Weaning management associated with reproductive performances in French pig farms

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Introduction

Though multi-factorial determinants of reproductive performances are well established, few studies investigated weaning management at farm levels (1, 2), with more frequent focus on insemination and semen (3). The aim of this study was to make an inventory of the different weaning practices in farms and to investigate possible relationships with fertility and litter size.

Materials and Methods

A survey was conducted among 214 pig herds randomly selected from the French National Pig Management database (metropolitan production indoor herds >150 sows). The questionnaire consisted of 90 mainly closed-ended questions, addressing five topics: weaning, breeding, pregnancy management, lactation and gilts. It was e-mailed to farms for direct self-completion, using the Sphynxonline® module: 120 answers were collected. Average fertility at first service (TF1) and Total Born (TB) in 2012 were calculated. Relationships between weaning management and TF1 or TB were investigated through univariate analysis, using SAS® and GLM procedures (4).

Results

Herds were representative of average French pig farms: 313 ± 224 sows, 59% weaning at 3 weeks. Fertility (89.8% ±4.8) and litter size (14.5 ±4.8) varied within a large range, with TF1≤85% and TB≤13 for 15% and 23% farms respectively. Significant moderate associations with TF1 or TB were found for various weaning practices (Table 1). Large herds and weaning on Wednesday were associated with high fertilities, with no effect of timing of separation (morning=86% farms, sows leaving farrowing house first =81% farms). *Ad libitum* water delivery, total restriction of water and dry-off treatments negatively impacted TF1 and TB. Partial feed restriction at weaning (<3 days), or specific dietary supplements were both associated with higher prolificacies ($p<0.05$), with variable associations, precluded evaluation of single products (oligo-vitamins, cod liver oil, and sugar for 79%, 26% and 19% farms respectively). Weaning allotment (various condition criteria and parity) was positively correlated with TB. Early boar stimulation and systematic light schedules were associated with high fertilities while mixing of sows at weaning showed negative but low correlation with fertility ($p=0.15$).

Conclusions and Discussion

This study supports that weaning practices exhibit large variation according to farms, with both favorable and detrimental impacts on fertility or litter size. Data confirm structural benefits in large herds with specialized staff (1), and also emphasize the importance of specific feeding and stimulation (2). Peri-weaning period is crucial for ovarian activity (estrus, ovulation) and embryo quality, but practical recommendations require updating. Therefore, this study and further multi-factorial approach could contribute to update guidelines and improve farm management.

Table 1. Weaning practices associated with herd fertility (TF1) or litter size (TB) (n=120 farms, factors with p values p<0.20 only).

Weaning management practices	Farms %	P-values[1]	
		TF1	TB
Sow herd size (<200,200-400,>400)	32/53/15	**0.007**	NS
Day of weaning (We/Thu/Others)	60/37/3	0.06	NS
Feed <2.5 kg (Yes/No)	80/20	NS	**0.04**
Water supply (Ad lib/Limited/No)	23/61/16	0.08	0.17
Dietary supplements (Yes/No)	74/26	NS	**0.03**
Dry off treatment (Yes/No)	41/59	0.19	NS
Weaning allotment :			
number criteria (0,1,>1)	26/28/46	NS	**0.03**
by parity (Yes/No)	37/63	NS	**0.02**
1st boar contact (weaning/day1/later)	19/44/37	0.08	NS
Sow mixing (Yes/Sometimes/No)	66/12/23	0.15	NS
Light schedule (Yes/No-sometimes)	78/22	0.10	NS

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