

## VOCAL AND TACTILE COMMUNICATION BETWEEN SOWS AND PIGLETS AT DAY 10 AFTER FARROWING

B. Krsnik, Ž. Pavičić, R. Yammine, T. Balenović,  
A. Pleli, Angelina Nemet

### Summary

Nursing frequency and duration based on vocal and tactile communication between the sow and the piglets was video-taped for 6 hours at day 10 after birth. The recording included 10 sows, divided in two groups and placed in two buildings with different flooring. The sows differed in breed, age and parity. The results obtained were statistically analysed and compared applying the t-test. The analysis didn't reveal any statistical difference between groups. During the research microclimatic factors were also monitored in both objects.

### Introduction

Each individual animal, genetically determined, receives food in technologically programmed circumstances, lives in conditions that differ ambientally and technically, not to forget the influence of the treatment that the animals are subjected to and the social structure (Krsnik, 1977).

The interaction between the sow and her piglets during nursing and suckling consists of a number of signals (Algers et al., 1989), which is the physical form of expressing and transmitting the message through the environment (Lewis and Hurnik, 1976). In pigs it is possible to observe vocal and tactile signals (Cronin et al., 1994; Algers et al., 1989), not to forget visual and hormonal (chemical) signals.

Vocal communication related to suckling behaviour, both as an impulse or a reflexion of the suckling itself, is characteristic of the behaviour of sows and piglets, although neither tactile communication nor the experience of the sow are considered to be less important.

Inadequate technology and environmental factors can, among other things, cause behavioural changes (Fraser, 1984). Although the maternal behaviour is sow's contribution to the survival of her piglets (Castrén et al., 1989), commercial crates impose certain restrictions leading to a deficient expression of maternal behaviour (Baxter, 1982).

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Prof. dr. Boris Krsnik, mr. Željko Pavičić, mr. Rayane Yammine, prof. dr. Tomislav Balenović, Veterinary Faculty, University of Zagreb; A. Pleli, Angelina Nemet, Pig farming, Sesvete, Zagreb Croatia.

The statistical analysis of the results obtained by recording the vocal-tactile communication of sows and piglets on day 10 after farrowing, did not reveal any significant difference (Table 2). However, a significant difference ( $P < 0.05$ ) was found on day 1, considering the vocal communication frequency between the sows in Buildings A and B, and between the frequency and duration of vocal/tactile communication in Building A (Krsnik et al., 1996).

It is known that environmental factors may alter the expression of sow behavioural patterns (Castrén et al., 1989; Krsnik et al., 1996), as well as those of piglets. Piglets have a great need for mutual contact, and during the first 10 days, while they are not yet able to regulate their body temperature themselves, they also show a strong tendency of huddling against the sow (Zerboni and Grauvogl, 1984). It is also possible to find some of the litter sleeping on the sow, even when the heathers are functioning (Krsnik, 1976). Beside body contact vocal comprehension is also important. The most frequent are the nursing call, the vocalisation of suckling piglets, the call of warning, fear or pain (Zerboni and Grauvogl, 1984).

As thermoregulation in newly born piglets is not yet developed, supplementary heating in their biozone is necessary - a temperature of  $33^{\circ}\text{C}$ . That temperature decreases with the growing age of piglets. A hastened or excessive decrease of temperature provokes diarrhea in newly born piglets (Krsnik et al., 1993) but also causes an insufficient suckling rate.

The could causes a loss of heat, a weight gain, depression (Bianca and Blaxter, 1961) and a deterioration of the immune status (Krsnik et al., 1992). Moving piglets from the concrete floor to a straw bedded floor, reduces the heat production by 18% (Stephens, 1971), indicating that the effective critical temperature for piglets kept on straw bedding could be lower than on concrete floors (Verstegen, 1974).

Our animals were kept on a wire floor in object A, and on a full concrete floor in Building B, which also in a way resulted in differences in the frequency and duration of vocal-tactile communications. Moreover, the total number of animals placed in farrowing units also differed. Building A (168 sows) and Building B (96 sows), which may also have influenced the activities in question, as confirmed by a work (Algers, 1989) saying that in large farrowing units signal covering may occur resulting in irregularities or even the omission of suckling bouts.

According to Krsnik et al. (1992) low air temperature ( $17.1^{\circ}\text{C}$ ) and draught speed (exceeding  $0.2 \text{ ms}^{-1}$ ) indirectly influence the resistance of piglets and their health, while low air temperature of only  $10^{\circ}\text{C}$  reduces the absorption of immunoglobulines (Blecha and Kelley, 1981). In our research, the average air temperature in Object A was  $20.95^{\circ}\text{C}$  and in Object B  $19.8^{\circ}\text{C}$ . Draught speed values, in both Objects were  $0.3 \text{ ms}^{-1}$ , which is higher than recommended for piglets of this age.



In the context of the present discussion, we must also consider the way in which the animals were kept and housed. It is known that sows kept in farrowing pens have a higher activity level than sows in farrowing crates, while on the other hand the duration of suckling is longer in piglets kept in farrowing crates (Blackshaw et al., 1994). The behaviour of sows may be influenced by the way of incarceration, the type of floor as well as by a variety of factors found by Fraser and Thompson (1986) and Algers (1989), which can result in different body weights, among litter, or a worsened tactile communication and udder massage by the piglets. The incarcerations in our research were horizontal, and in a way influenced the behaviour of piglets near the udder and while suckling, as well as the tactile communication. The authors therefore recommend vertical incarcerations (Algers, 1989).

The differences in frequency and duration between vocal-tactile communications at day 10, are attributed to the environmental factors, the housing conditions and the different number of animals in each building.

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#### **GLASOVNE I TAKTILNE KOMUNIKACIJE IZMEĐU KRMAČA I PRASADI NA DAN DESETI NAKON PRASENJA**

##### **Sažetak**

Učestalost i trajanje sisanja zasnovanog na glasovnoj i taktilnoj komunikaciji između krmače i prasadi na dan 10. nakon praseња, snimljeni su na video vrpce. Tijekom 6 sati snimano je 10 krmača, podijeljenih u dvije skupine, smještene u dva različita objekta s različitom vrstom poda. Krmače su se međusobno razlikovale po pasmini, dobi i broju praseња. Dobiveni rezultati statistički su obrađeni i uspoređeni pomoću t-testa. Među promatranim skupinama nije zabilježena značajna statistička razlika. Tijekom istraživanja, u oba su objekta kontrolirani i mikroklimatski čimbenici.

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