

Council Regulation (EC) No. 1099/2009: state of the art and its application in a local health unit in Piedmont, Italy

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Abstract

In the last decade, the European Union has reinforced the concept of animal welfare throughout the food chain, from breeding to slaughtering. Studies and assessments of economic nature led to the adoption of Regulation EC 1099/2009 and at the end of 2014 this regulation will be applied to all the members involved in the food chain. For this reason several local health units organized different initiatives. The local health unit of Turin no. 4 (ASLTO4) has developed a project aimed to train food business operators (FBO) to fulfill all the criteria developed in this Regulation. This initiative was divided into four steps: i) communication to the companies about the criteria of the new regulation; ii) a training course for official veterinarians; iii) slaughterhouse audits in order to get information about animal welfare; iv) and a training course for the personnel involved in slaughterhouses. The purpose of this paper was to report the results of the audits in order to identify critical points of structural, instrumental and documentary facilities. Then, the results can be compared with similar studies in order to develop common strategies and intervention areas.

Introduction

The concept of animal welfare has grown with time and helps in determining the quality of the food. The European Community has tackled this issue with growing interest and found that the lack of harmonization and uniformity were the factors of greatest difficulty for the application of welfare regulations (European Commission, 2008). For this reason, in the last ten years the European Community ruled out several laws and decisions. With the enforcing of hygiene Package, the responsibility for food safety has been transferred almost completely to the food busi-

ness operators (FBOs), but the veterinarians still have in charge monitoring and supervision duties.

The Animal Welfare Regulation 1099/2009 (European Commission, 2009) has followed this trend. In addition to the improvement of the aspects already introduced above, the Reg. 1099 gave measurable parameters and introduced some substantial innovations such as the role of the *animal welfare officer*, the certificate of stunning and the standard operating procedures (SOP) of the stunning phase. Article 17 states that the FBO must designate a person responsible for animal welfare with the task of ensuring compliance with the provisions of the laws. This employee must be trained in a specific way by the veterinary service. Since the control effectiveness must be done systematically, it becomes necessary that all staff is trained in the field of ethology, knows the parameters of proper stunning and how the stunning device works. Another new feature, as mentioned earlier, provides that the FBOs must verify the effectiveness of stunning in order to ensure the absence of any signs of consciousness and sensibility of a representative number of animals, according to a risk analysis of the structure. Due to the entry into force at full capacity of EC Reg 1099/2009 (European Commission, 2009), the local health unit of Turin no. 4 (ASLTO4) in the spring of 2012 settled down a project whose aims were to inform about the new requirements of the standard and to help veterinarians – without distinction of areas – focus their attention on issues of animal welfare and stunning. Another aim of the project was to encourage the communication and the discussion among FBOs and veterinarians from different working areas (animal health, food hygiene, age and geographical origin). The project was organized into four steps: i) official communication to the veterinary service, ii) training on animal welfare during slaughtering process for veterinarians, iii) plants audits to verify the state of the art, iv) specific training courses for FBOs. The aim of this work is to illustrate the problems emerged during the audit phase relating to the application of the Regulation in the territory of ASLTO4. The results will allow comparison with other projects in order to identify weaknesses and develop common strategies and solutions.

Materials and Methods

The audit involved 31 slaughterhouses located all throughout ASLTO4. The checklist used is presented as Appendix. They were: 15 cattle slaughterhouses, 11 bovine/ovine/goat slaugh-

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gherhouses, 3 pig slaughterhouses, 1 equine slaughterhouse and 1 poultry slaughter. Regarding red meat slaughterhouses, half of them slaughtered equal or less than 5 animals/day. One pig slaughterhouse slaughtered more than 100 animals/week, the poultry slaughterhouse over 400 animals/week.

The checklist used during the audit took into account the following parameters. First, structural requirements – considering the flooring, the downloading structures, the possibility to split up animals in different groups, the presence of drinking devices, the conditions of ventilation and lighting, the presence of any disturbing factor and the presence of immobilization devices. Second, stunning devices – considering the different method used (mechanical or electrical stunning), the presence of SOP related to the maintenance and the presence of the instruction manuals, a second device in case of failure of the first one, audible warning systems or a complete control panel showing the electrical parameters, the presence of equipment to increase the degree of welfare such as showers. Third, documents –considering the presence of the checklists, the presence of adequate SOP, certificates of use and maintenance procedures. Fourth, behaviour of operators during the animal handling, introduction in the stunning cage and during stunning phase.

Results

The inspections in slaughterhouses have revealed a discrete number of problems described below.

Structural problems

Many shortcomings were highlighted but they were easy to resolve. Ninety percent of the companies did not have water devices in the resting area. The percentage of the plants without suitable roofs of waiting pens was about 16%. Some operators solved this problem by installing systems for curtain blinds. One company stated that it was not willing to provide any coverage. In 15% of the structures, pavements were slippery or could become slippery if wet. The reasons were to be found in the lack of maintenance or in the choice of the material. Almost all slaughterhouses stun cages were found adequate for the size of the animals. When inadequate, this problem sorted out in slaughtering facilities that performed more species very different from each other (*e.g.* cattle/pig) or companies that were authorized for slaughter according to religious rite where the slaughter was carried out during special holidays (*e.g.* Feast of Abraham's Celebration).

Stunning devices

Captive bolt

The majority of failures detected in the phase of stunning was related to the type of device used or the type of explosive charge. They were often used guns with caliber 22, instead of 25, for stunning animals of large size. In other cases, were used devices of proper caliber, *e.g.* caliber 25, but unsuitable considering the animal species. Failures due to inexperience of the FBO or human errors in positioning the device were rare. When observed, was often in companies with higher amount of animal slaughtered and we found that this was due to haste. Other failures were related to devices' wear caused by humidity and repeated use. This situation was highlighted in several works and reports (European Commission, 2004; Grandin, 2012a).

Electronarcosis

Most of the electrical stunning devices commonly used in abattoirs could not achieve the proper amperage requested by the Regulation.

Documentary requirements

The highest percentages of non-complaint slaughterhouses were related to the required documents. The producing companies were not able to deal with the changes introduced by regulation in this field. The plants did not have the approval certificate for stunning cage at a rate almost equal to 100%. At similar percentages, similar companies did not have SOPs. Only in one case they were drawn up, but they were quite inadequate. For few companies, a register where to sign how many shots were fired was available; this practice, which aimed to detect non-compliance during stunning, was totally misunderstood by operators who were afraid to run the second shot.

Behaviour of food business operator

In 90% of the cases, the staff did not have the know-how in order to evaluate properly the correct stunning signs and the behaviour signs of consciousness and insensitivity. This situation led to the inability to recognize situations in which the second shot was necessary. In addition, any stunning operator was able to describe its correct mode of execution. The second shot was commonly applied in the entrance hole of the first, proving completely useless for the presence of the hematoma and acute inflammatory reaction of the tissue (European Commission, 2007). A positive note is that all companies were equipped with a second device during stunning operations.

Discussion

Currently, there are no reports to compare the situation that emerged from the survey with other territories. For this reason, we will discuss our results with the reports referring the investigations prior to 2009, which provided the basis and rationale for processing the EC Regulation 1099/2009 (European Commission, 2009).

First of all, every requested change regarding welfare during stunning operation at the slaughterhouses must cope with the total cost of the slaughtering process. This cost has been quantified as the 20% of total costs of the slaughterhouse. This percentage can have a deep impact in terms of competitiveness in a market like meat market (European Commission, 2007). Due to the European economic situation and the difficulties on red meat market, this situation has been and still is the reason why FBOs hardly accept changes. They always keep in mind how prescriptions will reflect on the final production cost.

The lack of adequate parking areas deserves a careful evaluation since the magnitude of the slaughter of the companies was not that high, so we can assume that the time between unloading and slaughtering does not justify larger ones (EC Regulation 853/2004; European Commission, 2004).

The presence of slippery floors should be carefully considered for its effect on animal behaviour. It may cause more troubled animals

and consequently more difficulties at the stage of stunning (Grandin, 2012b). The low rate observed can be attributed to the fact that this requirement seems to be one of the most considered on the part of the FBOs in the area of animal welfare at slaughter (European Commission, 2007).

It was observed that the failure of stunning with captive bolt pistol is mainly due to the incorrect valuation given by the manufacturers of explosive charges. The effectiveness of stunning using a mechanical device is given by the caliber of the device and speed of the captive bolt (EFSA, 2004). In order to get a proper result, in many slaughterhouses, it was decided to change the size or change the explosive charge. This change has been accepted and implemented without problems because it is associated with a fraction of the cost quantified as 0.02% in a previous study (European Commission, 2007). Anyway, a crucial point of the problem is that manufacture companies too must be involved in the training process and their knowledge must be seriously implemented. For example, considering the assessment of unconsciousness and insensibility, they pay attention only to the loss of the upright position without taking into account the presence or absence of other signs.

In choosing the charge, other parameters such as race, conformation and habits must also be kept in mind. For example bulls which are used to live in herds and with little contact with humans tend to be very nervous and difficult to manage in the stunning cage and tend to move as soon as they come into contact with it (OIE, 2013).

The low percentage of errors in manual processing, as for example the positioning of the captive bolt device, is similar to other studies: Grandin (2012b) recorded percentages of 1% in small slaughtering plants like the ones examined by us.

Considering the stunning methods (Table 1), the choice of some FBOs to switch from electrical stunning to captive bolt stunning was primarily motivated by economic reasons. Compliance costs have been addressed only by the structures dedicated solely to the slaughter of pigs. Other companies have opted for stunning with a captive bolt devices admitted for every species. The cost of the electric stunning

Table 1. Stunning methods.

Method	Before Reg. (EC) No 1099/2009 [°]	After Reg. (EC) No 1099/2009 [°]
Electrical stunning (n)	9	5
Water baths (n)	1	1
Captive bolt (n)	21	25

[°]European Commission, 2009.

equipment is, in fact, equal to 0.1% of production costs in the case of large establishments but this percentage may vary considerably in the case of small slaughterhouses (European Commission, 2007) and FBOs not always are willing to deal with expensive investments. The importance of the economic evaluation of investment was reiterated in the case of poultry slaughterhouses in which only 32% of operators expressed its willingness to change of stunning (European Commission, 2012). Scientific reports show that this change does not really affect the animal welfare (EFSA, 2004). Other studies suggest the use of electrical stunning with application head/body in small slaughterhouses could be another choice (Vogel *et al.*, 2011).

The maintenance of the devices, especially the mechanical ones, is very important. The not systematic maintenance has been identified as a major cause of failure in several reports and scientific papers (EFSA, 2004; Grandin, 2012a, 2012b).

The lacking of manuals, SOP and documentations reflects a situation not very different from the one highlighted in a previous EFSA report (2007).

Regarding the behaviour of FBOs, the European Community is developing manuals and SOP that may help FBOs during the assessment of the correct stunning operations (EFSA, 2013). We believe that the training needs to be addressed at all levels: device procedure companies, FBOs and official controllers for professionalism and expertise involved very different between them (European Commission, 2008).

Conclusions

Animal welfare at slaughter has become an important issue and veterinarians will have to cope with more and more. This issue repre-

sents the intersection among the needs of consumers in terms of quality and ethics, the compulsory duties of veterinarians in terms of food hygiene and the economic request of FBOs. It has been pointed out that in many cases improving the protection of animals for slaughter does not necessarily entail expensive investments (Grandin, 2012b). The changes may simply need greater attention, greater sensitivity and a different attitude.

Food business operators are not apt to change maybe because they have no knowledge of new technologies or can be assumed that a previous acquisition cost has not yet been not yet fully deferred before doing a new one (European Commission, 2007). The other key aspect is that a change in mentality represents a request to which some FBOs, especially older ones, are not prepared to cope with, while the younger ones turn out to have a more open minded attitude and desire of change. The category still have to comply with these problems and still have to learn to communicate with FBOs and consumers in order to continue to play the central role of ensuring food safety and animal welfare.

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