

INDIVIDUAL DATA COLLECTION TECHNOLOGIES



THE ESKARDILLO TOOL

How individual animal data recording and interpretation can improve management of dairy goat farms

+100

More than a hundred goat farms of Florida, Malagueña, Murciano-Granadina, and Payoya breeds, belonging to the Federation of Goat Breed Associations of Andalusia (Cabrandalucia), are using the Eskardillo tool.



THE ESKARDILLO TOOL IS A NEW TECHNOLOGY AIMING TO OPTIMISE FARM MANAGEMENT BY MAKING USE OF “BIG DATA” GENERATED IN DAIRY GOAT FARMS

Dairy goat production systems in developed countries are experiencing an intensification process in terms of higher farm size, electronic identification, reproductive intensification, genetic selection and milking automation.

This new situation generates “big data” that can be used to aid farmers during the decision making process. Precision Livestock Farming and individual data management technologies offer a great opportunity to optimise farm management



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Data collection



Data Processing



Feedback to the farmer for *in situ* decision-making

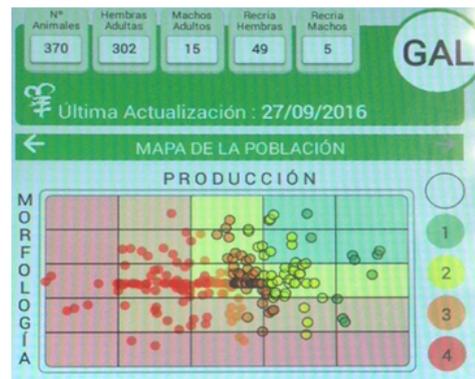


DIRECT TERMINAL INPUTS

Chip reader
Barcode reader
Digital camera
Keyboard

REMOTE INPUTS

Milk control
Morphology evaluation
Breeding program



THE ESKARDILLO IS A SMARTPHONE-BASED TERMINAL WHICH INCORPORATES VARIOUS ELEMENTS:

- An electronic chip reader to identify animals *in situ*
- A barcode reader to identify tubes with biological samples
- A digital camera to take pictures for post-mortem certificates
- A keyboard for data input
- A Wi-Fi connection for data transfer
- A mobile-phone SIM card to store data
- A touchscreen to navigate
- A software for data interpretation

THE ESKARDILLO TOOL WAS EVALUATED BY MONITORING THE PRODUCTIVE PARAMETERS FROM 2013 TO 2016 OF 12 MURCIANO-GRANADINA FARMS USING ESKARDILLO, AND 12 NOT USING IT

IT RELIES ON THREE PRINCIPLES:

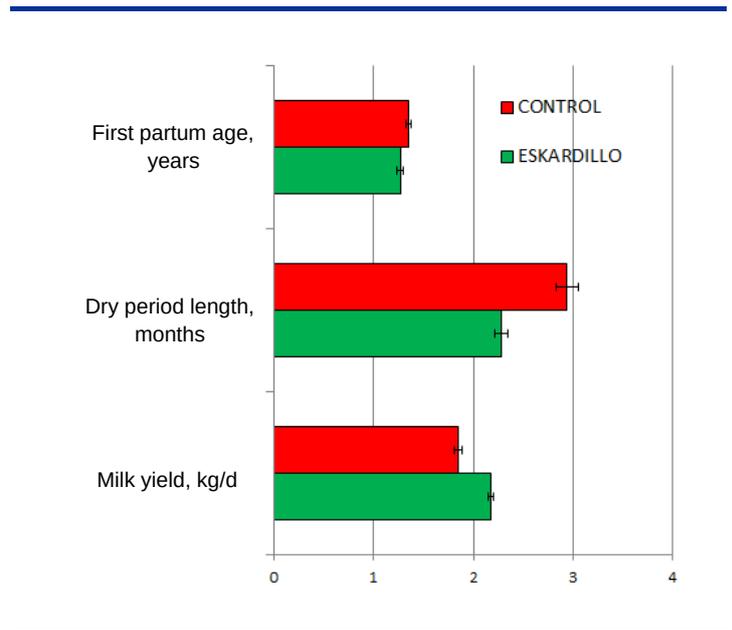
- i) Systematic individual data recording (e.g. milking control, productivity, genetic merit, morphology, etc.)
- ii) Big data processing and interpretation and
- iii) Interactive feedback to the farmer to optimise farm management.

GREATER MILK YIELD

This case study revealed an acceleration in the milk yield in farms using the Eskardillo; +26 kg / lactation per year in comparison to farms not using it (+6.1).

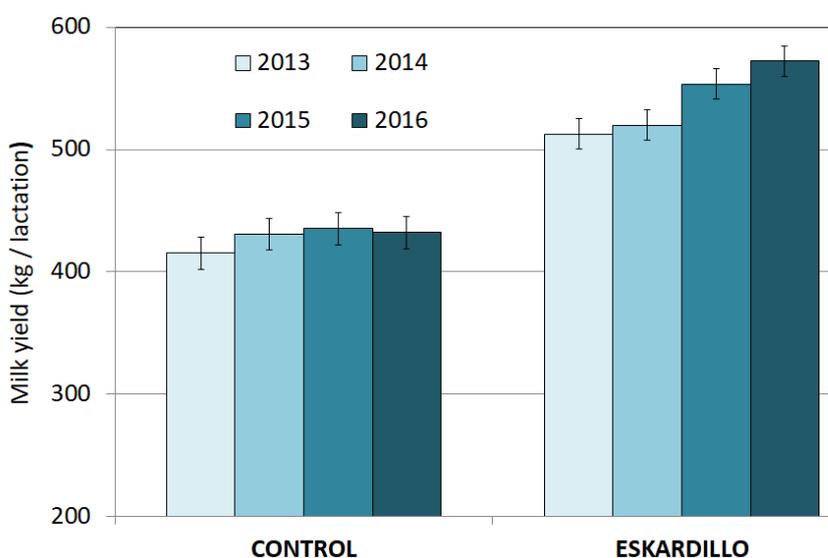
This acceleration in milk yield was driven by:

- i) A greater genetic progress as a result of a more knowledgeable selection of high merit goats
- ii) The implementation of a more effective culling strategy based on the production, reproductive and health records from each animal
- iii) The optimisation of the conception timing for each animal according to its physiological stage and milk yield prospects to customise lactation length while keeping a short and constant dry period length (2 months).



REDUCTION OF UNPRODUCTIVE PERIODS

Farms decreased their unproductive periods such as the first partum age (-30 days), and the dry period length (-20 days) without negatively affecting milk yield per lactation



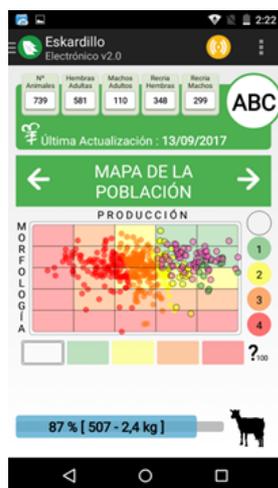
YEARLY INCREASE IN MILK YIELD IN FARMS WHICH IMPLEMENTED THE ESKARDILLO IN 2014 AND IN CONTROL FARMS

FARMS USING THE ESKARDILLO WERE ABLE TO BETTER MONITOR THE PRODUCTIVITY AND PHYSIOLOGICAL STAGE OF EACH ANIMAL HELPING FARMERS TO MAKE BETTER BREEDING, REPLACEMENT AND CULLING DECISIONS

HOW TO MAKE IT SUCCESSFUL

There are some issues which are key to successfully implement this type of technology:

- i) Well established breeding programmes with individual records of genealogies, breeding values and morphology traits.
- ii) Continuous milk control programmes to monitor the productivity and physiological state of each individual animal.
- iii) Constant inputs from the farmer to keep the animal data set updated.
- iv) Technical support from the breeding association.
- vi) Forward-thinking farmer and willingness to use the technology for decision making.



IT HELPS FARMERS IN KEY FARM DECISION-MAKING PROCESSES THROUGH THE INTEGRATION OF UPDATED INDIVIDUAL ANIMAL DATA

THE ESKARDILLO TOOL CAN BE CONSIDERED A USEFUL STRATEGY TO OPTIMISE FARM MANAGEMENT AND TO CONTRIBUTE TO THE SUSTAINABLE INTENSIFICATION OF MODERN DAIRY GOAT FARMS

- 1** Better monitoring of the productivity and physiological stage of each animal
- 2** More knowledgeable selection of high merit goats
- 3** More effective culling strategy based on production, reproduction and health records from each animal
- 4** Reduction of unproductive periods and acceleration of milk yield increase

THANKS: To Caprigran (www.caprigran.com) and farmers participating in the case study
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