

COST EVALUATION OF THE USE OF CONVENTIONAL AND ELECTRONIC IDENTIFICATION AND REGISTRATION SYSTEMS FOR THE NATIONAL SHEEP AND GOATS POPULATIONS IN SPAIN



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INTRODUCTION

Regulation EC 21/2004 states individual identification (ID) & registration (R) in the EU of all sheep and goats born after July 9, 2005. Double ID is adopted, but the use of **electronic ID** will be mandatory after **December 31, 2007**. The aim of this study is to evaluate the implementation costs of the Regulation for the **sheep (21.0 million)** and **goats (2.6 million)** industry in Spain.

MATERIALS & METHODS

Strategies evaluated were:

- **Conventional ID (CID):** 2 plastic ear tags (0.3 or 0.15 € each; 10% annual losses).
- **Electronic ID (EID):** 1 electronic bolus (2.2 € each; 0.3% annual losses) & 1 plastic ear tag.
- **Mixed ID (MID):** CID in fattening & EID in breeding stocks.



Implementation options considered were:

- 1) Complete, full implementation of EC 21/2004;
- 2) Simplified, only 1 ear tag (with holding & country codes) in fattening stock (according to Article 4(3) of EC 21/2004) in the CID & MID strategies;
- 3) Triple ID, 2 ear tags & 1 electronic bolus, aiming to reduce re-identification costs in EID & MID strategies;
- 4) Simplified & triple ID, in CID, EID & MID strategies.

A sensitivity analysis was done to evaluate the effects of ear tag losses and bolus price on the total annual costs.

RESULTS & DISCUSSION

Use of EID in all animals was the most expensive strategy but was the only strategy allowing individual ID & effective traceability. Total annual cost of CID & MID were similar. When the simplified and triple ID option was used, **MID strategy showed the lowest cost**.

MID strategy showed the lowest total cost for an **ear tag rate of losses > 12%** and a **bolus price < 1.80 €**.

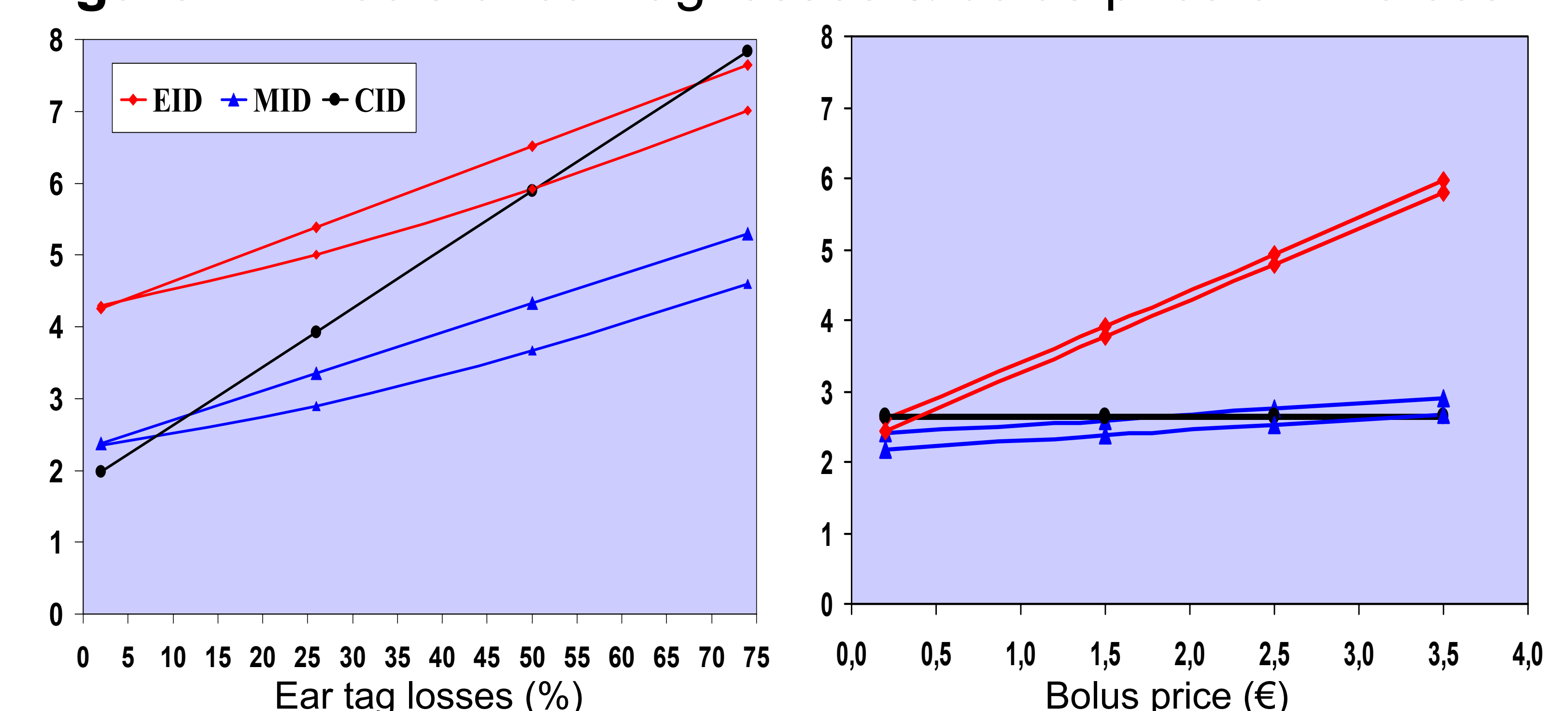
Table 1. Cost structure of the complete implementation option of ID&R in sheep and goats in Spain.

Item	CID	EID	MID
Devices ID, %	7.7	51.2	17.8
Re-ID, %	26.3	8.9	13.9
Labor costs,%	32.5	12.2	27.6
Movement-readings:			
- among farms, %	16.7	1.2	2.0
- in abattoir,%	1.2	0.7	0.7
Abattoir recovery,%	0.9	3.6	0.8
Data base, %	10.2	5.7	9.8
Equipment, %	4.5	16.4	27.5
Total costs:			
€ · yr ⁻¹ (× 10 ³)	70,410	124,124	72,200
€ · animal ID ⁻¹ · yr ⁻¹	2.63	4.64	2.70

Table 2. Comparison of implementation options

Options (€ · animal ID ⁻¹ · yr ⁻¹)	ID strategy		
	CID	EID	MID
Complete	2.98	4.64	3.03
Simplified (Article 4(3))	2.63	4.64	2.70
Triple ID	2.98	4.47	2.81
Simplified & Triple ID	2.63	4.47	2.48

Figure 1. Effects of ear tag losses & bolus price on the cost.



CONCLUSION: MID strategy was the best choice (2.48 to 3.03 €), combining CID advantages in fattening stock (lower price of ID devices) & EID advantages in breeding stock (automatic management & low losses rate).

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