

# Electronic vs. visual identification for lambing data and body weight recording under farm conditions



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## INTRODUCTION

Most sheep farms use visual ear tags to collect data in a manual manner. Collecting performance data by automatic systems may reduce **effort and mistakes**.

Electronic Identification (**e-ID**) by rumen boluses may facilitate the implementation of automatic and semi-automatic recording systems.

The aim of this study was to evaluate the use of manual, semi- or full-automatic systems for lambing and body weight (BW) data recording, under practical sheep farm conditions.

## MATERIALS & METHODS

### Data recording systems:

- **Manual (M):** Visual ID by plastic ear tags, manual performance data collection on paper and by typing the data for uploading to a computer.
- **Semiautomatic (SA):** e-ID by boluses, performance data typing on a handheld reader, and computer uploading by blue-tooth connection.
- **Automatic (A):** Similar to SA, but data reading and recording done automatically.



### Exp. 1: Lambing data recording

- **Animals:** 153 ewes (dairy, n = 73, Manchega and Lacauene; meat, n = 80, Ripollésa) in groups of 10 ewes
- **Comparisons:** M vs. SA
- **Variables recorded:** Time and errors

### Exp. 2: BW data recording

- **Animals:** 240 ewes (dairy, n = 120, Manchega and Lacauene; meat, n = 120, Ripollésa) in groups of 20 ewes
- **Comparisons:** M vs. A
- **Variables recorded:** Time and errors



### Statistical Analyses:

ANOVA using PROC GLM of SAS (v.9.1).  
Model included recording system method (M, SA or A), sheep type (dairy or meat), group of ewes and first order interactions.

## RESULTS

Although operating time for lambing data recording was greater in dairy than meat ewes (**Table 1**), because the dairy ewes needed ear tag cleaning and the operator had lower experience,  $M > SA$  ( $P < 0.001$ ) for both dairy and meat ewes. Data uploading errors were not detected in SA.

**Table 1.** Comparison of manual (M) vs. semiautomated (SA) lambing data recording systems in sheep

Item	Dairy		Meat		SEM
	M	SA	M	SA	
Ewes, n	73	73	80	80	-
Lambs, n	110	110	130	130	-
Time, min/10 ewes					
Recording <sup>4</sup>	11.10 <sup>a</sup>	8.01 <sup>b</sup>	7.77 <sup>b</sup>	6.80 <sup>c</sup>	0.25
Data transfer	5.57 <sup>a</sup>	0.70 <sup>c</sup>	5.21 <sup>b</sup>	0.51 <sup>c</sup>	0.09
Overall	16.67 <sup>a</sup>	8.71 <sup>c</sup>	12.98 <sup>b</sup>	7.31 <sup>d</sup>	0.21
Unitary time, min/ewe					
Recording	1.11 <sup>a</sup>	0.80 <sup>b</sup>	0.78 <sup>b</sup>	0.68 <sup>c</sup>	0.03
Data transfer	0.56 <sup>a</sup>	0.07 <sup>c</sup>	0.52 <sup>b</sup>	0.05 <sup>c</sup>	0.01
Overall	1.67 <sup>a</sup>	0.87 <sup>c</sup>	1.30 <sup>b</sup>	0.73 <sup>d</sup>	0.02
Errors, n					
Recording	10 (9.1%)	11 (10%)	2 (1.5%)	3 (2.3%)	-
Data transfer	9 (8.2%)	0	2 (1.5%)	0	-

<sup>a-d</sup> Means with different superscript within row differ ( $P < 0.05$ ).

Weighing time varied according to ewe type and recording system, being  $M > A$  (**Table 2**). Average time for data uploading and errors were also  $M > A$  ( $P < 0.001$ ). Overall time for BW recording in M and A was 0.63 and 0.25 min/ewe, respectively.

**Table 2.** Comparison of manual (M) vs. automated (A) BW recording systems in sheep

Item	Dairy		Meat		SEM
	M	A	M	A	
Records, n	120	120	120	120	-
Mean BW, kg	76.32 <sup>a</sup>	75.86 <sup>a</sup>	50.82 <sup>b</sup>	50.96 <sup>b</sup>	0.70
Time, min/20 ewes					
Recording	8.52 <sup>b</sup>	4.17 <sup>d</sup>	9.15 <sup>a</sup>	5.09 <sup>c</sup>	0.18
Data transfer	3.58 <sup>a</sup>	0.35 <sup>b</sup>	3.64 <sup>a</sup>	0.33 <sup>b</sup>	0.07
Overall	12.10 <sup>b</sup>	4.52 <sup>d</sup>	12.79 <sup>a</sup>	5.42 <sup>c</sup>	0.21
Unitary time, min/ewe					
Recording	0.43 <sup>b</sup>	0.21 <sup>d</sup>	0.46 <sup>a</sup>	0.25 <sup>c</sup>	0.01
Data transfer	0.18 <sup>a</sup>	0.02 <sup>b</sup>	0.18 <sup>a</sup>	0.02 <sup>b</sup>	0.01
Overall	0.61 <sup>b</sup>	0.23 <sup>d</sup>	0.64 <sup>a</sup>	0.27 <sup>c</sup>	0.01
Errors, n					
Identification	3 (2.5%)	0	3 (2.5%)	0	-
BW values	10 (8.3%)	0	5 (4.2%)	0	-

<sup>a-d</sup> Means with different superscript within row differ ( $P < 0.05$ ).

## CONCLUSIONS

- **Implementation** of SA & A recording systems using electronic ID in dairy and meat sheep farms **was easy**.
- **Operator training is a must**.
- **Use of e-ID** in SA & A data recording:
  - 1) Reduced lambing and BW recording times (40-60%).
  - 2) Improved data accuracy by reducing data uploading errors (100%).