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Effect of the transportation on the readability and retention of the endo-reticulum transponder in goats Sarda breed

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Abstract

The Authors report the results of an experiment designed to: a) verify ceramic bolus retention in goats during, and immediately after, transportation; b) verify transponder readability after transportation. Transponder retention and readability was evaluated during the 7th Provincial Goats Fair (Sardinia) on 104 goats. 63 adult and 41 younger than 1 year, came from 8 breeders who had identified their whole flocks electronically. Transponder retention and readability was verified, immediately before leaving the breeder and on return, using a portable reader (static reading). On arrival at the fair, the animals were read using a stationary reader fitted with an antenna located at one side of a corridor through which the animals passed (dynamic reading). No cases of loss or malfunctioning of the identifiers were observed. The readability of transponders proved to be 100% during the three different controls.

***Keyword(s)*:** *goat; electronic identification; ruminal bolus; transponder*

Introduction

In caprine species the cause of loss of ceramic boli, which contain the electronic identifier, are not yet understood. Losses in caprines are higher than registered in bovines and in ovines (1,2,3,7). Pinna et al. (2002) has indicated birth as one of the possible causes of bolus loss. The transport of the animals could also cause loss by stimulating involuntary ruminal movements leading to the bolus backing up. Furthermore, during transport several low frequency electromagnetic perturbations might influence bolus function.

The present work was realized to investigate the above hypotheses with the aiming of verifying: a) the dependency of ceramic bolus loss in goats on a transfer by truck taking account of the route; b) the influence of the journey on transponder readability.

Material and Method

The present work was conducted during the VII caprine/goats provincial fair (Sardinia) involving 104 goats of Sardinian breeds. The animals came from 8 breeders participating voluntarily in the pilot project on electronic identification of ruminants launched in Sardinia (5). The entire group of animals has been electronically identified using a ceramic bolus (RUMITAG bolus®) with a specific weight of >3,3 g/cm³ and a passive transponder working in HDX technology (Tiris 32 mm), complying with the ISO standards 11784 and 11785.

A total of 104 goats were regularly registered on the Sardinian breed Herd Books (Nuoro): 63 (60,57 %)) were pluriparas(?) and 41 (39,43 %)) were primiparas(?). Transponder readabilities were verified using two different types of reader: a portable reader (*Gesreader 2 S ISO*®) used on departure from the farm and on return 3 days later, after the fair (static reading). A static reader (*Gesimpex transportable F 210 reader*) was used for dynamic reading on arrival of the animal at the fair. For this type of reading an antenna (*Tiris GO3C*), was installed on one side of a narrow corridor (60 cm diameter) set up near the point of arrival through which the animals were obliged to run one at a time. The animal's identification code appeared when it ran in front of the antenna on the dedicated software (*Manga v 5.3*) installed in the notebook connected to the reader.
The readability [R (%)] – the capability of the transponder to transmit the reader from inside the body of the animal – has been calculated with the following mathematic formula

R (%) =

(Number of transponders read / number of caprines identified by the transponder) x 100

Up to 3 readings were done during the 3 days of the fair: a static reading on departure of the animals from the farm; a dynamic reading on arrival of the animal at the fair; and a static reading on return to the farm.

Results

Table 1 indicates the path covered and the time required to record each group of animals coming from each of the farms involved in the experiment. The table also shows the readability results obtained during the static reading before departure from the farm and on arrival at the VII goats Provincial Fair (dynamic reading).

Cases of bolus loss were not observed during the whole experiment either during or after the transport of the animals in the path characteristic considered. Furthermore the readability of the transponders resulted to be 100%. Each group of animals was transported using different kinds of truck over diverse paths, for long or short distances, on winding, asphalt or off-road. In one case, the altitude change from the farm, located at sea level, to the fair venue was 800m.
Table 2 summarises the results obtained during the whole experiment. For each group of goats investigated are indicated, relative to the movement from the farm to the fair and

back: the date of bolus application; animal attitude; the total distance covered; the total time spent; readability results obtained during the 3 control reading.

During the whole period of the experiment the retention and readability of the transponders, as resulting from the single reading tests as well as from compressive resume, has neither been influenced by the journey nor by the different phases of animal movements. On the basis of tests developed on goats of Sardinia breeds, at the moment, we have no evidence of negative aspects concerning in situ ruminal bolus retention and/or transponder readability during animal transport by road

Conclusion

The results obtained during the present experiment indicate that transport, and in particular the related activities (i.e. capture, loading and unloading, etc.) do not represent a significant cause of bolus loss as well as transponder readability loss.
Further research is needed to extend our investigation to the effects of other kinds of logistics on bolus retention. Longer journeys or transportation in more adverse conditions could effectively cause the bolus loss.

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Table 1- Results obtained during the first and the second reading (static and dynamic reading)

Farms	Number of animals		Departure site	Transponder readability at departure time	Arrival site	Km covered	Time spent	Transponder readability at the arrival
	Plur.	Prim.						
C1	7	5	Talana	100 %	Villagrande Strisali	20	30’	100 %
C2	6	4	Urzulei	100 %	Villagrande Strisali	45	1 h:30’	100 %
C3	7	5	Urzulei	100 %	Villagrande Strisali	40	1 h:20’	100 %
C4	4	6	Gairo	100 %	Villagrande Strisali	25	45’	100 %
C5	10	5	Gairo	100 %	Villagrande Strisali	50	1 h:00	100 %
C6	12	5	Gairo	100 %	Villagrande Strisali	25	30’	100 %
C7	8	6	Gairo	100 %	Villagrande Strisali	27	30’	100 %
C8	9	5	Atzara	100 %	Villagrande Strisali	98	2 h:00	100 %
Total	63	41						

Table 2 – Total results overview concerning the experiment.

Farms	Municipal farm site	Date of bolus applying	Production category and number of animals		Municipal fair site	Total Km covered	Total time spent	Global transponder readability
			Plur	Prim				
C1	Talana	21/10/2000	7	5	Villagrande Strisali	20 + 20	30’ + 30’	100 %
C2	Urzulei	31/03/2001	6	4	Villagrande Strisali	45 + 45	1 h: 30’ + 1 h: 30’	100 %
C3	Urzulei	03/11/2000	7	5	Villagrande Strisali	40 + 40	1 h: 20’ + 1 h: 20’	100 %
C4	Gairo	02/11/2000	4	6	Villagrande Strisali	25 + 25	45’ + 45’	100 %
C5	Gairo	17/03/2001	10	5	Villagrande Strisali	50 + 50	1 h :00 + 1 h:00	100 %
C6	Gairo	17/10/2000	12	5	Villagrande Strisali	25 + 25	30’ + 30’	100 %
C7	Gairo	08/04/2002	8	6	Villagrande Strisali	27 + 27	30’ + 30’	100 %
C8	Atzara	01/10/2000	9	5	Vill. Stris.	98 + 98	2 h :00 + 2h:00	100 %
Total			63	41				