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.

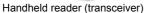
The aim of this study was to evaluate the use of manual, semi- or full-automatic systems for lambing and body weight (BW) data recording, under practical sheep farm conditions.

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.





Stick antenna

Exp. 1: Lambing data recording

- Animals: 153 ewes (dairy, n = 73, Manchega and Lacaune; meat, n = 80, Ripollesa) 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 Lacaune; meat, n = 120, Ripollesa) 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.

 Table1. Comparison of manual (M) vs. semiautomated (SA)

 lambing data recording systems in sheep

Item	Dairy		Meat		SEM
	М	SA	М	SA	SEIWI
Ewes, n	73	73	80	80	-
Lambs, n	110	110	130	130	-
Time, min/10 ewes					
Recording ⁴	11.10ª	8.01 ^b	7.77 ^b	6.80°	0.25
Data transfer	5.57ª	0.70°	5.21 ^b	0.51°	0.09
Overall	16.67ª	8.71°	12.98 ^b	7.31 ^d	0.21
Unitary time, min/ewe					
Recording	1.11ª	0.80 ^b	0.78 ^b	0.68°	0.03
Data transfer	0.56ª	0.07°	0.52 ^b	0.05°	0.01
Overall	1.67ª	0.87°	1.30 ^b	0.73 ^d	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	-

a-d 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. Compariso	on of ma	nual (M)	vs. auto	mated (A)	BW			
recording systems in sheep								
Item	Dairy		Meat		SEM			
nem	М	Α	М	Α	SEIVI			

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

^{a-d} 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:

Reduced lambing and BW recording times (40-60%).
 Improved data accuracy by reducing data uploading errors (100%).