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Milk composition of "Nero Siciliano" sow. Preliminary results

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ABSTRACT

Quantitative and qualitative milk production is the basis for determining the nutritional requirements of lactating sow; indeed, the gross nutrient composition of sow's milk is frequently used as a suitable starting point when formulating milk-replacer diets for piglets. Data about the sow's milk can be found from the literature but, in authors knowledge, no data on milk composition of Nero Siciliano sow exist. This study reports the preliminary results concerning some physical and chemical characteristics of the milk of this autochthonous Sicilian pig race during the lactation.

The research was carried out on 10 "Nero Siciliano" sows, 4 primiparous (age: 9-12 months) and 6 pluriparous (age: 2-5 years), stabled in single boxes and fed with a concentrate. From the 10th day after farrowing to the weaning (day 58th), every week, in the morning, the sows were injected with 5 IU oxytocin (i.m.) and hand-milked; all functional mammary glands were milked. Piglets were removed and isolated from the dams for at least 30 min before each milking. Individual milk samples were analysed to determine: pH value, protein (Kjeldhal methods, N x 6.38), fat (Gerber method) and lactose (HPLC method) content; the energy content, expressed in kJ?kg⁻¹ of milk, was calculated using the coefficients reported by Perrin (1958). Data were collected in relation to the stage of lactation in three periods called: "First" (day 7 to 22), "Medium" (day 23 to 38) and "Final" (day 39 to 58) and subjected to ANCOVA considering as main variable the stage of lactation and as covariate the age (proc. GLM; SAS, 2001). As regards the pH of the milk, no significant differences were observed during the lactation ("First": 7.14; "Medium": 7.07; "Final": 7.27); the mean values were slightly higher than those observed by Others in hybrid pigs. Fat percentages showed significant differences between the "First" and the "Medium" (P<0.001) and the "First" and the "Final" (P=0.012) periods of the lactation, with the highest value at the "First" period (8.68%) followed by a decrease as lactation progressed ("Medium": 6.34%; "Final": 7.09%). As regards protein percentages was similar to that of fat, but no significant differences were observed among the three periods of lactation ("First": 5.48%; "Medium": 4.72%; "Final": 5.94%). The mean values of fat and protein percentages as well as their trends are in accordance to those observed by other Authors on white pig races. Lactose, the major carbohydrate in sow's milk, has shown a linear increase during the whole lactation with the lowest value in the milk of the "First" (4.40%) period and reaching significant differences (P=0.008) at the "Final" period with the highest percentage (6.22%). These results are not in accordance to those reported in literature. The energy content (kJ?kg⁻¹) showed a trend ("First": 5161; "Medium": 4525; "Final": 4864) similar to that observed for fat percentage with significant differences between the "First" and the "Medium" (P=0.005) and the "Medium" and the "Final" (P=0.029) periods.

The knowledge of the milk composition of Nero Siciliano sow, characterised by low prolificacy (7±3 piglets), represents a critical point for a better estimation of the requirements of lactating sows as well as of piglets.

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