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Electronic identification for individual water intake measurement in sheep

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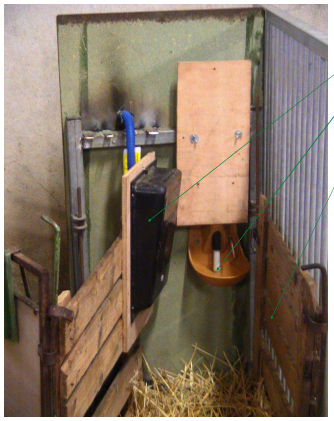
Electronic Identification (RFID)

For more than 20 years, INRA–SAGA works in integrating electronic identification in its own flocks for its research needs.
Several implementations were developed : weighing, sorting, feeding, milk recording, automatic classifying, etc.
After several trials (ear tags, bolus, implants) INRA-SAGA decided to use RFID ear tag (loosing rate < 1% per year) to identify animal at birth.

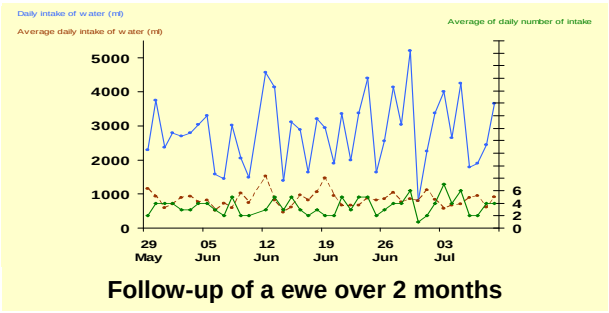
Individual water intake measurement

INRA-SAGA with UMR AgroParisTech had developed a device for measuring individual water intake of sheep. First tests were made on four ewes of our experimental flock, maintained indoors during the duration of the trial.
Ewes, identified with RFID ear tag, were fed by hay and have access to one electronic trough.



The drinking trough is equipped with :
- RFID reader (ISO),
- water level sensor
- system for water supply at low pressure
- wood screens to prevent miss identification

The device is driven by a PC which records details of each visit: time, duration, water intake (mL)



Follow-up of a ewe over 2 months

Elementary statistics of the 2 months follow-up

Mean (std)	Ewe 1		Ewe 2		Ewe 3		Ewe 4	
Daily water intake (ml)	2813	(1004)	3112	(1583)	2303	(965)	2850	(1115)
Daily intake number	3.5	(1.4)	3.5	(2.5)	2.3	(0.8)	1.1	(0.3)
Intake by visit (ml)	840	(221)	1048	(411)	1030	(263)	2630	(906)

Conclusions

Recording automatically and precisely the individual water intake of sheep is possible.
The final aim is to detect genetic variability of individual water intake and its relationship with heat resistance and the changes in individual water consumption to diagnose health problems very early or changes of physiological status (estrus)