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On field assessment of ultra-high frequency technology for sheep electronic identification

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The electronic identification of sheep and goats, mandatory in the European Union since 2010, is based on a low-frequency (LF) technology which enables to read animals one by one and up to 0,8 m at best with stationary readers. In France, after several years, few farmers are using RFID (Radio Frequency IDentification) for farm management and many stakeholders of the industry still have difficulties to get animal identification numbers in good conditions.

Collecting animal identification numbers from batches of moving animals identified by LF requires to make animals going through individual corridors. Consequently, the flow of animals goes down and the waste of time can be difficult to accept by the stakeholders.

Unlike the low-frequency technology, Ultra-High Frequency (UHF) RFID can read quickly simultaneously many tags with a longer read range. As UHF waves reflect on metals and cannot get through liquids and organic tissues, some have considered it was not suitable for live animals.

Nowadays, UHF is more and more large scale used in many sectors of activity as logistic, medical, retails, industry... The technology is improving, and UHF tags can be used now close to liquids goods. As some trials of UHF identification on animals were emerging in different countries (Deer in New-Zealand, Pigs in Denmark, Cattle in Scotland and USA…), the French Livestock Institute suggested in 2016 to the French sheep industry to carry out a field assessment of the UHF technology. The goal was to perform field trials and to get a practical experience about UHF: What is the reading rate on moving animals with UHF? Have metals and organic tissues an impact on readings? Do wave reflections generate unexpected readings? How UHF technology may solve problems which are still open with LF?

This paper deals with these topics and presents the learnings got in different trials performed in sheep farms and collection centers.