Cost-benefit study of implementing electronic identification for performance recording in dairy and meat sheep farms

Ait-Saidi, A., Caja, G., Milán, M.J., Salama, A.A.K. and Carné, S.
Grup de Recerca en Remugants (G2R), Universitat Autònoma de Barcelona, Bellaterra, Spain

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INTRODUCTION

Automated performance recording based on the use of electronic identification (**e-ID**) proved to be a useful tool for increasing the reliability of data collection and for saving time for performance recording in goat (Ait-Saidi et al., 2008; J. Dairy Sci. 91:1438) and sheep farms (Ait-Saidi et al., 2009; see *S43, Poster 24*).

The aim of this study was to perform a cost-benefit simulation study comparing manual, semi- or full-automatic data recording by e-ID for common performance recording in dairy and meat sheep farms.

MATERIALS & METHODS

■ Calculations basis:

1) Milk recording for 1X (AT method): 400 ewes

Savings:

- Labor time (min/ewe)	0.19
- Work wage (€/h)	10.0

Total savings = 0.03 €/ewe

Extra cost e-ID implementation :

- Mini-boluses (€)	1.4
- Sheep lifespan (yr)	5.0
- Milk recordings (test-d/ewe and yr)	4
- Hand-held reader (€)	400
- Use (d/yr)	200 (400 ewes)
- Depreciation period (yr)	5.0

Total extra cost = 0.071 €/ewe

2) Milk recording for 2X (A4 type): 400 ewes

Savings:

- Labor time (min/ewe)	0.39
- Work wage (€/h)	10.0

Total savings = 0.065 €/ewe

Extra cost e-ID implementation:

- Mini-boluses (€)	1.4
- Sheep lifespan (yr)	5.0
- Milk recordings (test-d/ewe and yr)	8
- Hand-held reader (€)	400
- Use (d/yr)	200 (200 ewes)
- Depreciation period (yr)	5.0

Total extra cost = 0.072 €/ewe

3) Lambing recording:

Dairy sheep: 400 ewes, 1 per yr
Meat sheep: 700 ewes, 1 or 1.5 per yr)

Savings 40%

Extra cost e-ID implementation:

- Extra hand-held reader: 400 € (depreciation 5 yr)

Total extra cost = 0.31-0.48 €/ewe and recording

4) BW recording: idem for dairy and meat sheep

Savings 60%

Extra cost e-ID implementation:

- Extra stationary reader: 1,300 € (depreciation 5 yr)

Total extra cost = 0.082-0.106 €/ewe and recording

RESULTS

Table 1 shows the benefits of implementing e-ID for performance practices in dairy (x1 or x2) and meat sheep (intensive or extensive) farms.
Break-even points varied according to type and management system of the farm, being: dairy (x1, 477 ewes; x2, 279 ewes) and meat sheep farms (extensive, 1,110 ewes; intensive, 565 ewes).

Table 1. Benefits of implementing e-ID for performance recording in dairy & meat sheep farms

	Dairy		Meat	
	×1 (AT)	× 2 (A4)	Extensive	Intensive
Sheep, n	400	400	700	700
Savings, €/sheep yr $^{-1}$				
Milk recording	0.126	0.266	-	-
Flock book	0.095	0.095	0.095	0.142
Weighing	0.188	0.188	0.125	0.188
Inventory	0.060	0.060	0.060	0.060
Total, €/ sheep yr $^{-1}$	0.469	0.609	0.280	0.390
Benefits				
€/sheep yr $^{-1}$	-0.037	0.099	-0.047	0.030
€/flock yr $^{-1}$	-14.60	39.80	-32.67	21.00
Breaking point, n sheep	477	279	1.110	565
	93%	> 100%	87%	> 100%

CONCLUSIONS

- Costs of e-ID were fully covered (>100%) in sheep dairy farms doing twice-a-day milk recording (A4 method) and in intensive meat farms (1.5 lambings per year).
- Only 93 and 87% of the e-ID extra costs were covered by savings in farms doing once-a-day milk recording (AT method) or in meat farms under extensive production systems, respectively.
- Break-even points were: **dairy (279 to 477 ewes)** and meat **(565 to 1,110 ewes)** farms.
- Ongoing innovations and new software management will also make use of e-ID more profitable in the future.