is therefore necessary to find some form of coordination between undertakings in this sector in order to provide a more effective and consistent positioning in the eyes of the consumer, even if the development processes undertaken to date need to be further strengthened by decisions of a technical and economic nature.

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Table 3 - Direct and indirect costs

Detailed cost	€/100 kg	Percentage
Feeding	85	61%
Fuel and energy	7,5	5%
Veterinary	6	4%
Other	20,55	15%
Direct costs	119,05	85%
Family labour	16,77	12%
worker labour	15	11%
Labour	31,77	23%
Depreciation machines	7	5%
Depreciation buldings	6	4%
Depreciations	13	9%
Capital interest	3,27	2%
Land interest	3,39	2%
Farm capital interest	1,03	1%
Passive interests	7,69	6%
Total cost	139,74	100%
CAP Subside	68,99	-



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