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Electronic identification in rabbits: two body sites of injectable transponder

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ABSTRACT

Identification and monitoring of farm animals are effective tools for traceability. Actual livestock identification systems (ear-tags, tattoos, etc.) are not completely efficient and offer some inconveniences. The use of injectable transponders might be a reliable method for individual identification, allowing the improvement of the data recording and the farm management. The aim of this experiment was to evaluate the applicability of injectable transponder in live rabbits. A total of 40 fattening rabbits of 55 days old were injected with 23 mm passive FDX-B transponders (Datamars, Switzerland), preloaded into a needle in a sterilised packaged and applied by using a transponder injector (Planet ID, Germany). Two body locations for transponder's injection were studied: laterally to the neck (n=20) and armpit (n=20). Readings of the transponders were performed using portable ISO transceiver, before injection, after injection, the day after, after one week, after one month, before the slaughtering process. Rabbits were weighted at the injection, one week and one month after injection, and at slaughtering; a control group of not treated animals were weight to compare the effect of manipulation. Growth performance were studied by analysis of variance, using of GLM procedure. A χ^2 test was used to analyse difference in migration rate. Readability of transponders in the fatteners until slaughterhouse was 100%. Recovery of transponder during the slaughtering process was easy with 100% of transponders recovered. Body site of injection didn't affect the migration rate, nevertheless it was low. In one animal, the transponder was recovered into the scapular muscle. No harmful effects of the transponder injection on the animals were observed. Weight difference of animals was not significant for the two body site of injection, compare to the control group. Preliminary results showed that transponders can be used as a method for traceability and monitoring of live rabbits, allowing the improvement of the management of a farm.

Assessment of a method for evaluating the body condition of lactating rabbit does: preliminary results

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ABSTRACT

Body condition scoring (BCS) is a subjective way to evaluate the nutritional status of animals, widely used for livestock animals (cows, ewes, sows), being more accurate than weight or a eye appraisal. The relation of BCS to ovulation rate and fertility was demonstrated in other species. In intensive systems, rabbits does artificially inseminated (AI) at few days *post partum* (*pp*), have low fertility, due to the energy deficit in which they undergo for sustaining the concurrent lactation and pregnancy. An extensive rhythm is a suitable alternative for improving welfare, health and performance of does. A method for scoring the body status of lactating does before AI could allow a modulation of the reproductive rhythm, destining the low-scored does to a post-weaning AI. The aim of this investigation was to set a reliable *in vivo* method for scoring body condition of lactating does, verifying the connections to reproductive performance. The evaluation, involving 487 lactating does before AI, at 11 days *pp*, was based on feel of some body traits; the loin region was felt for vertical bone protrusions (spinous process) and fullness of muscle over and around the vertebrae, the rump region for bone protrusions and fullness of muscle, and hind leg for muscle thickness. The traits were subjectively scored using 0, 1 and 2 for poor, medium and good condition. For calculating an aggregate BCS, the hind leg score was omitted, because correlated to parity ($r=0.14$; $P=0.002$). Adding the respective score (0-2) of the loin and rump regions, 5 classes of BCS were obtained (0-4). The BCS was correlated to body weight of does ($r=0.29$; $P<0.0001$). In primiparous does ($n=75$), the highest fertility (51.8, 54.5, 83.3, 40.0 and 33.3% with BCS from 0 to 4) was obtained with a medium BCS, pointing out the negative effect of poor or excessive muscular and fat development; but the number of cases was low, so this result needs further confirmation. In multiparous does ($n=412$), fertility (59.6, 64.3, 71.3, 68.5 and 84.3% with BCS from 0 to 4) showed a positive trend in relation to BCS; the best BCS involved only the 12.4% of does, while the main part (41.5%) had the lowest BCS and fertility.

Influence of the rabbit's sire genetic origin and the season of birth on the litter performance in the organic production system: preliminary results

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ABSTRACT

In Italy, the organic rabbit production (ORP) must follow the guidelines for organic livestock system (EC regulation 1804/1999). The present study compared the performance of litters derived from two sire genetic origins (SGO), Vienna Blue (B) and Burgundy Fawn (F), along the 4 seasons of birth (SB), in the ORP system. Sixty-one litters from B and 60 from F SGO were used. The pups were born from January to November. Born per delivery (n), born alive per delivery (n), individual weight of born alive (g), weaning age (d), litter size at weaning (n), individual weight at weaning (g), litter weight at weaning (g), pre-weaning mortality (%) and pre-weaning growth (g/d) were studied. ANOVA tested the SGO, the SB and their interaction as fixed effects. The performance of the litters derived from the two considered SGO's was very good for litter size at birth (8.4) and at weaning (7.4), for the weight of born alive (63.3 g) and, especially, for the pre-weaning mortality (15.4%). The SGO didn't influence the litter performance. The SB effect was much more considerable, and determined a greater number of born per delivery in winter than in the other 3 seasons (9.5 *vs.* 8.6, 7.8 and 7.5; $P < 0.05$), lighter newborn pups in winter and heavier in autumn (58.1 *vs.* 69.1 g; $P < 0.05$), higher individual weaning weight in summer than in spring (1137 *vs.* 970 g; $P < 0.01$), but the weaning litter weight was found to be higher in winter, if compared to spring and summer seasons (8522 *vs.* 7215 and 7011 g; $P < 0.05$), because of the significantly higher weaning litter size of pups born in winter than in summer (8.4 *vs.* 6.5; $P < 0.01$). The best growth performance was observed in summer and the worse in spring (23.4 *vs.* 17.7 g/d; $P < 0.001$), with intermediate performance in winter and autumn (20.6 and 19.5 g/d). The pre-weaning mortality was unaffected by the SB. The increased environmental temperature during the pre-weaning life of litters born in spring significantly compromised their growth. In conclusion, the pups of the 2 SGO showed good pre-weaning performance and seemed to be suitable to the ORP system.

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Meat quality characteristics in local population of rabbit reared with organic system

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ABSTRACT

Aim of the research was to test the effect of different housing systems, organic and intensive, on meat quality of a rabbit local breed/population of Tuscany, characterized by low growing. 60 rabbits of this local rabbits were housed in colony cages, at open air (Group A) under organic system, according to an official organism of certification which states the exclusive use of local strains; 60 rabbits of the same local breed (Group B) and 60 hybrids (Group C) were housed in colony cages under conventional system. The rabbits were *ad libitum* fed with an organic diet (alfa-alfa hay and pellet). At the same live weight (2400 g) but at different ages (local population: 102 days; hybrids: 90 days) 30 animals of each group were slaughtered. For each group samples of *Longissimus Dorsi* (LD) were taken to evaluate pH, colour, Water Holding Capacity (WHC) (n=25), nutritional value, fatty acids composition and lipid oxidation (n=4). Meat of Group A animals, showed different physical meat properties compared with the other groups. In Group A the lowest muscular acidification and the highest value of WHC were found (pHu: 5.79 vs. 5.59 and 5.63, WHC: 52.3 vs. 47.8 and 47.9, for Group A, B and C, respectively, P<0.05). The muscles of Group A showed the lower lightness than the others (L*: 54.4 vs. 59.1 vs. 63.4, P<0.05). The rabbit population, reared under organic and conventional system, showed more red meat than hybrids in relationship with the higher redness (a*: 3.9 and 3.3 vs. 1.9, respectively, P<0.05). Colour surface measurement led to differences in Chroma and Hue (C*: 5.51 and 5.09 vs. 3.4 and H*: 38.3 vs. 48.6 vs. 57.7 for Group A, B and C, respectively; P<0.05). In Group A the higher pH value, in relationship with a higher oxidative metabolism and myoglobin level, produced a higher redness and degree of saturation (C*) so that meat appeared darker (H*), probably due to the genotype and physical activity for a greater reactivity to stimuli of environment. The same genotype showed more dark meat (H*) than that of hybrids, also when reared under conventional system, probably in relationship the concentration of myoglobin and type of fibres which could characterize the population.