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# Effect of intraperitoneal electronic identification on productive performance of Sardinian suckling piglets

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**ABSTRACT -** 32 piglets between 1 and 4 days of age, and between 1,40 and 3,95 kg of live weight, have been segregated into two groups: 16 piglets, (T group) has been electronically identified by the intraperitoneal inoculation of an injecting HDX 32.5×3.8 mm bio-glass encapsulated transponder 134.2 kHz (TIRIS™); 16 piglets, (C group) as control. The time requested to apply and to record the transponder's code per each piglet was of 2' 30", on average. All the piglets underwent to a clinical checking throughout the trial, and were weighted at the inoculation and at the slaughterhouse, when 26-30 days aged. The readability of the tranponders on T group piglets has been checked "*in vivo*" at inoculation by the use of a handy reader with a stick antenna, and at slaughterhouse, "*ante mortem*" under static reading and "*post mortem*" under dynamic reading, throughout the slaughtering chain. Live weights of animals at the inoculation of transponders were 2651±786 g *vs* 2955±580 g and, at slaughterhouse, 9467±1862 g *vs* 9345±1834 g respectively for T and C group.No statistic difference between productive performance of the two groups raised. Readability and collection of transponders were 100% successfull.The intraperitoneal electronic identification in sucking piglets doesn't show negative effects on productive performance, but it provides a foolproof method to check each animal's own identity throughout the productive chain, both in farm and at slaughterhouse.

*Key words*: Electronic identification, piglets, productive performance.

**INTRODUCTION** – In Sardinia isle about 250.000 pigs are bred up distributed in 17.700 small farms in the whole territory **(1).** The suckling piglets, labelled as "suino tipico sardo", undergo to typical management of breeding up, as proper Sardinian traditions tell. In previous works, Pinna et al., **(6,7)** showed the results of a survey carried out for the development of the intraperitoneal identification systems. In the present work, the effects on the main productive *in vivo* and *post mortem* performance are taken into account.

**MATERIALS AND METHODS –** 32 suckling piglets between 1 and 4 days of age, have been weighted up and then segregated into two groups: the T group consisted of 16 piglets electronically identified by using an injecting HDX 32.5×3.8 mm bio-glass encapsulated transponder 134.2 kHz (TIRIS™), according to the technique studied by Caja et al. **(3),** that involves the inoculation of the transponder in abdomen cavity. Time of insertion, reading and reporting of transponder codes per each piglet has been detected. Transponders are in accordance with current ISO Standards 11784 and 11785 **(5)**. The reading of the transponder was performed through a hand-held reader Gesreader 2S ISO® (Gesimpex Com. S.L., Barcelona, Spain). The presence and the functioning of the transponder in the animals' abdominal cavity was detected by a reading immediately after injection, and in the slaughterhouse (26-30) using the above mentioned portable reader type. Readability

(R%), defined as ability of transponder to be operative in the animal's body and possibility to be detected by static reading, was calculated by the formula:

**R(%)=(number of read transponders / number of piglets with transponder)*100**

The animals' health was clinically checked during all the experimental period, to verify the behaviour modifications or clinical symptoms due to the transponder presence in animals. *In vivo* measures were collected according to Gigli et al. **(4)**. *Post mortem* items were checked in order to evaluate the carcass yield and fatness and also to verify the absence of any anatomical lesion due to the presence of the transponder in the inter-viscera place. The C group consisted of 16 piglets traditionally tagged. *In vivo* and *post mortem* data have been compared by T Student test (T group vs C group).

**RESULTS AND DISCUSSION –** The electronic identification took 2' 30" **±** 0'5", on average, to insert, read and report the transponder code of each piglet of T group. Piglets of both groups were clinically healthy throughout the experimental trial. A piglet of the T group died because of a gastroenterial syndrome. In each piglet of T group the recovery of the small wound in the point of injection of the transponder went on well in a week time, leaving just an imperceptible scar checked during inspection before slaughter. Piglets of T group did not show any symptom due to the presence of the transponder in abdominal cavity, neither any anatomo-pathological lesion at *post mortem* inspection. Table 1 shows live weight and daily average growth of animals of the two groups and readablity of transponders in animals of T group during the experimental trial. The piglets weights and daily growth do not show significant differences between the two groups. The readability of transponders performed *in vivo* in the piglets of T group was at 100%.

Table 1.-Live weight of animals of the two experimental groups (Mean ± S.D.) and readablity ( %) of transponders in animals of T group.

| | T group readability (%) | T group weight (g) | C group weight (g) | Significance P<0.01 |
|---|---|---|---|---|
| Number of animals | 15 | 15 | 16 | |
| Transponder application | 100% | 2651±786 | 2955±580 | n.s. |
| 26 -30 d | 100% | 9467±1862 | 9345±1834 | n.s. |
| Average daily growth | | 235±65 | 220±58 | n.s. |

Table 2 shows *in vivo* somatic measures recorded per each group before slaughtering. *In vivo* measures do not show significant differences between the piglets of T and C group.

Table 2–*In vivo* measures (cm) of animals of the two experiemental groups (Mean ± S.D.)

| Number of animals | T group 15 | C group 16 | Significance P<0.01 |
|---|---|---|---|
| Chest girth | 46.7±5.9 | 47.3 ±6.5 | n.s. |
| Abdomen length | 29.7±6.5 | 30.1± 7.1 | n.s. |
| Body length | 43±7.9 | 44.2±8.6 | n.s. |

Table 3 shows *post mortem* performance from the two experimental groups and the readablity and collection of transponders inserted in animals of T group. Also *post mortem* productive performance do not show significant differences between the piglets of the two groups. The readability of transponders performed in the slaughtering chain was 100 %. The collection of transponders from abdomen cavity was successful at 100%. 4 transponders, that represent the 26.6% of the totality,

resulted persistently enclosed in the omentum fat, while the 63.4% was free in abdomen cavity. No harm for viscera and perivisceral fat was observed at *post mortem* inspection.

Table 3.- *Post mortem* performance of the two experimental groups (mean ± S.D.) and readability (%) and collection ( %) of transponders in animals of T group.

| | | T group | C group | Significance |
|---|---|---|---|---|
| Number of animals | | 15 | 16 | P<0.01 |
| Carcass yield | (%) | 87.0 ± 2.1 | 86.8 ± 2.4 | n.s. |
| Fatness | (score 1-5) | 3 ± 0.25 | 3 ± 0.25 | n.s. |
| Readability | (%) | 100 | - | |
| Collection | (%) | 100 | - | |
| Transponders collected in the omental fat | (%) | 26.6 | - | |

**CONCLUSIONS –** Results obtained in this research, lead us to express the dependability of the electronic identification system adopted for suckling piglets. Intraperitoneal electronic identification by using bio-glass encapsulated transponder showed neither clinical symptoms, nor pathological lesions at inspection *post-mortem,* throughout the trial. The productive performance of both groups lead us to assess that the intraperitoneal electronic identification represents a reliable method useful for traceability of piglets.

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