

Statutory Management Requirements on 'Animal Identification and Registration' (Act A7, Act A8): monitoring methods for compliance and related costs in four Italian farms

Marisanna Speroni,¹ Sara Carè,¹ Lamberto Borrelli,¹ Antonio Bruni,¹ Giovanni Cabassi,¹ Maurizio Capelletti,¹ Luigi Degano,¹ Salvatore Claps,² Lucia Sepe,² Domenico Rufrano,² Antonio Melchiorre Carroni,³ Paola Ruda,³ Mauro Salis,³ Marco Fedrizzi,⁴ Giulio Sperandio,⁴ Mauro Pagano,⁴ Roberto Fanigliulo,⁴ Mirko Guerrieri,⁴ Daniele Puri,⁴ Paolo Bazzoffi⁵

¹CREA-FLC Council for Agricultural Research and Economics, Research Centre for Fodder Crop and Dairy Productions, Lodi

²CREA-ZOE Council for Agricultural Research and Economics, Research Unit for Extensive Animal Husbandry, Bella (PZ)

³CREA-AAM Council for Agricultural Research and Economics, Research Unit for Agro-pastoral Systems in Mediterranean Environment, Sanluri, Medio Campidano

⁴CREA-ING Council for Agricultural Research and Economics, Research Unit for Agricultural Engineering, Monterotondo (RM)

⁵CREA-ABP, Council for Agricultural Research and Analysis of Agricultural Economics, Research Centre for Agrobiology and Pedology, Firenze, Italy

Corresponding author: Marisanna Speroni
E-mail: marisanna.speroni@crea.gov.it

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nation OU, CREA-ZOE, survey, data processing, report. L. Sepe: organisation, management and survey, data processing, coordination and writing report. D. Rufrano: managing ovine and goats' herds at CREA-ZOE, animal survey. M. Fedrizzi: coordination OU CREA-ING, methods for calculation of economic gap; data processing, report. G. Sperandio, M. Pagano, M. Guerrieri, D. Puri: data processing, report. P. Bazzoffi: project coordinator.

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Abstract

The European and national laws concerning the identification and registration of livestock are meant to make possible their traceability and facilitate food safety and animal health, especially in case of a disease outbreak; such rules have also become prerequisites that farmers must meet to obtain single farm payments under the common agricultural policy. Failure to comply with these obligations entails the reduction or exclusion from direct payments.

Act A7, reports the obligations imposed by the EC Regulation 1760/2000 establishing a system for the identification and registration of bovine animals and regarding the labelling of beef and beef products;

Act A8, report the obligations established by the EC Reg. 21/2004 establishing a system for the identification and registration of sheep and goats.

The project MO.NA.CO. monitored the application of rules for identi-

fication and registration of cattle, sheep and goats and their costs. The system of identification and registration of dairy cows resulted well organized with a good level of coordination between the involved actors in both farms. The activities necessary for compliance with rules of identification and registration of cattle are distributed throughout the year, but vary from day to day. The average total cost for annual obligations amounted to € 533.34 year⁻¹ while the average cost for individual fulfilment in the monitoring period amounted to € 4.10. Even in the case of sheep and goats, the monitoring showed a good cooperation between farms and technicians. However, some difficulties were detected, mainly due to the size of the rumen boluses and the limited effectiveness of the ear tags. The operators suggested using smaller rumen boluses and tattoo instead of ear tags; they also suggest to extend the period within which the animals have to be labelled from the current 6 months to 9 months. The cost of compliance amounted to € 5.27 head⁻¹ for sheep and € 4.90 head⁻¹ for goats.

Introduction

The European and national laws concerning the identification and registration of livestock are meant to make possible their traceability and facilitate food safety and animal health, especially in case of a disease outbreak; such rules have also become prerequisites that farmers must meet to obtain single farm payments under the common agricultural policy. The Council Regulation (EC) No. 73/2009 established common rules for direct payment support scheme and confirmed that farmers are obliged to respect the Statutory Management Requirements (SMR) and to maintain land in Good Agricultural and Environmental Condition (GAEC). The SMR relate to public health, health of plants and animals, environment and animal welfare. Failure to comply with these obligations entails the reduction or exclusion from direct payments. In particular, European regulations and the national transposition (Ministerial Decree No. 30125 of 22/12/2009) contain, among others, the following Acts:

-Act A7, reports the obligations imposed by the EC Regulation 1760/2000 establishing a system for the identification and registration of bovine animals and regarding the labelling of beef and beef products;

-Act A8, reports the obligations established by the EC Regulation 21/2004 establishing a system for the identification and registration of sheep and goats.

According to these rules, farmers that start to breed cattle, buffalo, sheep or goat are required to register with the competent local animal health and veterinary authority and ask for the identification code of the farm within 20 business days from the establishment of the new enterprise; then, farmers are obliged to comply with specific obligations on which they can act independently or through professional organizations or local animal health public services. The system of identification and registration of bovine animals has as main objective the protection of public health and livestock, by assuring animal traceability and labelling of the product. In 1997, the Regulation No. 820/97 had already strengthened the EU rules on identification and traceability of cattle, as a result of the epidemic of bovine spongiform encephalopathy. The EC Regulation 1760/2000 requires that each member state establishes a system for the identification and registration of bovine animals; such a system must include: ear tags applied to both ears of each animal; computerized national databases; animal passports and individual registers kept on each farm. Act A8 is based on EC Regulation 21/2004 that was designed to obtain an improved system for monitoring the movement of sheep and goats in order to contain animal diseases and zoonosis. The previous Directive 92/102/EEC, in fact, had not been satisfactory in the case of foot-and-mouth crisis. The new legislation defines a change in the management of herds of sheep and goats mainly due to the introduction of electronic tagging of animals; this leads through a transition from a mass to an individual identification of livestock. According to these rules, the farmer is required to identify individual animals within six months of birth or before the animal leaves the farm of birth; for animals born until 31st December 2009, the marking was done by double ear tag or with a tag and a tattoo; from January 1, 2010, the identification must be done with an electronic device (electronic ear tag or bolus) as well as with conventional tagging. The farmers must register and update the individual data in the National Data Bank (BDN) and in a farm register; the recording of the consistency of breeding must be performed at least once a year, in March. For the animals electronically identified (those born from 1st January 2010), it is mandatory to register the individual ear tags on the farm register; movements, births, deaths, should be recorded in the register within 3 business days after the event and in BDN within 7 days of the event. The project MO.NA.CO. monitored the application of rules for identification and registration of cattle, sheep and goats and their costs.

Materials and methods

Farms

The monitoring was carried out at: two dairy cattle farms, one farm breeding sheep and one farm breeding sheep and goats.

Cascina Baroncina

The farm Cascina Baroncina is situated (45°19'N, 9°03'E) in the Po valley, about 2 km from the city of Lodi and has an area of 45 hectares. The main activity is dairy farming. On average, there are about 130 Italian Frisian cattle: 70 young animals and 60 cows; the farm produces an average of about 600,000 kg of milk a year. Farm and herd size are lower than the average herd breeding Italian Frisian cows in surrounding area (provinces of Milan and Lodi). In 2013, the farm was ranked in first place for average production per cow (13,030 kg of milk, 432 kg of protein) in the context of the farms in the provinces of Milan and Lodi.

Porcellasco

Porcellasco farm is located about 6 km from the city of Cremona (45°10'N, 10°04'E); it covers 82 hectares. The land is flat, of medium texture and very fertile. The main activity is milk production. The main crops are alfalfa for hay and corn for silage; cows produce, on average, about 630,000 kg of milk per year; on average, 80 cows and 75 young animals are kept, each year; the average number of cows in production is close to the national average but below the regional and provincial averages for Italian Frisian herd. The average milk production was in 2013 to 8725 kg / cow, slightly lower than the average production for cows Frisian Italian subsidiaries in the province of Cremona.

Arbus

The farm is located in the South West of Sardinia (39°30'N, 8°36'E) in Baratzu, a sub flat area about 200 m above sea level. The farm has been breeding dairy sheep for 10 years; the herd consists of 160 lactating Sarda breed sheep and 3 rams. The size of the farm falls below the current average number of Sardinian farms that is 239 animals per farm (Regione Autonoma della Sardegna, 2013).

Bella

Bella farm is located in the North West of Basilicata (40°42'N, 15°32'E) in a flat area of the valley of Marmo-Platano, about 360 m above sea level.

The farm raises dairy goats and dairy sheep of many breeds, dealing with the maintenance of Southern endangered and native breeds. The consistency of the flock is 240 sheep and 460 goats. The size of the farm monitored lies well above the current average number of farms in Basilicata (33 animals per farm goats and 71 sheep per farm; source: Italian National Statistical Institute 2012).

Monitoring scheme

Cascina Baroncina and Porcellasco Farm, monitoring of identification and registration of cattle

Operations to identify and register cattle in an intensive dairy farm are distributed over time according to the events occurring (births, deaths, movements). Thus, we organized daily sessions of monitoring as a sample of the 365 days of a year. During monitoring sessions, the responsible for the monitoring followed the farm manager and the employees involved, recorded the operations of identification and registration of animals and their duration. Based on what was recorded in the monitoring sessions, the average time for each type of action was calculated. Then, all the events that occurred during the years 2012 and 2013 were obtained from the farm register; using information about

events and the average time required for each event the total time spent in the activities of identification and registration of animals over a year was calculated. To calculate the total cost for the fulfilment of the obligations we also collected information about the costs for the work, the cost of material consumption, costs for consulting and services.

Arbus Farm and Bella Farm, monitoring sheep and goats

The responsible for monitoring involved the veterinarian to verify standards and procedures for registration of small ruminants in accordance with the legislation in force. Times needed for tagging (affixing ear tag and placing bolus in the rumen) were detected by video recording. Finally, we proceeded to record all the costs of materials and personnel involved in the various operations of fulfilment.

Economic evaluation of the competitiveness gap for farmers

Data collected monitoring identification and registration operations were used to assess the competitiveness gap resulting from the commitments with law. The net working time (TN) (Manfredi, 1971) was calculated from information collected and video records; the hourly salary of workers was calculated as the average of the values recog-

nized by the provincial *Italian Confederation of Farmers* of the national collective contract for agricultural workers. In addition, the costs for tagging devices and for services (veterinary, professional associations) were considered. With this information it was possible to calculate the total cost of the activities to be carried out to comply with the rules.

Results

Cattle

Application of the SMR

On the monitored farms, animals are tagged using official tags purchased from provincial association of breeders (APA, Associazione Provinciale Allevatori). For each animal that is born, an identification form and a passport application are filled; each movement is certified by a specific form (Modello 4.) declaring the origin, containing information regarding the identification and accompanying the animal during transport.

A farm register is updated by recording within 3 days from the events the following information: the number of animals in the farm; births;

Table 1. Events and fulfilments detected during monitoring sessions on cattle herds.

Stage	Events		Fulfilments		
Input	Purchasing	Recording data on Farm register	Communication about purchasing to Local Breeder Association (APA) by internet or fax*	-	-
	Birth	Recording data on Farm register	Communication about birth to Local Breeder Association (APA) by internet or fax*	Fixing ear tags	Filling identification form
	Sale	Filling form 4	Communication about sale's date to Local Breeder Association (APA) by internet or fax*	Recording data on Farm register	-
	Death	Filling form 4	Communication about death's date to Local Breeder Association (APA) by internet or fax*	-	-
Output	Emergency slaughter	Veterinarian examination	Model declaration to accompany the body of cattle subject to emergency slaughter outside the slaughterhouse	Filling form 4	Filling self declaration-affidavit

*The communication is electronic at Porcellasco Farm and by fax at Baroncina Farm.

Table 2. Costs for identifying and registering cattle at Porcellasco farm.

Period (year)	Activity	Average length of fulfilments (h fulfilment ⁻¹)	Number of fulfilments (fulfilment year ⁻¹)	Labour rate (€ h ⁻¹)	Cost of material and tagging kit (€ fulfilment ⁻¹)	Total cost (€ year ⁻¹)
2012	Input by purchasing	0.09	16	14.53	2.5	61.70
	Input for birth	0.20	62	14.53	2.5	335.18
	Output by sale	0.15	52	14.53	-	115.86
	Output for death	0.09	8	14.53	-	10.66
	Emergency slaughter at farm to be sold at slaughterhouse	1.43	1	14.53	-	20.83
	Total cost of fulfilments for year 2012 (€ year ⁻¹)					
Average cost of fulfilments for year 2012 (€ year ⁻¹)						3.92
2013	Input by purchasing	-	-	-	-	-
	Input for birth	0.20	69	14.53	2.5	373.03
	Output by sale	0.15	74	14.53	-	164.88
	Output for death	0.09	19	14.53	-	25.31
	Emergency slaughter at farm to be sold at slaughterhouse	-	-	-	-	-
	Total cost of fulfilments for year 2013 (€ year ⁻¹)					
Average cost of fulfilments for year 2013 (€)						3.48
Average annual cost for fulfilments for monitoring period (€ year ⁻¹)						553.72
Average cost of fulfilments for monitoring period (€)						3.70

deaths; movements; indication for each individual animal of the number reported on the identification mark, the sex of the category. For updating the National Data Bank (BDN) both farms use the assistance of the respective APAs; at Porcellasco farm the responsible sends the information to APA electronically, while at Baroncina farm data are sent by fax; then, in both cases, APAs update the BDN.

Economic evaluation of the competitiveness gap for farmers

Data for the economic evaluation were provided by:

- six monitoring sessions at Baroncina farm in the period 11th June 2012-31st December 2013;
- nine monitoring sessions at Porcellasco farm, in the period 27th August 2012- 6th March 2014.

The events and the related fulfilments detected in monitoring sessions were summarized into two main classes:

- input of animals by birth or purchase;
- output of animals for sale, death or emergency slaughter (Table 1).

Tables 2 and 3 report costs estimated for Porcellasco and Baroncina farm, respectively.

Sheep and goats

The following steps were monitored for sheep and goats:

- identification of animals;
- registration of animals in the holding register and the BDR

(Regional Data Bank).

On the day chosen for tagging, the veterinarian placed the ceramic boluses (52 g) in the animal's mouth, at the base of the tongue, back of the palate to help the swallowing; the ear tag was applied; using a special reader, the veterinarian checked: whether the animal swallowed the bolus; if it was in the correct position; the correspondence of the registration number of the bolus. The identification data are then input on BDR by the same veterinarian who performed the tagging.

The monitoring highlighted some issues:

- rumen boluses in use are too large for the animals of small size; placing the bolus is often difficult especially in goats and lambs; often the operation must be repeated several times because of regurgitation or bad placing of the bolus.
- the application of the ear tags promotes infections and settlement of larvae of insects especially in hot seasons (spring-summer); moreover, the animals often lose the ear tags and this, sometimes, causes serious injury.

Economic evaluation of the competitiveness gap for farmers

Table 4 shows the sum of the costs for the identification of sheep and their registration in BDR detected in the two monitored farms. The values shown are the average of the data obtained in the two farms.

Table 5 shows the costs for identification and registration of goats performed at Bella farm.

Table 3. Costs for identifying and registering cattle at Cascina Baroncina farm.

Period (year)	Activity	Average length of fulfilments (h fulfilment ⁻¹)	Number of fulfilments (fulfilments year ⁻¹)	Labour rate (€ h ⁻¹)	Cost of material and tagging kit (€ fulfilment ⁻¹)	Total cost (€ year ⁻¹)
2012	Input by purchasing	-	-	-	-	-
	Input for birth	0.20	53	14.53	3.8	355.42
	Output by sale	0.15	51	14.53	-	111.15
	Output for death	0.09	6	14.53	-	7.85
	Emergency slaughter at farm to be sold at slaughterhouse	-	-	-	-	-
Total cost of fulfilments for year 2012 (€ year ⁻¹)						474.42
Average cost of fulfilments for year 2012 (€ year ⁻¹)						4.31
2013	Input by purchasing	-	-	-	-	-
	Input for birth	0.20	63	14.53	3.8	422.48
	Output by sale	0.15	55	14.53	-	119.87
	Output for death	0.09	7	14.53	-	9.15
	Emergency slaughter at farm to be sold at slaughterhouse	-	-	-	-	-
Total cost of fulfilments for year 2013 (€ year ⁻¹)						551.50
Average cost of fulfilments for year 2013 (€)						4.67
Average annual cost of fulfilments for monitoring period (€ year ⁻¹)						512.96
Average cost of fulfilment for monitoring period (€)						4.50

Table 4. Average costs for identifying and registering an ovine animal at farms monitored by operative units CREA-ZOE (PZ) and CREA-AAM (SS).

Operative unit	Period (year)	Activity	Average length of fulfilments (h fulfilment ⁻¹)	Number of fulfilments (fulfilment year ⁻¹)	Labour rate (€ h ⁻¹)	Cost of material and tagging kit (€ fulfilment ⁻¹)	Services costs (Veterinary) (head ⁻¹)	Total cost (head ⁻¹)
CREA-AAM	2013	Identification of animals	0.035	14.53	13.16	2.48	1.00	4.44
		Registration in BDR	0.100	14.53	13.16	-	-	1.45
CREA-ZOE	2014	Identification of animals	0.026	14.53	13.16	2.50	1.00	4.21
		Registration in BDR	0.030	14.53	13.16	-	-	0.44
Average cost (€ head ⁻¹)								5.27

BDR, Regional Data Bank.

Table 5. Average costs for identifying and registering a caprine animal at farms monitored by operative unit CREA-ZOE (PZ).

Operative unit	Period (year)	Activity	Average length of fulfilments (h fulfilment ⁻¹)	Number of fulfilment (fulfilments year ⁻¹)	Labour rate (€ h ⁻¹)	Cost of material and tagging kit (€ fulfilment ⁻¹)	Services costs (Veterinary) (head ⁻¹)	Total cost (head ⁻¹)
CREA-ZOE	2013	Identification of animals	0.042	14.53	13.16	2.50	1.00	4.67
		Registration in BDR	0.023	14.53	13.16			0.33
CREA-ZOE	2014	Identification of animals	0.031	14.53	13.16	2.50	1.00	4.37
		Registration in BDR	0.030	14.53	13.16			0.44
Average cost (€ head ⁻¹)								4.90

BDR, Regional Data Bank.

Discussion

The system of identification and registration of dairy cows resulted well organized with a good level of coordination between the involved actors in both farms. The activities necessary for the compliance with rules of identification and registration of cattle are distributed throughout the year, but vary from day to day. The average total cost for annual obligations amounted to € 533.34 year⁻¹ while the average cost for individual fulfilment in the monitoring period amounted to € 4.10.

Even in the case of sheep and goats, the monitoring showed a good cooperation between farms and technicians. However, some difficulties were detected, mainly due to the size of the rumen boluses and the limited effectiveness of the ear tags. The operators suggested using smaller rumen boluses and tattoo instead of ear tags; they also suggest to extend the period within which the animals have to be labelled from the current 6 months to 9 months as allowed by the EC Regulation 21/2004 art. 4 paragraph 1: *By way of derogation Member States may extend the period, which may not, however, exceed nine months, for animals kept in extensive or free-range farming conditions.* The cost of compliance amounted to € 5.27 head⁻¹ for sheep and € 4.90 head⁻¹ for goats.

Perspective

On May 15, 2014 the European Parliament adopted the Regulation (EU) 653/2014 that establishes the gradual transition to the possibility of using the electronic identification for cattle. According to the Regulation, from 18th July 2019, the Member States must ensure that they have completed the necessary infrastructure to ensure the identification of the animals on the basis of an electronic identifier as an

official means of identification. From 18th July 2019, Member States may also make compulsory the use of an electronic identifier as one of the two means of identification. During the transition period the conventional ear tags will continue to be the only official means of identification of cattle.

In Italy the obligation of a passport was removed for cattle and buffalo born after May 1, 2015 if moved on the national territory. This was possible because the National Data Bank has been recognized by the European Commission to be fully operational by the Commission Decision of 13th February 2006 (Decision 2006/132 / EC). To date, all the information contained in the passport is already registered in the national database and, in relation to changes in the declaration of origin and destination of the animals (Mod. IV).

The abolition of the passport does not change the existing obligations concerning the communication of birth / death / movements and recording in BDN / BDR required information.

Once the electronic exchange of data between national databases has become fully operational, the elimination of passport for animals will be possible also for intra-Community trade.

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