

TRACEABILITY COSTS COMPONENTS FOR MEAT

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Abstract

The purpose of this paper is to present the main results of a research on the costs components throughout the supply chain connected with traceability of beef products.

As we know, animal identification and labelling is a compulsory system in Europe after the Commission Regulation (EC) No 1825/2000 of 25 August 2000 laying down detailed rules for the application of Regulation (EC) No 1760/2000 of the European Parliament and of the Council as regards the labelling of beef and beef products.

Our study, attempted to assess the costs for the cutting/slicing and processing sector consisting of different agents who are not necessarily vertically integrated.

Keywords: traceability, labelling, beef products, costs drivers.

Introduction

The purpose of this paper is to analyze the costs components and costs drivers connected with traceability of beef products. A group of companies involved throughout the supplied chain was examined.

The small group of companies examined (15) represents about 20% of the total processing sector in Italy. The companies were classified as large (with a turnover in excess of 30 million Euro); medium (with a turnover between 10-30 million Euro); and small (with an annual turnover of less than 10 million Euro, with an average of 4 million Euro).

Description of the sample

Main clients: 75% of the companies stated that among their main clients were large retailers, traditional retailers but also industrial clients. One out of three companies supplies collective catering while one out of four supplies wholesalers. One company out of three had foreign clients as their main patrons, with a percentage of exports that ranged between 10% and 30% of the total. With respect to the distribution of clients, there was a strong prevalence of national markets (83% of the companies).

As regards supply, over 90% of the companies in the sample group were supplied by domestic breeders; of these, about 30% stated that they were supplied by local breeders, while two were

supplied by associated breeders. One company out of three indicated foreign suppliers, and of these, 75% imported fresh meat from slaughterhouses in the European Union and one imported live beef from breeders in the European Union. Finally, only one company indicated also slaughterhouses in other countries among its suppliers, from which it imports finished and semi-finished products.

In the sample group, only one company out of three did not indicate other additions to the chain; for the remainder, these additions occurred in different ways:

- ⇒ as part of the chain from the breeder to the retail sales outlet (cooperatives);
- ⇒ as part of lines of products (by contract);
- ⇒ as part of the chain organized with some breeders and some clients (only up to the feeding stage);
- ⇒ as part of a business group directly controlling, with its own facilities and ownership, the entire chain from the grain and feed production, to the feed lot and thereon to the slaughtering and packing activities.

In general, it was found that the more highly integrated companies were the cooperatives and the large companies, while the smaller ones rarely reported additions to the chain.

General aspects of traceability

Most of the companies contacted (about 60%) did not find it necessary to hire additional personnel to comply with the requirements introduced by the Regulation. To a large extent, they were able to count on the capacity for adaptation of the regular staff; the only exceptions were reported as regards older personnel due to the problems of the introduction of new computerized systems. Only one had to resort to an outside consultant service to adapt its production to the requirements of the regulation on the traceability of meat. The cost of this service is about 50,000 Euro, and 30% is financed by unsecured loans from the European Union.

The companies that did have to hire additional personnel for this reason were among the medium and large ones. Probably this need can be explained by the size of the companies and thus by the larger amount of data to be handled. For one company the increase in personnel was also partly due to the addition of a new cutting and packing facility, that enables it to provide complete traceability at the level of the individual carcass for each package. Another company had to hire more veterinary personnel to comply with the sanitary requirements. The costs of these staff additions, to be attributed entirely to the introduction of the regulation, amount to about 25,000 Euro per year per person hired.

All the companies contacted, with the exception of one of the small ones that did not have to make any additional investment, reported that their computer systems were not adequate to deal with the new requirements of production and control introduced by the regulation. For this reason they had to acquire new software (programs and applications) and new hardware (computers, palmtops, barcode systems, printers, etc.) for management of the new tasks (in particular to manage and export the bovine registry).

We then asked if they had altered the layout and structure of the company following the introduction of the new regulations. 54% of the companies reported that they had had to make partial changes to their existing structures. In this connection it is interesting to note that all

the companies that modified their structure and the layout of their facilities were those of medium and large size. This is perfectly logical from the management point of view, as these changes involve a considerable increase in the fixed costs of the company, as well as in its variable costs. This increase in the fixed costs could hardly be sustained by the small companies which, since they are not able to count on large volumes of production, cannot expect to benefit from economies of scale.

The burden in bureaucratic terms caused by the new regulations was perceived by most of the companies. Only one considered the introduction of the extra work related to traceability as a qualifying factor, while for the rest it was perceived in terms of time and energy by all the personnel operating in the structure (whether sanitary or not). This was true in particular of the large companies that have a larger volume of data to handle and must often perform this type of bureaucratic work also for the veterinarians and public health offices.

However, as one company pointed out, this is “the price we have to pay to have a complete guarantee of the traceability of meat”. On the other hand, some of the companies in the sample feel that their efforts should receive more appreciation by the supermarket chains and traditional clientele.

Estimate of costs connected with traceability

At this point we asked the companies to estimate the incidence of the costs created by the introduction of the procedures of traceability on the total costs of production. Not all the companies in the sample were able to respond to this question. Furthermore, some of those that responded used different indicators to estimate the new costs.

Most indicated a percentage of new costs on the total costs of production. These percentages varied from 0.5 to 2.5%. Others, however, indicated the new costs per quantity produced, with figures ranging from 2,60 to 3,45 Euro/100 kg. (from 50 to 67 L/Kg), or 7,23 – 9,81 Euro per head of beef (considering an average weight of 280 kg. per carcass of veal and young beef). Others simply listed a series of investments necessary to comply with the requirements of the regulation:

- Company A: a medium cooperative company, invested in software for the management of the bovine registry at an initial cost of 7,800 Euro, further estimating the cost of personnel engaged in the use of the new information system at about 1,000 Euro a week.
- Company B: a medium company, made a large investment in hardware (industrial PCs, printers, scanners) and software, amortizable in four years, for a cost of 46,500 Euro/year.
- Company C: a large company (75 million Euro turnover), invested in facilities (cutting and packing department) for 1,800,000 Euro; new personnel (10 new employees) for about 258,000 Euro; software and hardware, for 100,000 and 150,000 Euro, respectively, with an additional 26,000 Euro per year spent for software maintenance; and consultation for 100,000 Euro. The total amount spent by this company to comply with the regulations on traceability come to about two and a half million Euro.

Filling out this part of the questionnaire by the companies was considered satisfactory, on the whole, although there was a great deal of difficulty in estimating the extra time devoted to traceability for each task or activity. From this point of view it was not possible to obtain useful information.

From this estimate of costs sustained to comply with the obligations imposed by the new regulation, it was possible to draw some interesting conclusions. Table 1 provides a breakdown, by size of company, of the costs of traceability on the total production costs and by quantity produced.

Considering the first line of table 1 it appears obvious that the costs per quantity produced describe a Gauss curve, and are the highest for the category of medium-sized companies. The largest companies (> 80 million Euro annual turnover) and the smallest ones have a lesser incidence on the product. While for the former the limited costs per quantity produced indicate an exploitation of economies of scale, for the latter the reduced cost per hundred kilos of meat may conceal a more limited compliance with the regulation (in terms of structures and computer systems). This aspect may suggest subsequent corrections.

If, however, we consider the percentage of costs of traceability on total production costs, we see that this depends entirely on the size of the company. For the largest companies this may be due to the loss of productivity.

Therefore, to conclude, the cost per 100 kilos of product is offered as an indicator of the weight of the variable costs on the company. However, if we wish to examine the total costs, we have to consider the investment (fixed costs) as well.

Conclusions

We then asked the sample to indicate any benefits in terms of the quality of the product as a result of the introduction of the regulation. One company out of three stated that it had benefited in terms of quality from the regulation. The reasons can be found in the fact that it is now possible to perform more accurate controls and this means that, if any problem should arise, steps can be taken “immediately and effectively before claims and complaints are received”. In general, the increased efficiency of the company is the main benefit perceived by these enterprises. Furthermore, one company stated that the expansion of its facilities had been beneficial to it for, though done to comply with the regulation, the effect was a significant increase in turnover.

None of the other companies felt they had benefited in any way in terms of the quality of the product. A few of them explained their response by the statement that “what counts is the quality of the meat”. One company had already made use for several years of its own accurate system of traceability that enabled it to dispose of much useful information in this connection. Another reported an increase of returns by “less experienced clients” due to loss of the label. One last company even reported a loss of productivity. Five companies out of six reported synergism both with HACCP and with ISO certification ISO (in particular ISO 9002). According to some of these companies, HACCP made it easier for them to assimilate the new regulation into their company practice.

We then asked them to express their opinion about the regulation and in particular to point out any shortcomings. One of the complaints of one company out of three refers to the burdensome aspect of application of the regulation, and the fact that there is no apparent advantage in economic terms. In particular, the medium-large companies feel severely penalized as compared with the smaller ones by the amount of detail involved in compliance with the requirements introduced by the regulation (data to be handled, bureaucracy).

One problem that was very strongly perceived by the companies (one out of four) was the problem of manual attribution of the data at the beginning of the processing chain. Indeed, there is no unified computerized system capable of automatic registration of the beeves as they enter the slaughterhouse and of entering the company data, which has to be done manually, leaving room for a large number of errors in this operation. Some companies have taken steps to implement an additional system of internal identification to ensure complete traceability within the company.

Another shortcoming, indicated by one company out of six, was the lack of univocal instructions on the method of application of the regulation. One of these companies also criticizes the fact that vigilance is assigned to the Ministry of Agrarian Policies when there is already a constant presence of the Health Ministry at every stage of the chain.

In general, there is widespread lack of confidence in the correct application by all the companies of the procedures imposed by the regulation. Stricter controls by the appropriate authorities are therefore felt to be necessary.

Bibliography

Galizzi, G., Pieri, R., (1998). Le tecnologie dell'informazione come fattore di sviluppo del sistema agroalimentare e di tutela del consumatore. Rivista di politica agraria, n. 4/98, Rassagri srl.

Giacomini, C., (2002). L'impatto dell'Ocm carne sull'allevamento bovino in Italia dopo la crisi Bse. Franco Angeli.

Hobbs, J. E., (1998). A transaction cost analysis of quality, traceability and animal welfare issues in UK beef retailing. British Food Journal, 98/6, pp. 16-26.

Mainsant, P., (1998). La traçabilité comme stratégie de réponse de la filière bovine française aux nouvelles attentes du consommateur de boeuf dans le contexte de l'après BSE. Le technologie dell'informazione come fattore di sviluppo del sistema agroalimentare e di tutela del consumatore. Conference pre-preceedings, Verona (Italy).

Mora, C., (1998). La disponibilità a pagare dei consumatori per prodotti alimentari sicuri. La Questione Agraria, n.72.

Visentin, P., (2002). La rintracciabilità nella filiera agroalimentare. Tracciabilità e sistemi di identificazione automatica per la logistica. Conference pre-preceedings, Milan (Italy).

Table 1. Costs of traceability per 100 kg. and in percentage on total costs, by size of company.

<i>Turnover</i>	<i>< 10 mill. Euro</i>	<i>10 – 30 mill. Euro</i>	<i>30 – 80 mill. Euro</i>	<i>> 80 mill. Euro</i>
<i>Euro / 100 kg.</i>	1,50 – 2,00	2,50 – 3,50	not indicated	1,00
<i>% on total costs</i>	< 0,5	0,5 – 1	1 – 1,5	2,5

Source: our elaboration of data from questionnaires.