

# SYSTEMS OF PRODUCTION IN THE ITALIAN BEEF AND SHEEP INDUSTRY: PROSPECTS FOR EXTENSIVE SYSTEMS

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From an economic point of view, the process of extensification involves the reduction of capital and labour costs as well as making the best use of natural resources. Therefore capital and labour are partially replaced by the use of natural resource land. Thus with spontaneous production it is possible to achieve a level of labour productivity and income comparable to that of other activities. This type of system requires a series of changes in the inputs and an adaptation of the production processes to achieve a better technical and economic balance in the use of the production resources.

Quite apart from the ecological and environmental considerations related to intensive processes, the reasons for adopting such a system can be divided into two categories: the production costs, and production levels. For the first, the high costs of capital investment and labour make it essential for farm managers to limit their use wherever possible to reduce costs while at the same time maintaining the same production levels.

As regards the second, production surpluses involving high storage costs and prices fluctuations induce the farm manager to curb production and thereby reduce the use of production factors.

The extensive system is already used in some areas of Italy for rearing sheep and cattle. The returns on capital and labour can be increased by making use of land which is otherwise unproductive, often due to the climate or the nature of the soil. The expansion of this farming system does however require new production techniques involving structural and functional changes which include: use of capital, fodder and irrigation supplies, availability of and management of the land and rearing methods. Traditional and hardier breeds of cattle have

## Abstract

Around 64.6% of the beef/veal consumed in the country is domestic produce. It falls to 50% if the number of live animals imported from abroad is taken into consideration.

Looking at cattle breeding, in the last years there has been a decrease in all categories of animals with the notable exception of beef cows. The figures for the period between 1986 and 1993 show an overall 15% decrease in the number of cattle reared, while in the same period the number of beef cows increased by 69%. Despite this increase, the number of beef cows still remains small, 652,000 heads in 1993, which were 22% of cows and 9% of the total number of cattle.

The production of mutton and lamb increased by about 20% between 1986 and 1994 reaching 57,000 tons. Given the increase in consumption in recent years, the rate of self-sufficiency of mutton has still remained around 54%.

The limited availability of fodder, low rainfall and the characteristics of soil, found in most of hilly and mountain Italian Regions, make it hard to achieve satisfactory economic results. The prospects for breeding sheep and cattle through the extensive farming system with a low investment of capital and labour and ample use of land depend on the availability of land. An optimal combination of pasture and fallow land is needed for the production of hay thus ensuring a supply of animal fodder at reasonable prices and the best use of available capital. These conditions are however hard to find, due to difficulties involved in the system of land tenure, the current legislation on renting, the inefficiency of the cooperative system and high land prices which limit the possibilities of acquiring the necessary land to develop an economically viable extensive system.

## Résumé

Environ 64,6% de la viande de boeuf/veau consommée dans le pays est de production nationale. Elle tombe à 50% si on tient compte du nombre d'animaux vivants importés de l'étranger.

Ces dernières années on a assisté à une diminution de l'élevage bovin de plusieurs catégories d'animaux à l'exception des vaches allaitantes. Les chiffres pour la période 1986-1993 montrent une baisse globale de 15% du nombre de têtes de bétail élevées, tandis que dans la même période le nombre de vaches allaitantes a augmenté de 69%. Malgré cette augmentation, le nombre de vaches allaitantes reste quand même faible, 652.000 têtes en 1993 qui étaient 22% de vaches et 9% du nombre total de bovins.

La production de mouton et d'agneau a augmenté d'environ 20% entre 1986 et 1994 en atteignant 57.000 tonnes. Mais, compte tenu de l'accroissement de la consommation pendant ces dernières années, le taux d'auto-suffisance du mouton a resté autour de 54%.

La faible disponibilité de fourrage, les rares pluies et les caractéristiques du sol de la plupart des terres de colline et de montagne en Italie, ont rendu difficile l'obtention de résultats économiques satisfaisants. Les perspectives pour l'élevage ovin et bovin basé sur un système extensif à faible investissement de capital et de main d'oeuvre et un vaste emploi de terre sont liées à la disponibilité de la terre. Il faut disposer de la combinaison optimale du pâturage et de la jachère pour la production du foin et assurer ainsi une fourniture de fourrage animal à des prix raisonnables et avec la meilleure utilisation du capital. Ces conditions sont quand même rares à trouver à cause des difficultés implicites de la structure de la propriété foncière, de la législation actuelle sur le fermage, des défaillances du système coopératif et des prix élevés des terres, qui limitent les possibilités d'acquérir la terre nécessaire permettant de développer un système extensif économiquement viable.



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largely disappeared due to the reduction in their importance for both economic and structural reasons. This has made it hard for many cattle breeders to survive. Added to this there is a shortage of suitable land where extensive forage can be produced at acceptable costs and the problems of the land tenure system. So it is clear that there are a number of difficulties to be overcome if an extensive system is used to rear cattle and sheep in an efficient and cost effective way. Nevertheless there have been changes in the productive system over the last few years. There is public concern about the impact of agriculture on the environment, in terms of maintaining or increasing biodiversity, on landscape value and recreational use of land, on pollution and water quality and on animal welfare. This provides a glimpse of the possibilities offered by a different approach towards the use of productive resources, which can lead to an increase in the economic efficiency linked with forms of territorial integration and social and economic development.

## Beef production

The position of beef industry in Italy Today Italy produces about 902,000 tons of beef annually, higher than the figures for 1986 (table 1). There has therefore been a rise in internal production, due to the greater number of cattle sent to slaughter mainly as a result of the application of European Community regulations regarding the rearing of dairy cattle which establish limits on the milk quota. Another reason is the continuous increase in the weight of slaughtered animals. In fact the average weight of animals slaughtered over the last fifteen years has risen from 250 kg to 400 kg for animals. The change in the net weight per head of slaughtered cattle maintains high levels even with the variation in the corresponding number of cattle. This shows that the practice of keeping the animals alive as long as possible has become fairly common practice. The purpose of this is not so much to prolong their productive life, as to obtain an increase in weight and thereby a major return on the capital invested in breeding. The availability of beef in Italy strongly affected by the size of the imports. Around 64.6% of the beef/veal consumed in the country is domestic produce. Although this falls to 50% if the

number of live animals imported from abroad is taken into consideration. In fact about 1.5 million cattle are imported from main EU markets mainly from France. They are then reared, fattened, slaughtered and sold as meat. Consequently, more than 50% of the beef/veal consumed in Italy comes from abroad. The supply of imports has always been considerable, both of live cattle for rearing and slaughter and of fresh and frozen meat, and this weighs heavily on the deficit in the agricultural balance sheet. The meat industry has a deficit which has become chronic, the figure for 1994 was -495,000 tons. This was slightly better than in 1986 which recorded a drop of 11%. In terms of commercial value, the beef trade showed a loss of Lit. 4,224 billion. This is the most significant figure in the Italian agriculture/food industry and constitutes 40% of the relative deficit.

However, imports generally decreased between 1986 and 1994. This was largely due to the fall in the value of the lira which increased the cost of importing both live animals and meat. This dis-

couraged people from buying imported meat although it did not produce a corresponding advantage in terms of exports. Since this product is not considered representative of the Italian production system.

A significant change can be seen in the nature of imports over the years. Until the beginning of the 1980s the percentage of live cattle imported was greater than that of fresh and frozen meat. Now the latter represents about 60% of total imports while cattle account for about 38% (table 2).

This demonstrates a tendency towards a relatively greater interest in downstream phases of the meat system, where the meat processing industries and modern distribution, both undergoing rapid expansion, intervene directly on the market. The sector upstream of breeding, although still important, has become relatively less important.

As regards the imported live cattle, these can be divided into two distinct categories: the animals for slaughter (14%), to satisfy the demands of the slaughterhouses and the meat industry, and the

**Table 1 Italian supply balance of beef/veal and sheepmeat (1986-1994)** (carcass weight in 000 tonnes).

	Beef/veal			Sheepmeat		
	1986 000 tonnes	1994 000 tonnes	1986-94 Change %	1986 000 tonnes	1994 000 tonnes	1986-94 Change %
Gross internal production	889	902	1.46	47	57	21.27
Imports	733	616	-15.96	37	50	35.13
Available production	1,622	1,518	-6.41	84	107	27.38
Exports	137	121	-11.68	0	0	-
Internal use	1,462	1,397	-4.44	84	107	27.38
Gross consumption (Kg/head/year)	25.5	24.6	-3.53	1.8	2	11.11
Self-sufficiency rate (%)	60.8	64.6	6.25	56	53	-5.35
Commercial balance	-596	-495	-16.94	-37	-50	35.13

Source: Istat.

**Table 2 Live animals and beef imports.**

1993	Head	Value (Millions liras)	Value %
Pure-bred breeding animals	34,895	67,054	1.45
Stock animals	1,306,605	1,345,918	29.11
of which cattle > 300 Kg	893,596	593,023	12.82
Animals for slaughter	213,404	345,152	7.46
Total live animals	1,554,904	1,758,124	38.03
	<b>000 Tonnes</b>		
Fresh meat	373	2,639,789	57.09
Frozen meat	31.6	145,442	3.14
Prepared and preserved meat	13.1	79,954	1.73
Total		4,623,309	100

Source: Istat.

stock animals (84%) used for fattening and of interest to the breeders. It can also be noted that the weight/head of the livestock imported for breeders has increased constantly over the years. This reflects the fact that the breeders in the exporting countries try to prolong the production cycle to achieve a major meat transformation value. Furthermore these countries have been hit by the effects of limits on milk production and the consequent reduction in the number of calves born. It is also true that Italian breeders run fewer risks linked with the transport and weaning of calves that are too young.

In Italy, the demand for beef is almost stable at about 25 kg per year per capita. Over the last few years there has been an increase in meat consumption as a whole, but whereas the demand for beef has remained stable, the demand for fowl and rabbits and pork has increased.

At present, out of the entire demand for meat beef accounts for around 27%, pork approximately 36%, mutton 2% and fowl and rabbits 31%. When considering total food consumption beef accounts for 10% of the family food bill.

#### Land use and production structures

Cattle breeding in Italy is concentrated mainly in the north. Piedmont, Veneto, Emilia Romagna and Lombardy held about 62% of the cattle and about 63% of the beef produced in Italy. If a comparison is made between the production in the lowlands and that in the highlands it can be seen that 17% is produced in the mountain areas, 29% in the hills, and 54% in the plains (**table 3**).

While the distribution of farms is 31% in the mountains, 41% in the hills and 27% in the plains. These figures illustrate that the greatest number of cattle is held in the plains where the type of farming is intensive. In fact if the number of ani-

mals (Livestock Unit) per hectare of utilized forage area is calculated it can be seen that in the plains this is 3.8 while in the hills it is 0.74 and in the mountains 0.41. This illustrates the different system of production and breeding and therefore a difference in the use of fodder producing land between the lowlands and highlands. In the plains, apart from the breeding of milk cows, meat production consists of a specialised and industrialised system of fattening calves. This is mainly concentrated in the Lombardy, Veneto, Friuli Venezia Giulia and Emilia Romagna regions where there is a high production of animal foodstuffs particularly corn.

In other areas where such fodder is less available, an industrial system is more difficult to implement, the farms are generally smaller with fewer head of cattle and tend towards an extensive farming system. Looking at cattle breeding and rearing as a whole there has been a decrease both in the number of cattle and the number of holders. The figures from the 1982 and 1990 censuses show a 10% reduction in the number of cattle and a 36% reduction in the number of holders. The reduction in cattle rearing has been even more pronounced in the lowlands where the number of farms has fallen by 40% and the number of cattle by 11%. There has been a smaller decrease in the mountains with a fall of 31% in the number of holders and 4.8% in the number of cattle. The hills however have shown a relatively higher decrease in the number of cattle of around 12% and a 36% drop in the number of holders.

The prospects of the EU milk quotas as well as the increasing competition in milk and meat production have led to a change in the production system favouring larger and, relatively, more industrialised farms, while the smaller and more marginal ones have been eliminated. In the lowland areas where the climate and agricultural conditions provide a wide range of production and economic alter-

natives the reduction in the cattle breeding has been more marked. This has particularly affected the smaller family-run farms. On the other hand, in the mountains where there has also been a decrease in the number of farms the number of animals on each farm has generally remained stable. This development has meant a growth in the size of herds where the average number of cattle per farm has increased from 17 in 1982 to 24 in 1990.

The same pattern can be seen for fodder-producing land where there was also a reduction in the period between the two censuses. The amount of grazing land and pastures decreased by 9% while land used to grow animal fodder in rotation decreased by 10%. Here again, the reduction is more marked in the plains and less in the mountain, a trend directly linked to the reduction in the number of cattle.

The figures for herd size class per holder indicate that over 70% of holders have less than 20 head of cattle which represent about 20% of the total number of cattle, whereas 60% of cattle are reared in 10% of farms. The same pattern emerges when for farm size class in hectares of utilized agricultural area: 65% of farms have less than 10% of the utilized agricultural area and rear about 30% of all cattle. Whereas 15% of farms have more than 20 hectares of arable land and rear about 45% of all cattle (**figures 1 and 2**). Another interesting aspect, linked with technological innovation and new types of organisation in cattle breeding, is the age of the breeders. A survey of specialised beef cattle and mixed cattle breeders carried out by ISTAT revealed that 52% of breeders were over 55 years old and that their standard gross value-added accounted for about 45% of the total. There is therefore quite a high number of relatively old producers with little chance of being replaced by a younger generation, and a relatively low income (**figure 3**).

**Table 3 Number of holders and head of cattle at different altitudes.**

	Holders 1990 %	Animals 1990 %	Average herd size (animals)	Holders 1982-90 Change %	Animals 1982-90 Change %	LU/Ha forage area 1990	Permanent grassland+pasture 1982-90 Change %	Green Fodder 1982-92 Change %
Mountain	31.5	17.45	13.4	-31.47	-4.87	0.41	-7.06	-1.36
Hill	41.4	29.06	17.0	-36.72	-12.65	0.74	-9.65	-7.58
Plain	27.1	53.49	47.9	-40.02	-11.34	3.80	-14.93	-16.46
Total	319,566	7,759,059	24.3	-36.13	-10.67	1.20	-8.71	-9.62

Source: Agricultural census.



Technical and economic aspects of production systems

The contraction in cattle breeding has been apparent in all categories of animal with the notable exception of

beef cows.

In fact the figures for the period between 1986 and 1993 show an overall decrease of 15% in the number of cattle reared, while in the same period the number of

beef cows increased by 69%. Despite this increase the number of beef cows still remains small 652,000 head in 1993 which was 22% of cows and 9% of the total number of cattle (table 4).

This reflects a growing tendency, towards a much more specialised system of animal production which favours the large size farms with more livestock, where agronomic and soil conditions are favorable, and tends to eliminate the smaller farms. The EU premium schemes for suckling cows has persuaded many farms to continue production or to convert from breeding cows for milk to breeding cows for meat.

The number of heifers decreased between 1986 and 1993 by 34% and milk cows decreased by 24%. The fixing of quotas by the EU has reduced the number of cows involved in dairy production. Another significant factor is the reduction in the number of young cattle between 1 and 2 years old especially males which are those bred for fattening. This is confirmed by the reduction in the number of calves imported from abroad for fattening and the fall in the number of farms which are engaged in this type of activity.

Consequently it seems that there has been a reduction in the breeding of bullocks, where calves weighing 250-300 kg are fattened up to at least 600 kg in one year. This is the result of an increase in breeding costs, and especially that of calves to be fattened mainly imported from abroad. Another factor has been that the production of silo-corn, which is the most important source of animal fodder, has become much less cost effective. Because of its highly specialised nature, the breeding of calves for fattening is an innovative and standardized process which requires a low level of labour and management.

The intensive rearing of bullocks no longer depends on the availability of land. Once the problem of disposing with organic waste has been dealt with, animals can be fed without occupying large quantities of land, often using by-products obtained from the transformation of sugar-beet and other low cost food. To ensure an efficient organisation and benefit from economies of scale making breeding profitable an average farm will have 600-700 animals, this reduces fixed costs and makes it possible to have high productivity of labour. This type of rearing is supported by a fairly efficient farm organisation based on contracts between the breeder and the slaughterer-distributor which reduce the

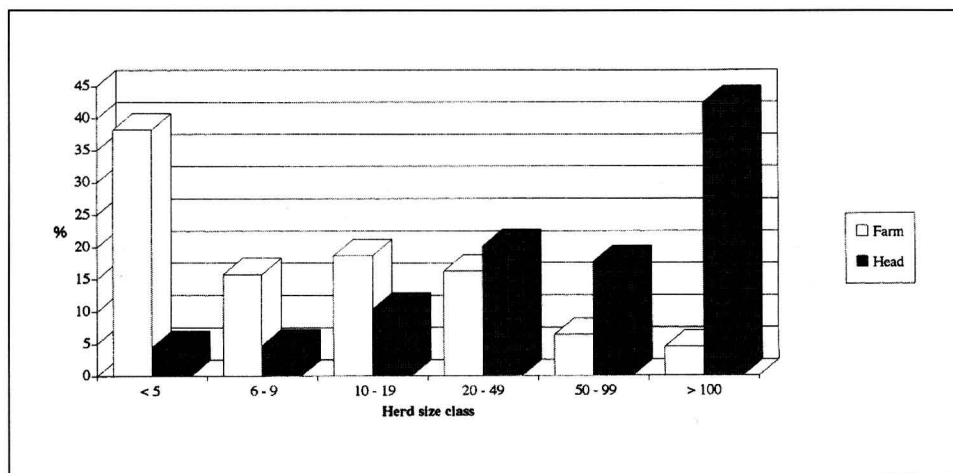


Figure 1 - Distribution of farm and head of cattle according to herd size class.

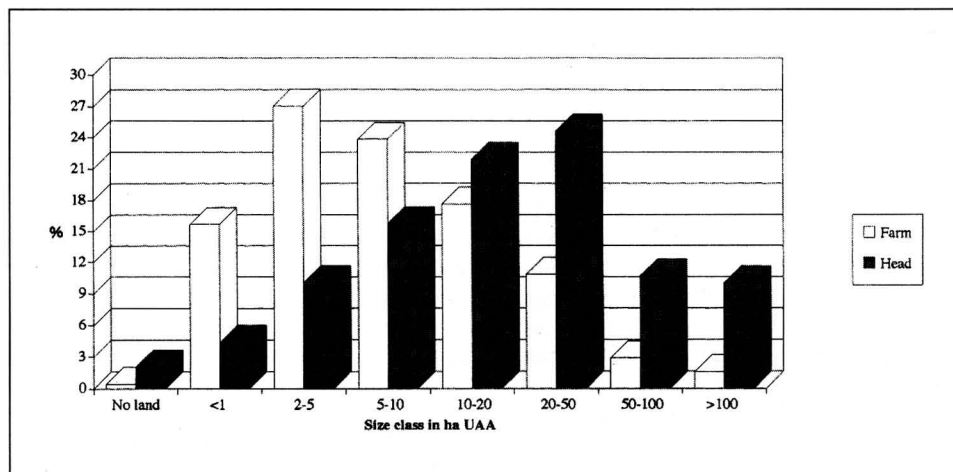


Figure 2 - Distribution of farm and head of cattle according to farm size class (Ha UAA).

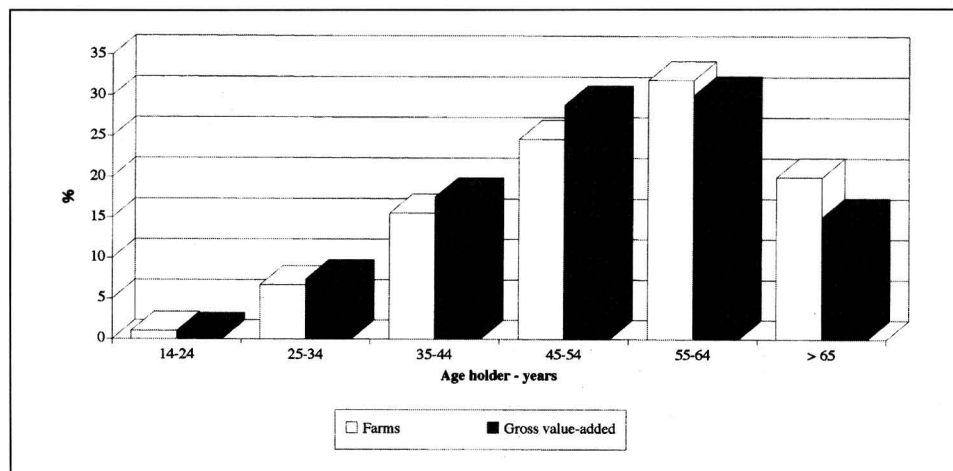


Figure 3 - Distribution of specialized and mixed beef farms and standard gross value-added according to age of holders.

**Table 4 Cattle numbers according to category.**

	1986 000 head	1993 000 head	1986-93 Change %
Animals under 1 year old	2,534	2,402	- 5.20
– of which females	1,152	995	- 13.62
Animals 1 year old but under 2	2,055	1,628	- 20.29
– of which females	978	973	- 0.51
Animals 2 years old and over	4,231	3,474	- 17.87
– of which:			
heifers*	654	427	- 34.70
dairy cows	3,021	2,277	- 24.62
beef cows	384	652	69.79
<b>Total</b>	<b>8,819</b>	<b>7,514</b>	<b>- 17.79</b>

Source: Istat.  
\* Only for replacement.

costs of production and marketing. Beef cattle breeding in the mountains and hills adopts an extensive system making use of meadows and pastures. This form of breeding is not very widespread despite the fact that two thirds of Italy is mountains and hills. Due to the unfavourable climate and terrain in most of the Apennine region, extensive farming whether outdoor or partly outdoor is not economically viable. In fact most of the pasture land in the hills and mountains is not only inaccessible in autumn and winter, it is also very dry during the summer. Consequently, pasture can only be used for a period of about five-six months, except in some areas of Lazio and Tuscany. For the rest of the year the animals have to be kept in the barn and fed using other farm and non-farm fodder resources. The size of the herd does not therefore just depend on the availability of grazing land but also on the productivity of that pasture and on the ratio between the pasture and land which can be cultivated with fodder crops to feed the animals when in the barn. Feeding is therefore a crucial element in extensive farming. This has led to research into the best conditions under which a balance can be found between the use of natural resources and satisfying the dietary needs of the animals to obtain the yield required. The climate and the condition of the land are inappropriate for a satisfactory use of pasture. The best balance would appear to be pasture which is suitable for half the year together with land which can be cultivated for fodder. The right balance between these is essential for the adequate maintenance of the herd and good economic results. For these reasons the number of cattle per hectare remains low

about 0.6-0.8 per hectare, including feed supplied from outside the farm. The amount of labour involved is about one unit of labour to 40-60 animals, under these circumstances it is difficult to cover costs.

Under the extensive system the cow-calf enterprise does not seem to be economically viable. Feeding costs are about 40-50% of the total production value and there is a high cost of labour, approximately 40-45% of the production value. Added to this there are the costs of enclosing the land and stabling the animals. In an extensive system these costs should be minimal. But the nature of the terrain and structural problems involved in using the land do not always favour the quick and easy performance of the cultivation operations or the procurement of the farm supplies thus increasing the production costs.

Given the low productivity of the land extensive farming does not therefore always allow a sufficient reduction in capital investment and labour costs to guarantee an adequate productivity and a satisfactory income. In some cases, in view of the large amount of feed required and not produced on the farm and the availability of arable land in the valleys often the breeding of native calves with intensive system is more convenient. The calves are fattened in the stall. In these cases the higher food conversion index and the greater value-added make it possible to offset the costs and produce a satisfactory income.

It is worth noting that a part of beef production comes from the rearing of milk cattle. In these cases the production of beef comes from thousands of small dairy farms where beef production is a secondary and almost marginal activity. These contribute on the whole to a lim-

ited share of that available. Particularly worth noting is the production of veal in the Lombardy and Veneto regions, reared on liquids, milk and milk substitutes until they weigh 200 kg, in response to consumer demand and providing good financial returns.

## Sheep production

The position of sheep industry in Italy

The production of mutton and lamb increased by about 20% between 1986 and 1994 reaching 57,000 tons. But, given the increase in consumption in recent years, the rate of self-sufficiency of mutton has remained around 54%. Meat imports have increased, while those of live sheep have remained stable. In this section of the market meat accounts for 50% of total imports the other 50% being live animals. The latter are almost exclusively for slaughter, on average about 1,5 million head. About 65-75% of sheep slaughtered are born and bred in Italy the rest are imported from abroad. More than 50% of these animals are lambs. There has in fact been an increase in the consumption of lamb in recent years in line with the average rise in incomes.

### Sheep flock size and structures

Sheep breeding, where the animals are hardier and more adaptable, is a more appropriate system for making use of more difficult areas in the hills and mountains. In fact 39% of farms with 28% of sheep are found in the mountains, 55% of farms rearing 58% of sheep in the hills and 6% of farms with 15% of sheep in the plains (**table 5**). Between the two censuses the number of farms fell by about 7.4% especially in the plains. In contrast the number of sheep bred during the same period rose by 29% overall and by 35% in the hills. The increase in the number of sheep, still rising today, reflects an increase in consumption at home and abroad of products derived from sheep and goats, in particular cheeses.

The average number of sheep per farm is 54. An examination of the distribution of farms and the relative number of sheep per flock size class reveals that a large number of farms are very small. In this case, the decision to breed sheep usually arises from the need to earn a modest living, or integrate other farming activities, rather than as a response to commercial demand. In fact 76% of

**Table 5** Number of holders and head of sheep at different altitudes.

	Holders 1990 %	Animals 1990 %	Average herd size (animals)	Holders 1982-90 Change %	Animals 1982-90 Change %
Mountain	38.63	28.54	40	- 5.00	19.320
Hill	55.20	56.31	55	- 8.36	35.50
Plain	6.16	15.25	132	- 13.54	29.03
Total	163,160	8,729,253	54	- 7.44	29.40

Source: Agricultural census.

farms possess less than 50 head of sheep. Only 15% of farms have between 100 and 500 head of sheep and provide 55% of the total (figure 4). Most sheep breeding takes place in the central and southern Italy, with Sardinia, Sicily, Lazio, Tuscany, Abruzzo and Apulia together accounting for 80%.

#### Technical and economic aspects of production systems

Sheep breeding is mainly based on the use of grazing land or pasture, although in recent years the practice of supplementing grass from pasture with concentrated feed and forage crops has become more widespread especially in periods when grass is scarce. This is the most widespread system of sheep rearing, the sheep are semi-nomadic, although there is a gradual tendency towards keeping them in one place. In most cases the sheep are reared on farms consisting of small scattered plots of land at a distance from each other rather than being concentrated in one place. In these cases there is no real farm just a collection of plots of land linked more or less casually under one owner.

Taking Sardinia as the most typical example, the average concentration of

sheep is 3-5/year for each hectare of pasture. The average size of farm land is about 30-60 hectares, part of it is owned and part is rented and part is common land for public use.

The amount of fallow land available for the production of hay is an important factor, in increasing the productivity and income of the farm. On average, taking into account the fact that most milking is still done by hand, these small farms have about 100-120 sheep for each unit of labour. As a result of this, especially where sheep are reared entirely on pasture, productivity is generally quite low. In order to guarantee an income which is sufficient to cover production costs flocks have to consist of at least 300-500 head of sheep.

It is difficult to make rearing sheep a productive enterprise when the farm consists of a number of scattered plots of land, especially if it is very rough and wild. Consequently the availability of technical solutions and the way the farm is set-out and organised are the most variable factors and determine whether sheep rearing is economically viable or not. Due to favourable market conditions and the fact that a good income level can be made sheep rearing is on the increase.

## Prospects for extensification in beef and sheep system in Italy

The development of cattle and sheep rearing should be examined in the light of recent changes in EU Agricultural Policy and the World Trade Organisation agreement. The EU is committed to reducing the cost of export subsidies and, in line with the WTO agreement, to fix a minimum of imports from third world countries. This will create more competition in the beef, mutton and lamb sector within EU countries. It will also mean greater availability of these products especially from countries with a high level of production. These countries in particular will also need to search for new markets partly as a consequence of limits established by EU policy. For Italy this will mean competing with beef, mutton and lamb available from abroad at highly competitive prices.

The changes in EU agricultural policy with regards to sheep and cattle are characterised by the partial abandonment of the subsidies. This involves reducing guaranteed prices, and offering direct help to producers and encouraging the extensification of production. In practice this means that premium will be given for bullocks between 10 and 22 months instead of the current premium for new born calves. Subsidies will also be given for suckling cows, for the transformation of calves, for extensification plus an additional premium for suckling cows.

Again as part of the measures which accompanied the reform of common agricultural policy, reg. No. 2078/92, the EU focused on extensification with the reduction of the number of sheep and cattle per unit of fodder-producing-land the aim being to protect natural resources.

In the scenario we are considering, this implies some reduction in inputs that would require an increase in area to support the same number of sheep and cattle or, alternatively, a reduction in the number of animals if inputs are reduced and the mean are held constant. A third alternative could be to reduce inputs but maintain stocking rates and accept lower levels of individual animal performance. Extensification obviously has different meanings depending upon the starting point.

In Italy, for example, the approach of the new community agricultural policy could be interesting for breeders of typical Italian races. These farms usually consist of small to medium sized herds

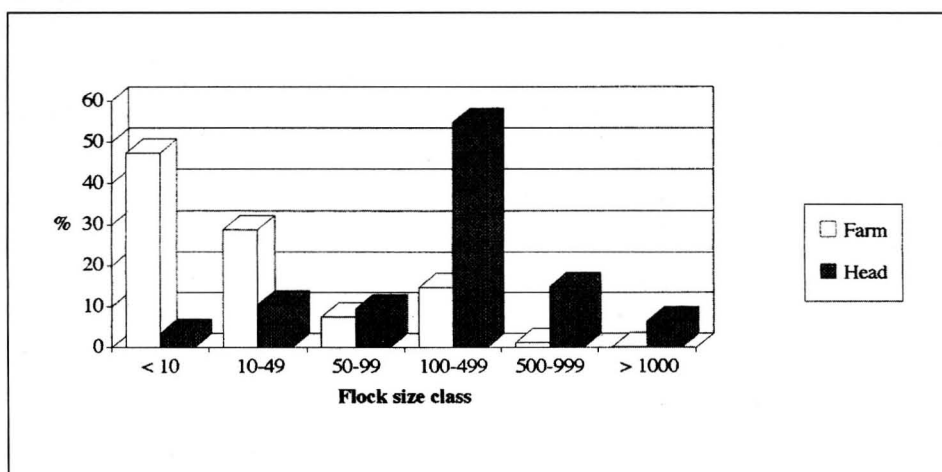


Figure 4 - Distribution of farms and number of sheep according to flock size class.



operating a non specialised extensive farming system. They still however account for a relatively small part of national beef stock. Many of these breeders will be eligible for a premium twice in the life of each animal, as on farms with less than 15 livestock units; furthermore, those with a density of 1.4 livestock units/hectare or less will benefit from the additional premium for bullocks and for suckling cows.

Two possible approaches can be envisaged. The first, with more modest results, in the lowlands where a reduction in concentration of animals per hectare could be achieved by reducing the number of cattle reared, but this is limited to milk cow breeders. This is the only alternative because an increase in the amount of land used for forage production is hard to imagine, due partly to high prices and partly to the competition of more economically viable crops. This policy will however have little effect on the specialised beef breeders who own the majority of cattle for fattening. The average size of these establishments of around 600-700 head, the limited use of land, the average slaughter age of 16-20 months, will exclude all or most of these breeders from any compensation. Intensive farming located mainly on the lowlands, with its high level of specialisation and integration of productive and organisational processes, leaves little room for extensification as a change in any one of the production factors (reduction in number of cattle or increase in land) would undoubtedly effect the economic advantages.

A more practical approach for extensive farming can be envisaged for the hills and mountain regions. Here it is easier to reduce the already low cattle density by converting cultivated land to meadows and/or permanent pastures and find other land, outside the farm to maintain a constant number of animals. It is important to remember however that the technical and economic results obtained from extensive farming in Italy are not very encouraging.

The limited availability of fodder, low rainfall, and the characteristics of soil, found in most of Italy make it hard to achieve satisfactory economic results. The prospects for breeding sheep and cattle on the basis of an extensive farming system with a low investment of capital and labour and ample use of the land depends on the availability of the right kind of land. This land must allow an optimum combination of pasture and fallow land for the production of hay thus

ensuring a supply of animal fodder at reasonable prices and the best use of available capital. These conditions are however hard to find, due to difficulties involved in system of land tenure, the current legislation on renting, the inefficiency of the cooperative system and high land prices, which limit the possibilities of acquiring the necessary land to develop an economically viable extensive system.

Land reform, improvements in agricultural conditions and easier transfer of land are factors which could be instrumental in increasing the extensive farming of cattle and sheep. This is especially true in the south of Italy and the Apennines in the north and centre, where the rural depopulation in recent years has removed one of the obstacles.

Moreover the greater attention given to quality policies, as illustrated by the community guidelines concerning geographical indications (no. 2081/92 and no. 2082/92) and the European Quality Beef initiative, offer a new direction to the production system, with a greater emphasis on quality. This can guarantee an increment in the added value which compensates for the reduction in quantity produced.

A positive feature that has become apparent in recent years in Italy and which could revitalise sheep and cattle rearing is the production of increasingly larger quantities of fresh, high quality meat guaranteed by a trade mark. In recent years both the producers and the meat processors have been actively involved in stimulating the market by identifying the Italian breeds and linking the concept of quality with that of the type of breed and the area of production. This approach is also of particular interest for extensive farming, where the rearing of native breeds from which quality beef can be obtained, makes it possible to circumvent the general market system and obtain higher prices.

In conclusion, extensive farming due to its particular features can be seen as a production activity which could provide the economic and social conditions for a real development of the territory. This is particularly true in the hills and mountain areas which constitute two thirds of Italy. It could pave the way to a greater integration of breeding and rearing systems with a geographical redistribution of farms involving a partial move of the more intensive breeding towards the more fertile hillside areas, in close contact with the extensive farms, thus freeing the lowland areas.

This, clearly, must be viewed as part of an overall picture where pure economic efficiency is linked with the recognition and reinforcement of the potential of the extensive breeding system.

Extensification not only has effects on animal performance and output, but also has implications for the development of diversity of flora and fauna, landscape management, animal health and welfare, environmental pollution and socio-economic consequences.

Increased production is no longer an objective. Instead the objectives can be considered in terms of economic sustainability, the need to maintain farmer income and the rural population and environmental sustainability, maintaining biodiversity or the slower depletion of environmental capital.

There are a number of pressures which are forcing the beef and sheep industries in EU to adopt more extensive systems. There is a move towards linking payments to farmers to environmental measures and in some cases there is specific legislation covering pollution. Consumers are also expressing concern about the production systems from which their meat is produced and demanding consistently high quality products. These change require farmers to adapt and there is a need for research and advice to allow them to do so. The challenge for researchers is to provide information which can allow these changes to take place while ensuring the economic and environmental sustainability of beef and sheep production. The major requirements for research are to provide 1) options where economic sustainability can be improved without compromising environmental sustainability; 2) information on the impact of pollutants as outputs from beef and sheep systems; 3) information on the effect of management systems on animal welfare and 4) understanding of relationship between grazing management and biodiversity. ●

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