

The mother-offspring distance as an indicator of the cow-calf attachment from birth to weaning

A.R. Bueno¹, M.M. Alencar², J.A. Negrão³ & M.J.R. Paranhos da Costa⁴

¹Departamento de Zootecnia, FCAV/UNESP, Jaboticabal, SP, 14870-000, Brazil

²Embrapa Pecuária Sudeste, São Carlos, SP, 13560-970, Brazil

³Laboratório de Fisiologia Animal, Departamento de Ciência Básicas, FZEA/USP, CP 23, 13630-000, Brazil

⁴ETCO-Grupo de Estudos e Pesquisas em Etologia e Ecologia Animal, Departamento de Zootecnia, FCAV/UNESP, Jaboticabal, SP, 14870-000, Brazil

Address correspondence to Andréa R. Bueno, e-mail: deinhub@yahoo.com.br

Some studies have suggested that mother-offspring distance increases progressively from birth to weaning. These distances could be an indicator of the development of cow-calf attachment and the gradual nature of weaning. The objective of this study was to evaluate this in beef cattle. A total of 198 cow-calf pairs (99 per year) were observed from birth to weaning, four times during 1998 and 1999. All calves were born from Nellore cows sired by Nellore, Simental, Aberdeen Angus, and Canchim bulls. The purebred Nellore calves and their dams were kept in two production systems that differed in the number of animal units [AU; defined as a liveweight animal (cow-calf pair) of 450 kg] per hectare: intensive (5 AU/ha) and extensive (1 AU/ha). The crossbred groups were kept only in intensive production systems. The cow-calf distances were assessed by scoring distances from 0 to 25 meters, following a 6 levels scale. The distances were recorded 6 times per day (at 7, 9, 11, 13, 15 and 17 h). For the statistical analysis the scores were square root transformed. Data were analyzed using the least squares method, with a model that included the effects of year (Y), system (S), Y x S, cow-calf pair within Y x S (error a), hour of the day (H), S x H and the covariable age of the calf (linear effect). There were no differences among systems (GLM: $F=1.61$; $DF=4,188$; $p=0.1731$). Despite the significant effect of S x H (GLM: $F=2.89$; $DF=20,4395$; $p=0.0001$), there was a trend for increasing distance between cow and calf with hour of the day, for all systems. As expected, the distances between cow and calf increase with the calves age ($F=17.14$; $DF=1,4395$; $p=0.0001$; regression equation $Y=1.2189 + 0.00077X$). These results support the assumption that the mother-offspring distance could be an indicator of the calf attachment. Financial support: FAPESP.

The farrowing crate limits the effectiveness of functional sow maternal behaviour

S.J. Appleyard & A.B. Lawrence

Animal Biology Division, SAC, King's Buildings, Edinburgh, EH9 3JG, UK

Address correspondence to Stephen J. Appleyard, e-mail: stercappleyard@hotmail.com

Previous studies have indicated that the sow (*Sus scrofa*) has at least two behavioural strategies for avoiding crushing piglets in open farrowing pen systems. The sow can change postures infrequently, or be more aware of where her piglets are when she lies down, moving piglets aside if necessary.

This experiment investigated whether sows use these two behavioural strategies to avoid crushing piglets in the farrowing crate system. The behaviour of 96 parity one gilts, 63 of which were also observed in parity two, were observed for 24 hours post-birth of the first piglet (BFP).

Sows showed individual consistency between parities one and two in the frequency of standing up (repeated measures REML, F-test on stratum variances: $F=1.8$; $DF=95,58$; $p<0.05$) and lying back down again ($F=2.4$; $DF=99,56$; $p<0.001$). These behaviours were strongly associated with an increased incidence of crushing (repeated measures REML on log-transformed data: chi-squared=34.0; $DF=3$; $p<0.001$; chi-squared=28.3; $DF=3$; $p<0.001$, respectively).

Sows were also consistent, over parities one and two, in how frequently they made nose to nose ($F=2.2$; $DF=89,47$; $p<0.005$) and nose to body ($F=3.2$; $DF=96,51$; $p<0.001$) contacts with their piglets. These behaviours, when combined with other piglet-directed behaviours (e.g. root piglets, look at piglets), were not associated with a reduced risk of crushing when performed prior to lying down (repeated measures REML on log-transformed frequencies: chi-squared=1.8; $p>0.05$).

Thus, piglet-directed pre-lying behaviour does not have a functional role in improving piglet survival in the farrowing crate. It is concluded that farrowing crates may limit the impact of functional maternal (piglet-directed pre-lying) behaviour in improving piglet survival.

3040

9040